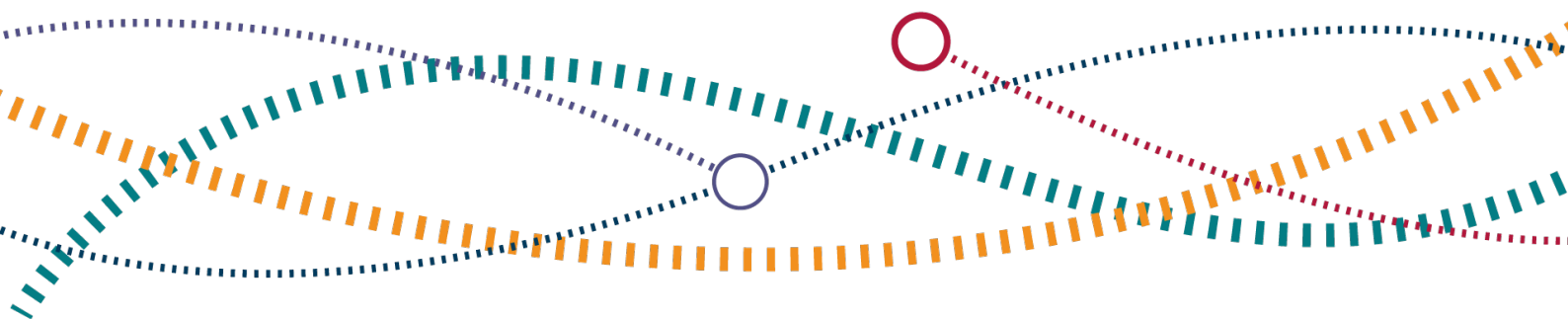




ORR annual report on HS1 Ltd

2020-21

29 July 2021



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Executive Summary

This report sets out ORR's assessment of the regulated aspects of HS1 Ltd's operational and financial performance for the financial year 2020-21, which was the first year of Control Period 3 (CP3). Previous years' reports are available on our [website](#).

We monitor the company's delivery against the final determination of our periodic review of HS1 Ltd 2019 (PR19), which was published on 7 January 2020. More information on PR19 can be found on our website [here](#).

Overall, both HS1 Ltd and Network Rail (High Speed) Ltd (NR(HS)) demonstrated good preparations for the business impact of Covid-19 on the management of its infrastructure. It updated its business continuity plans and managed the associated risks to ensure continued operation, albeit with reduced passenger numbers.

Health and safety

This year HS1 Ltd has responded positively to our findings in PR19. Overall, it has developed and implemented a more strategic approach to assurance. More specifically, it has continued to implement the industry standard Risk Management Maturity Model (RM3) and has used it to identify strengths and weaknesses, developing a safety improvement action plan. We have also seen evidence that the changes made to HS1 Ltd's governance structure are driving better engagement and collaborative working between HS1 Ltd, and its subcontractor NR(HS) – which is the safety duty holder.

We made seven key Health & Safety recommendations in PR19 that involve ongoing improvement to HS1 Ltd's assurance of its business partners. We have seen that HS1 Ltd has successfully progressed five of the seven. We are seeking further evidence on the remaining two, which relate to safety by design, and the avoidance and elimination of risk through lessons learned.

Train service performance

The number of services operated on the HS1 route fell by a third in 2020-21, which contributed to the company's improved performance this year.

The number of services that were delayed by HS1 Ltd-attributable incidents during the year was 87 (0.18% of all services using the network). This was an improvement on 2019-20 which was 249 (0.34%). This remains significantly better than the company's minimum requirement set out in its Concession Agreement.

Recognising that the needs of passengers and freight users demand a train service level significantly higher than the minimum contractual requirement, HS1 Ltd sets itself a stretch target for the average number of seconds each train was delayed by incidents attributed to HS1 Ltd. In 2020-21 it achieved 2.56 average seconds delay per train compared to a target of 6.55 seconds. This is the second year in succession where it has outperformed against target, with an improvement from 2019-20 when it delivered on average 4.76 seconds per train.

Asset management

In line with high levels of train service performance, HS1 Ltd's underlying asset reliability has been good with recorded delay minutes about 70% better than target. During the year there were only two major incidents (ones that cause more than 200 minutes delay) with the largest causing 257 minutes of delay, compared to seven last year with the largest causing 1034 minutes. Its infrastructure capability remains as originally designed and the condition of assets remains good, with the majority classed as "high reliability" condition.

We agree with HS1 Ltd's overall assessment of its current asset management organisational capability, as it works to achieve ISO55001 accreditation, and that of its strategic partner NR(HS). This level of maturity is appropriate for the safe and economic operation, maintenance and renewal of its asset portfolio.

There were delays to some planned renewals because of Covid-19, mainly as a result of restrictions on site working or availability of resources in the supply chain. In total, there was about £7 million shortfall in delivery – a £1.98 million shortfall in delivery of the projects deferred from the previous control period (CP2) and a £5.04 million shortfall in delivery of CP3 projects planned for the year. This has not had a significant effect on asset condition but some asset groups worsened last year and HS1 Ltd needs to ensure it does sufficient renewal work to maintain acceptable levels. We will continue to monitor this through our regular activity.

NR(HS) has undertaken a risk-based review of the portfolio to establish several options for the scope of work to be delivered over the remainder of CP3. We expect that over the next year the renewals plan for the remainder of CP3 into CP4 will be developed further as asset knowledge increases.

During PR19 we made a series of 28 recommendations relating to asset management. This year, HS1 Ltd reported that it has completed 20 of these recommendations, and made good progress on a further four recommendations, which are ongoing throughout

the control period. The remaining outstanding four recommendations comprise of three which have been delayed, and one which is on hold.

In particular, HS1 Ltd has established a research and development (R&D) panel to review proposed project investments and benefits, which was important to set up early in the control period to inform the next periodic review.

We also welcome HS1 Ltd's ten-year environmental sustainability strategy launched in October 2020 that includes its supply chain, train operators and other stakeholders. As part of the strategy HS1 Ltd has commenced work to implement regenerative braking for Southeastern's Class 395 fleet, to reduce energy consumption.

Financial performance

HS1 Ltd received £73.4m of regulated income in the financial year 2020-21, £2.8m lower than assumed at PR19 due to lower traffic levels. It spent £76.5m operating, maintaining and renewing its rail infrastructure, £0.5m lower than assumed in PR19. This represented £2.4m of financial underperformance relative to our PR19 determination.

The financial impact of Covid-19 is expected to be greater in 2021-22, presenting difficult challenges to HS1 Ltd's financial position. We are regularly engaging with HS1 Ltd to monitor the actions it is taking to mitigate these challenges.

NR(HS), which manages the infrastructure, has reported £2.2m of efficiency improvements against our efficiency challenge for CP3 of £1.2m in 2020-21 and it is planning to deliver £9.8m of cumulative efficiency improvements in CP3, which is ahead of the £8.6m efficiency challenge in our PR19 determination. We will continue to monitor and report on this through the control period.

Background

HS1 Ltd has a 30-year [Concession Agreement](#) from the Secretary of State for Transport to operate and manage the HS1 network. This agreement is between those two parties only and ORR had no role in devising its terms.

HS1 Ltd is responsible for the overall management and operation of the HS1 network, and subcontracts delivery of operations, maintenance and renewals to Network Rail (High Speed) Ltd (NR(HS)). NR(HS) is also the safety dutyholder for the HS1 network and therefore responsible for compliance with regulatory requirements relating to the management of safety on the HS1 network.

ORR is the health and safety regulator for the HS1 network under the conventional suite of legislation. It has economic regulation responsibilities through the terms of the Concession Agreement and the [Railways Infrastructure \(Access and Management\) Regulations 2016](#) (“the Regulations”), as amended in 2019.

Under the terms of the Concession Agreement, ORR’s role has been defined as ensuring the long-term sustainability of the asset, while also making sure that HS1 Ltd is provided with incentives to reduce the costs of provision of infrastructure and access charges.

The Concession Agreement requires HS1 Ltd to secure the operation, maintenance, renewal, replacement, planning and carrying out of upgrades in accordance with best practice and in a timely, efficient and economical manner, to the greatest extent reasonably practicable having regard to all circumstances.

We undertook our latest periodic review of HS1 Ltd in 2019, assessing HS1 Ltd’s Five-Year Asset Management Statement for this control period (CP3, 1 April 2020 – 31 March 2025). Further to our final determination, we monitor performance annually through data provided by HS1 Ltd against key metrics in the following areas:

- Health and safety
- Train service performance
- Asset management
- Financial performance and efficiency

More information about our approach to monitoring and reporting on HS1 Ltd in CP3 can be found on our [website](#).

1. Health and safety

- 1.1 Many of HS1 Ltd functions are contracted out to NR(HS) through an Operator Agreement. This means that both organisations have health and safety obligations, but NR(HS) is the Infrastructure Manager for the purposes of the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (as amended). As such, NR(HS) has duties to establish and maintain a safety management system as set out in those regulations. However, HS1 Ltd has an important role as an intelligent client organisation.
- 1.2 During the last control period (CP2), we had seen evidence that HS1 Ltd had improved its understanding of the role it plays, and how it should discharge this role. We pushed this further in PR19 where we made a series of recommendations for CP3.
- 1.3 This year, HS1 Ltd worked hard to develop and implement a more strategic approach to its assurance framework, to strengthen the focus on how its business partners (particularly NR(HS)) are meeting requirements. The company used the industry standard Risk Management Maturity Model (RM3) to identify its strengths and weaknesses and develop a safety improvement action plan (further information on RM3 can be found on our website). This action plan is underpinned by time-bound milestones, giving a clear view of what action is required and what benefits to its performance these should bring. Progress against the improvement plans is monitored and tracked at senior levels within the organisation. There is evidence that changes made to HS1 Ltd's governance structure are driving better engagement and more collaborative working between HS1 Ltd and NR(HS).
- 1.4 HS1 Ltd has also closed out five of the seven safety recommendations we made during PR19, including those relating to the use of forward-looking measures and Gross Disproportion tests. We await evidence for the other two, particularly in relation to safety by design and the avoidance and elimination of risk through the use of lessons learned.
- 1.5 NR(HS) has also used RM3 proactively to drive improvement forward, where its last self-assessment identified the top 10 areas to improve. Improvement plans have been created, with milestones, which are monitored at senior levels.
- 1.6 Further information on health and safety performance on all of Britain's railways can be found in ORR's [health and safety annual report](#), and the Rail Safety and Standards Board (RSSB) [Annual Safety Performance Report](#). Information on our

approach to regulating health and safety risks is in the strategic risk priorities section of the ORR website.

2. Traffic volume and train service performance

Traffic volume

2.1 Covid-19 led to the total number of trains timetabled to run on the HS1 route to fall by a third compared with 2019-20. International services fell 84%; however, there was a 12% increase in freight services this year. Southeastern’s North Kent Line (NKL) services fell by 30%, while Ashford services fell by 7%.

Figure 1 – Number of passenger train services timetabled on HS1, 2010-11 to 2020-21

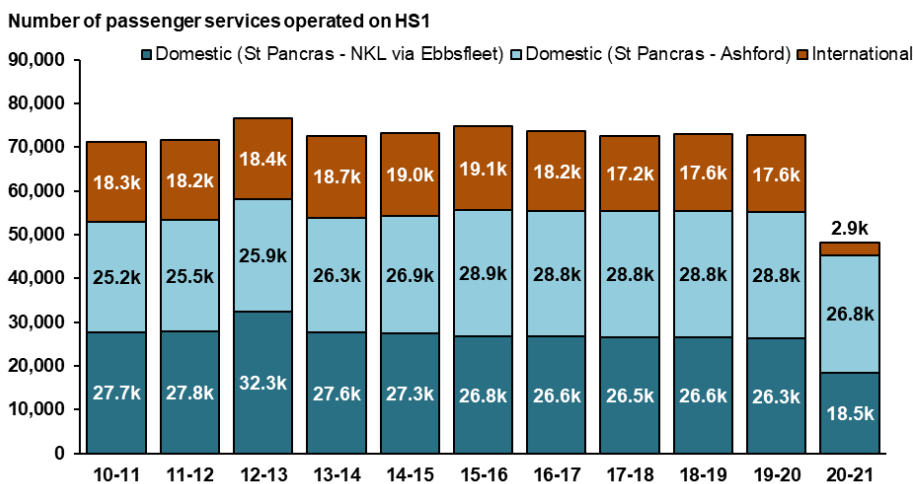
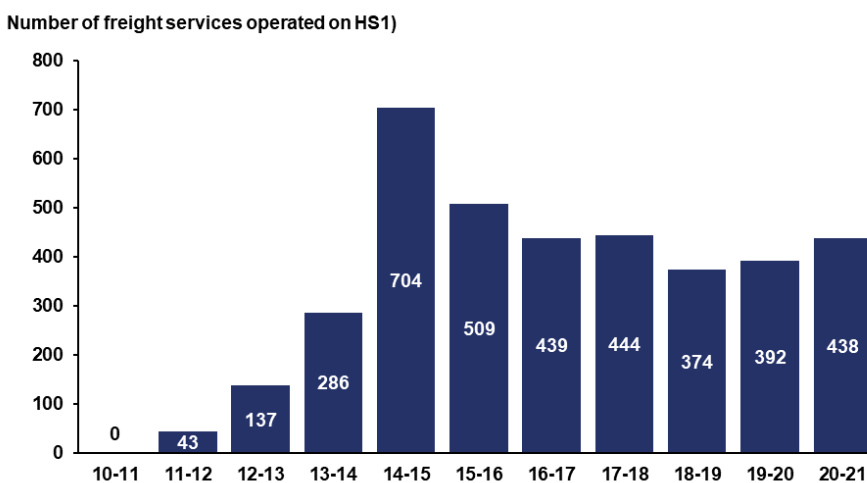


Figure 2 – Number of freight train services timetabled on HS1, 2010-11 to 2020-21



Train service performance

- 2.2 We monitor two measures of train service performance. Firstly, HS1 Ltd's operational performance against minimum thresholds set out in its Concession Agreement. These state that the proportion of services delayed by HS1 Ltd in a quarter should not exceed 15%, and in a year must not exceed 13%.
- 2.3 However, both HS1 Ltd and its users expect much higher levels of performance than this. As a result, HS1 Ltd set itself – and its subcontractor NR(HS) – a separate, more challenging target of 6.55 average seconds delay per train in 2020-21¹, which we also monitor.

Performance against minimum threshold

- 2.4 Figure 3 shows a breakdown of performance for the year ending 31 March 2021.

Figure 3 – HS1 Ltd train service performance in 2020-21²

	Total number of trains timetabled	Total number of delayed trains (attributed to HS1)	Delayed trains (attributed to HS1) as a percentage of timetabled trains	Total number of delayed trains - unknown cause
Domestic (St Pancras – North Kent Line via Ebbsfleet)	18,508	23	0.12%	1
Domestic (St Pancras – Ashford)	26,779	56	0.21%	3
International	2,869	6	0.21%	1
Freight	438	2	0.46%	0
Total	48,594	87	0.18%	5

- 2.5 The proportion of trains delayed by HS1 Ltd-attributable incidents in 2020-21 was well within the minimum standards set out in the Concession Agreement. The number of delayed services in 2020-21 decreased by 65% compared to 2019-20. However, the number of services run on HS1 in 2020-21 (48,594) was down a third compared with the number run in 2019-20 (73,076).
- 2.6 The percentage of trains (0.18%) delayed by HS1 Ltd-attributable incidents in 2020-21 was down from 2019-20 (0.34%). This is the best performance achieved since

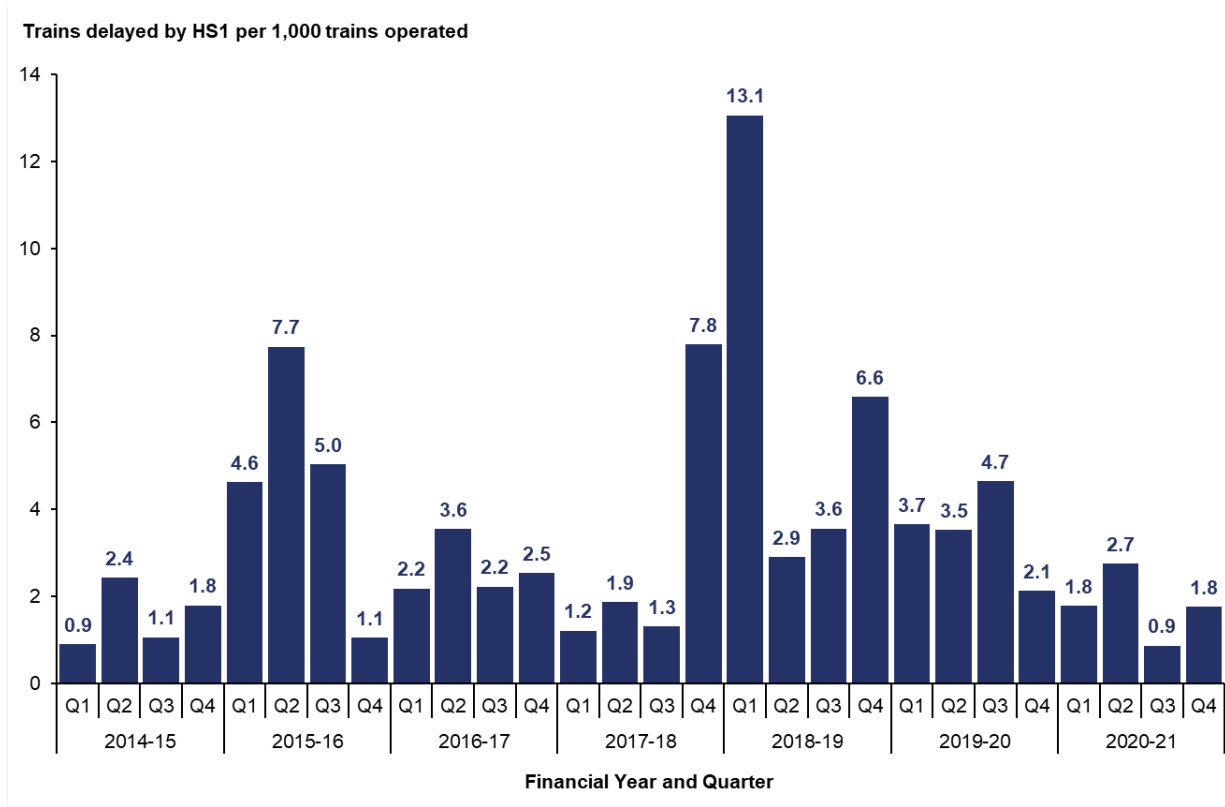
¹ The stretch target was 7.24 seconds delay per train in 2019-20.

² Some of the figures included in this chapter are subject to revision due to various factors including the re-classification of some delay incidents.

2014-15 (0.16%). However, the reduction in the number of trains run on HS1 this year will have contributed in some way to the improvement in performance.

2.7 Figure 5 shows the quarterly number of delayed train services attributed to HS1 Ltd per 1,000 trains operated. Overall performance improved during 2020-21. Q3 of 2020-21 was the lowest number recorded in any quarter since 2014-15 Q1.

Figure 5 - Delayed train services per 1,000 trains operated attributed to HS1 Ltd by quarter, 2014-15 Q1 to 2020-21 Q4

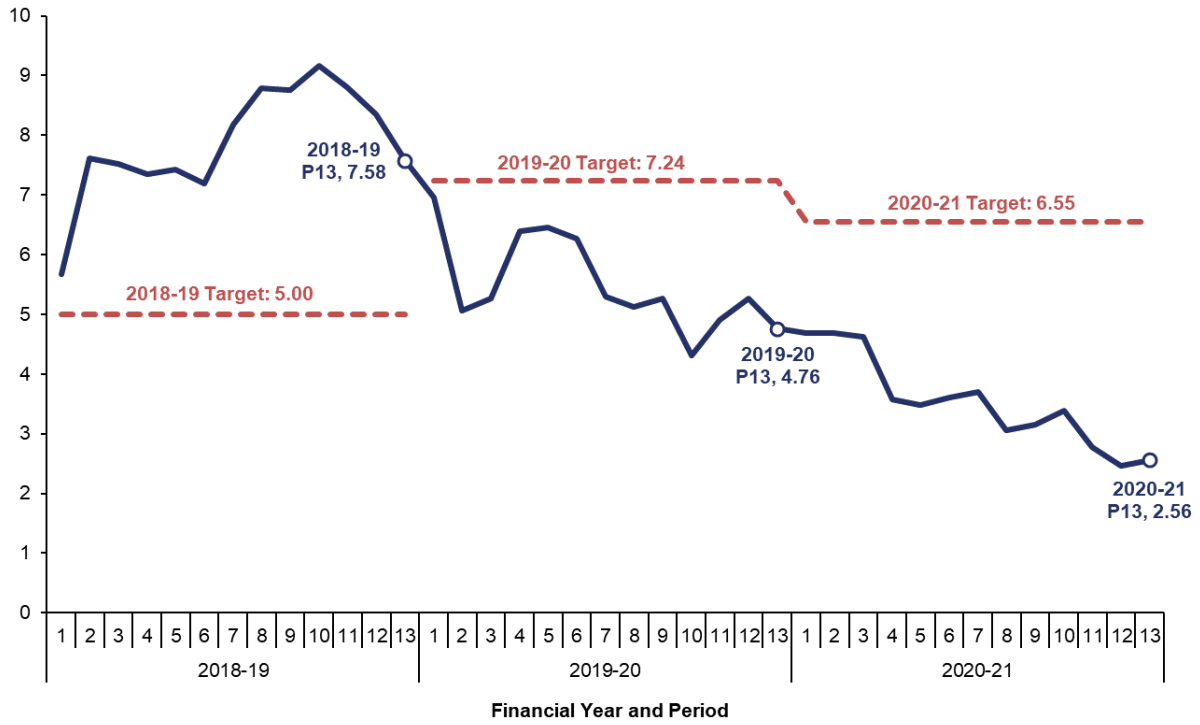


Performance against stretch target

2.8 As can be seen in Figure 5, in terms of its stretch target for the year (6.55 seconds), the average delay per train due to HS1 Ltd-attributable incidents in 2020-21 was about four seconds better at 2.56 seconds. This also shows a year on year improvement since 2018-19.

Figure 5 – Delay per train service attributed to HS1 Ltd by period, 2018-19 to 2020-21

Seconds of delay per train attributed to HS1 - moving annual average



3. Asset management

3.1 This chapter examines how HS1 Ltd and NR(HS) have managed the network's assets. Asset management is wide ranging but we focus on the following aspects:

- Asset performance, availability and condition – using a selection of measures reported in HS1 Ltd's annual asset management annual statement;
- Asset planning – HS1Ltd's organisational capability and progress on developing a sustainability strategy;
- Delivery of planned renewals;
- Progress on research and development (R&D);
- Progress on addressing ORR's PR19 recommendations.

3.2 Throughout the year HS1 Ltd adopted an agile approach to mitigating the risks associated with Covid-19 to its business. It updated its business continuity plans to reflect the risks posed and ensured that its suppliers did the same. HS1 Ltd ensured that plans were updated as circumstances unfolded, and progressively assured the robustness of planning and preparation across its supply chain.

Asset performance, availability and condition

Asset performance

3.3 This section builds upon the previous chapter on train service performance and examines underlying asset reliability in more detail, as this is the main cause of delay.

3.4 Overall, the HS1 assets performed well with total minutes delay caused by asset failures at 2,075 minutes, well ahead of its target of 7,400 minutes³. Furthermore, it registered 260 delay-free days, which equates to about 70% of the year.

3.5 Underpinning delivery of train service performance HS1 Ltd set itself targets for delay per train for five asset types: Overhead Catenary System (OCS); Mechanical & Engineering (M&E); Signalling & Telecoms (S&T); Civils & Environment (C&E); and

³ It should be noted that the route performance target for delay minutes was set before the Covid-19 pandemic.

Track. All targets were met with M&E and C&E asset groups recording zero seconds delay.

3.6 In 2019-20 there were seven major incidents (defined as those that led to more than 200 minutes delay) with the largest causing 1034 minutes. This year there were only two:

- A bird strike on 14/4/20 in a tunnel between Stratford and St Pancras which damaged the overhead wires and caused 204 delay minutes;
- A power failure on 12/4/20 which caused 257 delay minutes.

3.7 In terms of the number of faults and the number of failures that affected services (known as Service Affecting Failures (SAFs)), HS1 Ltd broadly met its desired levels. Although as shown in Figure 6, the track asset group exceeded its fault level and SAF PR19 targets. The civil asset group met its fault level target but exceeded its SAF target.

Figure 6 – Fault levels and SAFs

Asset Group	Category	CP3 Target	2019-20 Actual	2020-21 Actual
		Average/Period	Average/Period	Average/Period
Signalling	Fault Level	18.00	3.40	2.08
	Service Affecting	1.00	0.85	0.46
Telecoms	Fault Level	4.00	0.00	0.00
	Service Affecting	1.00	0.00	0.00
M&E	Fault Level	9.00	0.23	0.15
	Service Affecting	1.00	0.08	0.08
OCS	Fault Level	2.00	0.54	0.15
	Service Affecting	1.00	0.00	0.15
Track	Fault Level	0.20	0.15	0.77
	Service Affecting	0.10	0.15	0.15
Civil	Fault Level	2.00	0.46	0.62
	Service Affecting	0.00	0.15	0.08

Source: HS1 Ltd AMAS 2020-21

Asset availability

3.8 For asset availability we look at two areas. The first is power availability. The other is operational availability which is defined as the percentage of time that a specific asset group is available for operational use, excluding planned maintenance.

- 3.9 **Power availability:** UKPN's assets continued to perform well with availability of 99.9680%, narrowly missing the target of 99.9885% over the year.
- 3.10 There were three interruptions of power. The first occurred in April 2020 (113 minutes) due to the circuit at Choats Road not operating as expected under a fault scenario. Despite exhaustive tests the fault could not be located.
- 3.11 In June, another issue occurred (5 minutes) on the same circuit. To minimise the issue completely the circuit breaker was replaced. Since this replacement, no further issues have been encountered on this circuit.
- 3.12 The third incident occurred in February 2021; initial analysis identified a missing electrical trip link, which meant the circuit did not operate as required when presented with a distance protection fault. This led to a circuit breaker fail condition, subsequently resulting in complete loss of traction supplies up to St Pancras and down to the Singlewell Neutral Section for approximately 50 minutes.
- 3.13 **Operational availability:** During 2020-21, there was a total of 427,440 minutes of availability. During the year there was a total of 2,075 minutes of delay on HS1 (660 of which linked with infrastructure). This represents a network availability of 99.5%, an improvement to the previous year (98.9%)

Asset condition and capability

- 3.14 The HS1 route's asset portfolio is in a generally good condition, with asset degradation in line with expectations. The current condition profile for the core asset groups is shown in Figure 7. Assets are categorised by percentage, into a group signifying their condition status. **1** being as new and **5** being functional failure. Figure 7 also compares the current profile against the condition profile established for the start of CP3.

Figure 7 – Assessment of asset condition relative to that at the start of the control period



Source: HS1 Ltd AMAS 2020-21

- 3.15 Telecoms asset condition has slightly improved since the start of CP3, signifying the impact of renewal activities. However, it also has the highest percentage of assets nearing the end of their asset life. This is due to shorter asset life of telecoms assets compared to more traditional rail infrastructure type assets, such as track and civils.
- 3.16 Condition of the Overhead Catenary System (OCS) and mechanical & electrical asset groups have worsened in the last year. Imminent renewal activity will be required to make sure assets don't degrade to the "near service limit" condition level.
- 3.17 None of the asset groups are in the lowest condition status of 5, where functional failure could be expected.
- 3.18 Asset capability has remained constant since commissioning with no projected reductions within the HS1 concession period. The maximum line speed remains the highest in the UK at 300km/h and the route availability meets all passenger and

freight customer needs at 22.5 tonnes (axle loading). The maximum number of achievable train paths that the signalling system can deliver remains at 20 trains per hour.

3.19 The current (pre-Covid-19) demand forecasts for HS1 indicate that existing capacity will be enough until 2046. In practice, the limiting factors for the number of train paths are running of mixed traffic, turnaround times required at St Pancras and the pattern of services being run.

Asset data and information

3.20 In our CP3 determination we highlighted the need for HS1 Ltd to set out the minimum data requirements and then report on these annually. In 2020-21 HS1 Ltd continued to develop the key elements of their asset information framework, with key elements described below.

3.21 HS1 Ltd's Asset Information Strategy, is a core element of their Asset Information Management Framework, which we reviewed and approved in November 2020. The document summarises the maturity of HS1's Ltd asset information capability⁴ and sets well defined objectives designed to deliver their desired 'to-be' maturity state at the end of CP3 and beyond.

3.22 HS1 Ltd Asset Information Management System Roadmap expands upon the objectives set out in the Asset Information Strategy to define discrete projects and activities that are to be delivered by HS1 Ltd during CP3, with the goal of attaining the 'to-be' maturity state.

3.23 HS1 Ltd specified and procured a more robust Computer Aided Design (CAD) Services Framework with specific focus on maintaining quality of service and improving processes. This new framework supports alignment with the CAD / building information modelling (BIM) Standard produced in 2019-20.

Asset planning

Asset management capability improvement

3.24 Continuous improvement of any asset management capability is essential for demonstrating compliance with ISO55001 requirements. To support this, HS1 Ltd organised training accredited by the Institute of Asset Management (IAM) for its staff and supply chain. Asset information capability was the only area below the

⁴ This is their asset capability as at the end of CP2

accreditation threshold in its last assessment. HS1 Ltd has made progress in addressing this through the initiatives described previously.

3.25 HS1 Ltd has aligned all of its commitments in the CP3 determination with the IAM's six-box model and the Global Forum for Maintenance and Asset Management's 39 asset management subjects⁵. HS1 Ltd's CP3 commitments delivery plan, along with the asset information roadmap and associated improvements being made, such as the improvements in risk management, all support progressive improvements in asset management to ensure HS1 Ltd fulfils its obligations.

Sustainability and environment

3.26 In recognition of the increased importance of sustainability and the environment, HS1 launched its strategy in October 2020 which sets out its plans for assessing and improving performance on environmental and social sustainability in priority areas including social and climate impacts; use of energy and resources; and biodiversity. We note that much of what HS1 Ltd has reported on this year relates to measures that it plans to take, or commitments that it will fulfil, during CP3, and that it is working with its supply chain and customers to achieve its aims. We will monitor these plans over the control period.

Delivery of renewals

3.27 There were some delays to renewals planned for 2020-21. HS1 Ltd reported £8.87 million as the total cost of work done. There was a £1.98 million shortfall in delivery of CP2 projects and a £5.04 million shortfall in delivery of CP3 projects against the plan that was set at the start of the year. The main reported causes of this were:

- For CP2 projects, delays have been due to the impact of Covid-19 on site works, issues with spares funding, and resolving Covid-related supplier prolongation cost issues. The delay to delivery on site has been partially offset by the early delivery of some projects, like Galley Hill;
- For CP3 projects, delays have been due to either a shortage of resources to develop the scope of works (resource availability has been impacted by changes in business requirements due to Covid-19 or a lack of supplier resource), or business cases being rejected by HS1 Ltd due to the scope of work not being clearly defined. We understand from HS1 Ltd that approvals have also been delayed due to resource availability within DfT.

⁵ The 39 asset management subject areas were first set out in "*The GFAM Asset Management Landscape (Second Edition)*".

3.28 Following a review of asset condition and increased knowledge of asset deterioration rates, HS1 Ltd requested approval in October 2020 from DfT to change the portfolio. This proposed acceleration of ten projects from its CP4 plan. When consulted by DfT, we recommended agreement in principle to the bringing forward the following projects to CP3, subject to HS1 Ltd maintaining the total renewals cost determined at PR19:

- St Pancras rerailling
- Ashford rerailling
- Insulated block joints
- Track expansion joints
- Crossing replacement campaign (six crossings a year)
- Renewal of the fibre optic signals at St Pancras (re-evaluated)
- Signalling room 15 earthing renewal
- CCTV project
- St Pancras overhead catenary system renewal
- MPV controls replacement reintroduced so that early project stage development works can take place during CP3

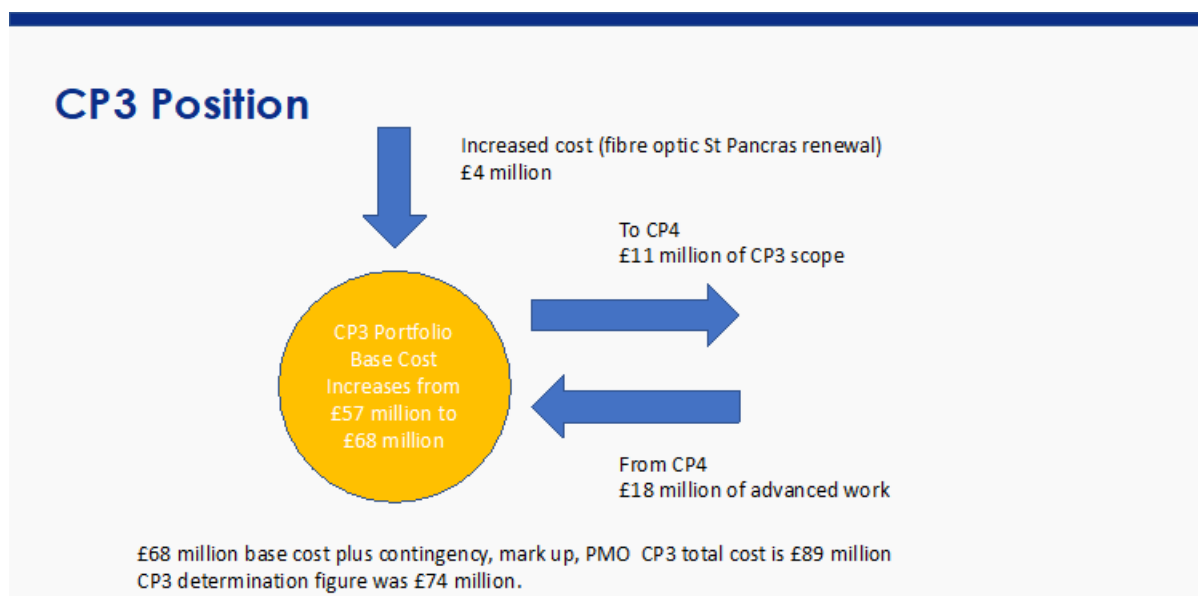
3.29 HS1 Ltd reported that NR(HS) has undertaken a risk-based review of the portfolio plan for the remainder of CP3 to establish several scenarios for the scope of work to be delivered. These scenarios also consider any Covid-19 delays to works and the addition of the projects agreed through the change request process.

3.30 HS1 Ltd developed a proposal in February 2021 with DfT, in consultation with train operators and us, to defer the completion of the following CP3 projects into CP4, however the majority of these projects will still commence in CP3:

- Lineside building doors
- Camley Street bridge repair/renewal
- High-performance switch system
- Point operating equipment (MCEM91)
- Fibre optic cables
- ERS/EZP
- Modbox
- GSM-R handsets
- Marker boards
- MPV control systems
- Fan inverter drives
- Damper actuators
- Digital input-output module
- Hybrid auxiliary power unit

3.31 As a result of the projects added to the CP3 renewal portfolio and the delayed start of some renewal projects in CP3, the base CP3 cost increases from £57 million (in the CP3 determination) to £68 million as shown in Figure 8.

Figure 8 – Changes to renewal portfolio



Progress in research and development

3.32 In our PR19 final determination, we recommended that HS1 Ltd establish a R&D panel to review project investments and benefits, by 31 March 2020. HS1 Ltd met this recommendation, formalised terms of reference, and put in place a framework of governance throughout the different cycles of R&D projects.

3.33 While these activities can be funded through HS1 Ltd's own costs, the company agreed that there will be a reconciliation of funds collected and the money spent on R&D. HS1 Ltd reports that it has spent less than £0.1m of the £0.4m forecast spend on R&D for the year. ORR will be monitoring closely to ensure HS1 Ltd has an improvement plan to get back on track.

Delivery of ORR's PR19 recommendations

3.34 HS1 Ltd reported progress on the 28 asset management recommendations we set out in the PR19 final determination. 20 of these recommendations have been completed, while good progress has been made on a further four. The remaining outstanding four recommendations comprise of three which have been delayed, and one which has been put on hold.

3.35 Figure 9 sets out progress during 2020-21 against each recommendation. We continue to monitor completion.

Figure 9 – HS1 Ltd progress against PR19 asset management recommendations

Recommendation	Action by date	Progress update
HS1 Ltd to develop an action plan with set milestones for implementation in CP3 of the recommendations contained within AMCL’s wider report.	Plan to be developed by 31 March 2020.	Completed – we note that HS1 Ltd has this year produced documentation (Asset Information Vision, Policy and Strategy, and Action Plan) setting out its objectives for CP3.
Undertake a follow-up review of progress towards ISO55001 certification	By 31 March 2023.	Ongoing.
Future 5YAMS to document and demonstrate the assurance activities HS1 Ltd has undertaken on suppliers’ contributions.	In advance of CP4 5YAMS submission.	Ongoing – we note HS1 Ltd establishing its assurance framework this year.
HS1 Ltd to update its Asset Management Policy with current status and CP3 targets/milestones	By 31 January 2020.	Delayed – we note that his recommendation will be met with the update of NR(HS)’s Strategic Asset Management Plan, now due during 2021-22.
Asset Management Objectives (AMOs) should be subject to review at a suitable frequency	Plan & programme to be developed and agreed by 31 March 2020.	Completed – programme, including presentation of AMOs for CP4 to stakeholders, to be delivered in 2021-22.
Strategic Asset Management Plan (SAMP) should outline how the stated aims will be achieved and by when.	At next revision or no later than 31 December 2020.	Delayed – as above, we await the update of NR(HS)’s SAMP.
Specific Asset Strategies (SASs) should present the expected asset condition at end of control period, handback and end of the 40-year plan.	At next revision or no later than 31 December 2020.	Delayed – we note that HS1 Ltd expects to be able to produce updated SASs by 31 December 2021.
Regular feedback of Asset Decision Support Tools (ADSTs) outcomes should be	Plan & programme to be	Completed – ADST to be used in delivery of CP4 AMOs.

Recommendation	Action by date	Progress update
shared with stakeholders by HS1 Ltd.	developed and agreed by end March 2020.	
Additional consideration of remote or automated monitoring should be given by HS1 Ltd.	At next revision or no later 31 December 2020.	Completed – we note HS1 Ltd’s use of R&D this year to focus on condition monitoring.
Additional consideration of efficiencies, outside normal railway practice should be undertaken by HS1 Ltd.	By 30 September 2020.	Completed.
HS1 Ltd to set out the minimum asset data requirements and then report on data quality annually	At next revision or no later than 31 December 2020.	Delayed – we will continue to monitor HS1 Ltd’s work with NR(HS) to formalise and standardise asset data quality requirements.
HS1 Ltd to review operations and maintenance risks ownership with funders.	Plan & programme to be developed and agreed by 31 March 2020.	Completed.
Provide a resource programme with milestones for NR(HS) resilience of key risks workstream.	At next revision or no later than 31 December 2020.	Completed.
Maintenance frequencies to be revisited as more HS1-specific failure data becomes available.	During CP3.	Ongoing.
HS1 Ltd to follow up on water ingress issues identified on site visits.	By 31 December 2019.	Completed.

Recommendation	Action by date	Progress update
HS1 Ltd to review incentives and monitors of efficiency in maintenance.	Plan & programme to be developed and agreed by 31 March 2020.	Completed.
HS1 Ltd to review incentives used to maximize asset life before required renewal.	Plan & programme to be developed and agreed by 31 March 2020.	Completed.
HS1 Ltd to commission an independent review into the effectiveness of its Quality Assurance Board.	By 31 March 2021.	Completed.
HS1 Ltd to explore with stakeholders if network optimisations could yield lower overall maintenance cost and lower performance penalties.	Plan & programme to be developed and agreed by 31 March 2020.	Completed.
HS1 Ltd to provide further evidence to substantiate a number of highlighted renewals in CP3, should it still believe that they are critical.	In response to draft determination – by 30 November 2019.	Completed.
HS1 Ltd to ensure flexibility and resilience to changes to renewals programme (within CP3 and to/from CP4).	Plan & programme to be developed and agreed by 31 March 2020.	Completed.
HS1 Ltd to review NR(HS) PMO headcount, in light of	In response to draft determination – by 30	Completed – we note the ongoing work that HS1 Ltd is doing with NR(HS) to improve the latter's project management capability.

Recommendation	Action by date	Progress update
Network Rail Infrastructure Limited benchmarking.	November 2019.	
HS1 Ltd to establish R&D panel to review benefits and investments.	Plan & programme to be developed and agreed by 31 March 2020.	Completed.
HS1 Ltd to ensure awareness that Bechtel's CP4-10 direct costs contain a number of omissions and assumptions that will need to be quantified during CP3.	In response to draft determination – by 30 November 2019.	Completed.
HS1 Ltd should begin planning for ETCS signalling replacement as a specified upgrade.	In response to draft determination – by 30 November 2019.	Completed.
HS1 Ltd to review blanket 30% risk for CP4-10.	In response to draft determination – by 30 November 2019.	Completed.
HS1 Ltd to agree business case with stakeholders for CP4-10 PMO model.	Plan & programme to be developed and agreed by 31 March 2020.	On hold until after market test.
HS1 Ltd to aim to conclude market study as soon as possible, to allow time for investment in CP3 to be ready for start of CP4	Plan & programme to be developed and agreed by 31 March 2020.	Completed – we note that HS1 Ltd's shareholders will take decision whether and how to market test, in consultation with stakeholders.

3.36 Recommendation 6 (that the Strategic Asset Management Plan (SAMP) should be updated no later than 31 December 2020) was not met. HS1 Ltd reported that the revised SAMP has been delayed due to Covid-19 priorities for NR(HS). The review of the SAMP will not conclude until early in Year 2 (2021-22). The impact of this missed milestone is compounded because Recommendation 4 (requirement for HS1 Ltd to update the Asset Management Policy) had an agreed target date of end January 2020. HS1 Ltd considers that NR(HS)'s SAMP was the most suitable document to contain details of the current asset management status and the improvement targets/milestones for CP3. We agreed, with the proviso that the SAMP was to have been updated no later than 31 December 2020. We will continue to press HS1 Ltd to meet the agreed determination milestones.

4. Finance and efficiency

Figure 10 - Summary of HS1 Ltd's regulated income and expenditure in 2020-21⁶

<i>£m, 2020-21 prices</i>	Actual	PR19	Difference better / (worse)	2019-20
Income				
OMR charge	53.8	56.4	(2.6)	57.6
Pass through income	19.6	19.8	(0.2)	18.8
Total income	73.4	76.2	(2.8)	76.5
Controlled track costs				
Network Rail (High Speed) Ltd	44.1	44.1	0.0	42.5
HS1 Ltd	8.8	8.8	0.1	11.4
NRIL	1.8	1.6	(0.2)	1.6
Other	2.0	2.3	0.3	0.0
Total controlled track costs	56.6	56.9	0.2	55.5
Pass through costs				
Rates	8.7	8.9	0.1	8.7
UKPN Fees and Renewals	5.9	5.9	0.0	5.5
Insurance	3.0	3.1	0.1	2.9
Power-non traction	2.0	1.9	(0.0)	1.6
Total pass through costs	19.6	19.8	0.2	18.8
Freight costs				
Network Rail (High Speed) Ltd	0.1	0.1	0.0	0.3
Network Rail Infrastructure Limited	0.2	0.2	0.0	0.2
HS1 Ltd	0.1	0.1	0.0	0.1
Total freight costs	0.3	0.3	0.0	0.6
Opex-funded upgrades	0.0	0.0	0.0	0.5
Total OMRC Costs	76.5	77.0	0.5	75.3
Performance related payments	(0.1)	0.0	(0.1)	1.2
Total Costs	76.5	77.0	0.5	76.6
Net Income / (Expenditure)	(3.2)	(0.8)	(2.4)	(0.1)

Source: HS1 Ltd AMAS 2020-21

Income

4.1 HS1 Ltd received £73.4m of regulated income in 2020-21, £2.8m lower than assumed in PR19. The majority of HS1 Ltd's regulated income (£53.8m) was from charges to train operators for operating, maintaining and renewing its network. It also received pass through income (£19.6m) from train operators to recover costs that are largely uncontrollable by the company. These include non-traction electricity, electrical infrastructure costs, insurance and business rates.

⁶ Some figures in this section may not sum due to rounding.

4.2 This underperformance of income is largely because of Covid-19. The pandemic has meant that retail performance and traffic volumes were significantly lower in 2020-21 than forecast at PR19. However, the impact on HS1 Ltd's regulated income was reduced due to the protections embedded within HS1 Ltd's concession structure:

- track access payments to HS1 Ltd continuing in accordance with the pre-committed train paths until the first Review Event of the control period under the access terms, in December 2020; and
- an agreement with the Secretary of State which underpins domestic services income. So, income from London and Southeastern Railway (LSER, currently underwritten by Government) is expected to remain relatively stable.

4.3 HS1 Ltd's track access contracts contain a volume re-opener provision. The first review of traffic forecasts happened in December 2020: the drop in traffic triggered the re-opener and was used to re-allocate fixed costs between EIL and LSER⁷.

4.4 In addition to funding operations and maintenance, a portion of the operating, maintenance and renewals charges (OMRC) that train operators have to pay is designed to build up a fund for future renewals. This money is transferred into an escrow account. In 2020-21, HS1 Ltd offered a temporary escrow holiday to both Eurostar and LSER, which was accepted by Eurostar. This means that Eurostar has deferred around £15m of payments into the escrow, which will need to be made up later in CP3.

Expenditure

Operating, maintenance and renewals costs

4.5 HS1 Ltd incurred £76.5m of regulated costs in 2020-21, £0.5m lower than assumed in PR19. The majority of HS1 Ltd's regulated costs (£44.1m) were incurred in operating, maintaining and renewing its network. This work is undertaken through a long-term, fixed price contract with NR(HS)⁸: as NR(HS)'s costs were £3.7m lower than forecast in PR19, that amount was paid by HS1 Ltd to NR(HS) as outperformance. Figure 11 provides a breakdown of NR(HS)'s costs.

4.6 HS1 Ltd internal costs are shown in Figure 12. HS1 Ltd's own costs were £8.8m, £0.1m lower than assumed in PR19. This included:

⁷ The parties to this agreed that these changes would not affect freight companies.

⁸ Network Rail (High Speed) Limited is a wholly owned subsidiary of Network Rail.

- £1.1m of increased consultancy costs, including costs relating to HS1 Ltd's response to the Covid-19 pandemic⁹.
- R&D was £0.3m below forecast, which HS1 Ltd is planning to catch up later in CP3.
- Office running and Other costs were £0.3m and £0.4m lower than target respectively. Part of this was due to the reduced costs incurred with staff working from home.

4.7 In accordance with the Operator Agreement, HS1 Ltd is required to pay train operators if Network Rail (High Speed) outperforms our PR19 financial assumptions in years 3, 4 and 5 of a control period. As the reporting year was the first of the control period, no outperformance payments were due.

Figure 11 Network Rail (High Speed) costs in 2020-21¹⁰

£m, 2020-21 prices	Actual	PR19	Difference better / (worse)	2019-20
Staff costs	19.5	21.0	1.5	20.7
Consultancy costs	0.6	0.4	(0.2)	0.4
Corporate functions & Network Rail Infrastructure Ltd Services	3.3	3.8	0.5	3.0
Plant & Materials	5.2	5.6	0.4	5.0
Sub-Contractors	2.3	2.6	0.3	5.2
Security of Infrastructure	2.0	1.9	(0.1)	1.9
Insurance	0.6	0.7	0.1	0.5
Overheads	2.8	3.4	0.6	2.8
Operating costs	36.3	39.3	3.0	39.6
Management fee	3.1	3.1	0.0	3.0
Risk premium	1.0	1.7	0.7	1.3
Outperformance	3.7	0.0	(3.7)	0.8
Total NR(HS) costs	44.1	44.1	0.0	44.8

Source: NR(HS) Outturn statement

Figure 12 HS1 Ltd's internal costs in 2020-21¹¹

£m, 2020-21 prices	Actual	PR19	Difference better / (worse)	2019-20
Staff costs	4.6	4.8	0.2	4.4
Technical support / Consultants	2.0	0.9	(1.1)	2.0

⁹ The additional consultancy work related to a mixture of covering for staff and advice on how to deliver the efficiency improvements required by PR19.

¹⁰ Some figures in this section may not sum due to rounding

¹¹ Some figures in this section may not sum due to rounding

Office running costs	0.8	1.1	0.3	1.2
R&D	0.0	0.3	0.3	0.0
Other costs	1.4	1.8	0.4	2.6
Total HS1 Ltd Costs	8.8	8.8	0.1	10.2

Source: HS1 Ltd AMAS 2020-21

Pass through costs

4.8 Some of HS1 Ltd's costs are passed straight through to train operators with equal and offsetting pass through income. These costs are largely uncontrollable by HS1 Ltd and include traction electricity costs, rates and insurance. Pass through costs were £19.6m in 2020-21, which was £0.2m lower than assumed in PR19.

Freight costs

4.9 HS1 Ltd incurs costs relating to freight traffic, including maintaining freight-specific infrastructure. Freight costs were £0.3m, which was in line with PR19. This is because the costs of freight assets operated and maintained by HS1 Ltd are largely fixed.

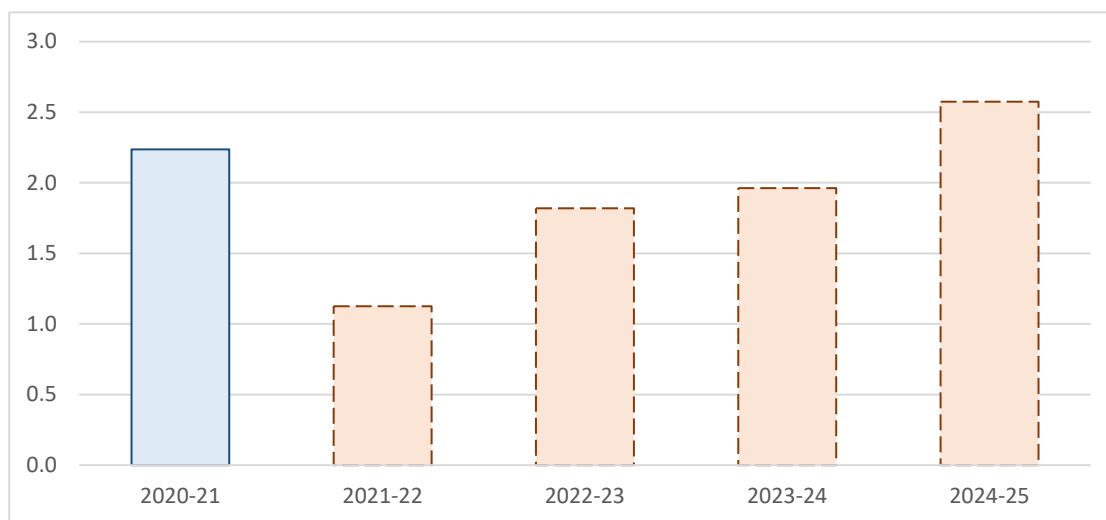
Efficiency

4.10 As part of PR19, ORR determined an efficient level of cost for the operations, maintenance and renewal of the route infrastructure. The PR19 final determination concluded that Network Rail (High Speed) should improve its efficiency by 6.7% across the five years of CP3. This means that to deliver the same level of output, we expected NR(HS)'s costs in the final year of CP3 to be 6.7% lower than in the final year of CP2.

4.11 NR(HS) reported £2.2m of efficiency improvements against a target of £1.2m in 2020-21. It is planning to deliver £9.8m of cumulative efficiency improvements in CP3, which is ahead of the £8.6m efficiency challenge in our PR19 determination:

- the largest single efficiency initiative was a negotiated reduction in national functions services which contributed £0.9m in 2020-21;
- the proactive reduction of consultancy spend contributed £0.6m of efficiency savings; and
- lower insurance premiums, negotiated by NR(HS) contributed £0.3m of efficiencies in 2020-21.

Figure 13: NR(HS) actual and forecast annual efficiency improvement in PR19



Source: NR(HS)

4.12 NR(HS) has noted that the impact of Covid-19 has adversely impacted the development and implementation of a number of CP3 efficiency initiatives.

Route escrow account

4.13 Some of HS1 Ltd's access charges are paid into an escrow account to fund current and future renewals. This fulfils a similar function to the Regulatory Asset Base (RAB) in Network Rail Infrastructure Ltd and other infrastructure providers, which helps to spread these costs over the long term.

4.14 The balance on the route escrow account at 31 March 2021 was £90.5m, of which the majority is on deposit with short maturity dates of six months. The escrow balance decreased by £0.8m in the year due to:

- £13.6m of payments into the escrow account. This was £15.3m lower than our PR19 assumption due to the escrow holiday, which Eurostar accepted;
- £14.5m withdrawn to pay for renewals undertaken in the year, £2.9m lower than assumed in PR19; and
- £0.2m of interest earned.

Overview of HS1 Ltd's statutory financial statements

4.15 HS1 Ltd's financial statements for 2020-21 show that earnings before interest, tax, depreciation and amortisation (EBITDA) was £55.1m in 2020-21. HS1 Ltd made a

profit after tax of £51.7m in 2020-21. As of 31 March 2021, HS1 Ltd's net assets were £497.5m. No dividend payments were made in 2020-21.

- 4.16 HS1 Ltd's cash position at 31 March 2021 was £34m worse than HS1's forecast. This was largely because of the impact of Covid-19, which meant that traffic volumes were immediately lower in 2020-21 than forecast at PR19. The cash effect would have been worse without the factors outlined in paragraphs 4.2 and 4.3. So, overall there was not an unduly significant financial effect on HS1 Limited's ability to operate, maintain and renew the concession in 2020-21.
- 4.17 We expect that the effect of Covid-19 on HS1 Ltd's income will be more significant in 2021-22 as reduced train numbers are forecast by operators, and there have been lower train paths booked in advance timetables. This is a difficult situation that HS1 Ltd is working through and we are engaging regularly with HS1 on this issue. We continue to liaise with DfT which is responsible for the HS1 concession.
- 4.18 In its financial statements, the auditors have stated that while there is a material uncertainty as a result of Covid-19, HS1 Ltd has stated that in its opinion, there is a low likelihood of factors that would lead to solvency issues for the company, and the financial statements have been prepared on a going concern basis.
- 4.19 The cashflow available to service debt is around 20% worse than budget. HS1 Ltd considers that it is currently 0.05 above its debt-service cover ratio (DSCR) covenant lock-up¹² level of 1.20 and has material headroom over the default¹³ level of 1.05. The operating company has an investment grade credit rating (Fitch: A and Standard & Poor: BBB+).

¹² The lock-up level is a restriction of distributions. Until DSCR recovers to above the lock-up threshold, any cash generated in the period that was planned to be paid out to shareholders, must instead be set aside for debt service.

¹³ The default level is that at which cashflows are not sufficient to support the current level of debt. At this level a restructuring should be considered and normally it would also give the lenders the right to take direct enforcement action.



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