

## Independent Reporter CP7 Performance Reset Stage 2 Final Report

ORR / Network Rail

CP7 Performance Reset Independent Reporter  
9 July 2025



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## Executive summary

The Office of Rail and Road (ORR) is resetting passenger train performance measures and targets for Control Period 7 years 3-5 ("the reset") in England, Wales, and Scotland. Jacobs has been appointed as Independent Reporter (IR) to assess Network Rail's (NR) reset submissions, to advise on whether they are "ambitious yet realistic" as per the UK Government's High Level Output Specification.

Jacobs' role involves:

- Evaluating NR's approach to developing forecasts and trajectories;
- Assessing the clarity and consistency of NR's submission; and
- Determining if NR's proposed performance trajectories meet the "ambitious yet realistic" criteria.

The project is divided into three stages, with this report focusing on Stage 2. Stage 1 of our work completed in April 2025 and involved engaging with NR to understand the process for development of the NR performance submission and to provide recommendations on actions that NR could take prior to the initial submission. During Stage 2 we have found that the majority of those recommendations classified as high and medium priority have been acted upon but there are some where related issues have been identified in the modelled schemes where there is scope for further mitigation if the recommendation had been followed in all cases.

The objectives for this stage of our review are:

- Review NR's proposed trajectories and supporting evidence;
- Provide independent assurance to inform ORR's industry consultation; and
- Identify issues for NR regions and System Operator to address before September 2025 submissions.

The ORR requires NR to provide proposed target trajectories (referred to as "trajectories" throughout this report) for specific success measures Time to 3 (T-3), Cancellations (by train services) and Network Rail delay minutes per 1,000 miles train travel.

These measures are disaggregated by Region and National levels, with Network Rail/TOC breakdowns where applicable. Additionally, "On Time" is included as a supporting measure for comparison with PR23 Final Determination baseline trajectories. The Scotland Train Performance Measure is out of scope for the reset.

## Approach

We carried out a review of the model to confirm functionality was as described during Stage 1.

The assessment of the Regions' submissions aims to determine whether the trajectories meet the High-Level Output Specification (HLOS) requirement of being "ambitious yet realistic" and involved a multi-faceted approach:

- Reviewing Network Rail's submissions from 9 May 2025;
- Analysing modelled schemes for each Region;
- Engaging with Regional teams to clarify assumptions and approaches;
- Consideration of base year performance, cross-Region comparisons, categories of performance and balance of NR and TOC contribution; and
- Evaluating overall trajectories against the "ambitious yet realistic" criteria.

We have endeavoured to adopt an open and collaborative engagement process through this review. We would like to thank Network Rail and ORR for their assistance and in particular the Regions for their open and honest conversations about the process and work to prepare their submissions.

## Findings

### Model Review

Key findings from the review of Network Rail's performance model were:

- Confirming that previously identified data issues had been addressed, intended functionality was as described to us in Stage 1 and model structure, code and commenting was reasonable;
- Some methodological and calculation issues were identified, the net impact likely increases the modelled level of change relative to the baseline in the Regions' submitted trajectories; and
- These issues vary in impact by Region due to different scheme mixes and should be resolved before Network Rail's next submission.

### Regions' submission assessment

The table below summarises the assessment outcome for each of the Regions and success measures. The assessment of T-3 and NR Delay per 1000 train miles is combined into a single assessment since they derive from the same trajectory modelling process. We have provided an assessment on a scale of 1 to 5 where a 1 is a trajectory considered more realistic/deliverable with relatively a low level of ambition and hence there is a good likelihood of achieving the targets, a 3 is a reasonable balance between ambitious and realistic and a 5 has a high level of ambition. Our findings that underpin these assessments are detailed later in this report and we expect NR to consider these when developing its updated forecasts, for submission to ORR in early September.

Table 1 : Trajectory Assessment Scores Summary

Time to 3/NR Delay	Realistic	Slightly Realistic	Balanced	Slightly Ambitious	Ambitious
Eastern		2			
North West & Central	1				
Southern		2			
Wales & Western			3		
Cancellations	Realistic	Slightly Realistic	Balanced	Slightly Ambitious	Ambitious
Eastern			3		
North West & Central	1				
Southern		2			
Wales & Western		2			
Scotland			3		

## Cross-Cutting Themes

ORR asked us to focus on and provide views on specific areas. These findings were considered as part of the Regions' submissions assessment. Some of the topics were:

**Impact of risk and opportunity schemes and NR/TOC contribution:** as part of the submission review, we considered the inclusion of operator schemes and the contribution of NR and Train Operating Company (TOC) schemes to the overall trajectory. The Regions have included operator schemes where they have had commitment from the operators. For many there is not a commitment from TOCs for year 3 of CP7 onward where there may be further opportunities for improvement. There are some cases where Regions have modelled a lower benefit from schemes than the operator has suggested, although in most cases this is due to errors in how they have been captured in model inputs.

**Great British Railways (GBR):** None of the Regions have modelled potential benefits resulting from the establishment of GBR or pre-GBR integration. We consider that there are opportunities in this area but also considerable uncertainty still for the scale of benefits that could be delivered pre-GBR and the timescales that will be required for GBR to deliver more material performance benefits once established.

**Industrial Relations (IR):** None of the Regions have modelled any adjustments for the impact of IR on the baseline period. We found minimal evidence of direct impact to on-the-day performance measures from IR during the baseline period. However, it has likely contributed to ongoing traincrew issues including training backlogs. Regions have modelled specific traincrew performance improvement schemes where they have been committed to by TOCs.

**Performance Improvement Plans:** There are currently ORR regulatory Performance Improvement Plans in place for 3 Regions. For Eastern the trajectory is generally aligned with their plan, primarily though their year 2 exit position being the mid-point of the performance level targeted in the plan. For Southern the full benefits of the Performance Improvement Plans are not included in the submission trajectories and similarly for Wales and Western Cancellations trajectory.

**Impact of Externals and Weather:** We considered the level of impact of Weather and Externals (trespass and vandalism) on the baseline period and whether the Region should reasonably have adjusted for these. For weather some Regions did have performance levels which could be considered different to a more "average" year; we have highlighted where this is the case. There has been a continuation of the trend for increasing impact of Externals on performance. We have highlighted where the year-on-year increase for the baseline period has deviated from this trend. All the Regions have specific schemes relating to the mitigation of Externals, but some only deliver incremental benefits in year 2.

**East Coast December 2025 Timetable:** The Eastern Region have applied an overlay to the punctuality trajectory to reflect the risks from the changes to the timetable in December 2025 on the East Coast Main Line (ECML). They use a combination of approaches to try to predict the likely impact on punctuality including the using outputs from RailSys modelling undertaken by the Timetable Performance and Simulation Team, the relationship between number of services and punctuality observed in the Eastern Region, and the analysis of punctuality following major timetable changes to try to understand transient introduction risk (the bathtub). There are aspects of their approach that contribute to a more optimistic view, but we consider these are outweighed to give a slightly realistic trajectory overall.

## Recommendations

We have set out a series of recommendations which are listed in section 2.3. They are provided for each specific Region and success measure. These include items such as correcting errors and addressing risks identified in the model, Regions to revise schemes or add new ones to model the full benefits of Performance Improvement Plans, correcting specific errors identified in scheme assumption entries and consideration of revising scheme assumptions or adding new schemes where we consider that the assumptions contribute to a more realistic/deliverable trajectory than could have been modelled. We expect NR to consider these when developing its updated forecasts, for submission to ORR in early September.

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## Acronyms and abbreviations

Acronym	Definition
ASOS	Action short of a strike
AWC	Avanti West Coast
BTP	British Transport Police
DfT	Department for Transport
DfTO	Department for Transport Operator Limited
DMU	Diesel Multiple Unit
ECML	East Coast Main Line
EDDY	Key information when reporting trespass incidents: Exact location, Direction of travel, Detailed description, and Youth (potential involvement)
EMR	East Midlands Railway
ESG	Event Steering Group
ETCS	European Train Control System
GA	Greater Anglia
GBR	Great British Railways
GTR	Govia Thameslink Railways
GWR	Great Western Railways
HLOS	High Level Output Specification
IA	Industrial Action
IET	Intercity Express Trains
IR	Industrial Relations
LDHS	Long Distance High Speed
LNER	London Northeastern Railways
MAA	Moving Annual Average
MNTP	Manchester and North West Transformation Programme
NCL	Northern City Line
NR	Network Rail
NRC	National Rail Contract
NW&C	Northwest & Central
OLE	Overhead Line Equipment
OLR	Operator of Last Resort
ORR	Office of Rail and Road
PMO	Project Management Office
PR23 FD	PR23 Final Determination

Acronym	Definition
PRIMA	Proportionate Risk response to Implementing Mitigating speeds to Assets
RDW	Rest Day Working
SAF	Service Affecting Failure
SE	Southeastern Trains
SGBR	Shadow Great British Railways
SO	System Operator
STPM	Scotland Train Performance Measure
SWR	Southwestern Railways
T-3	Time-to-3
TOC	Train Operating Company
TPE	TransPennine Trains trading as TransPennine Express
TPF	Targeted Performance Fund
tph	trains per hour
TRU	Transpennine Route Upgrade
TSR	Train Speed Restriction
TT	Timetable
UK	United Kingdom
W&W	Wales & Western
WCML	West Coast Mainline
WMT	West Midlands Trains
XC	CrossCountry Trains

# 1. Introduction

## 1.1 Project Background

The Office of Rail and Road (ORR) is resetting passenger train performance measures and trajectories (targets) in England, Wales, and Scotland, excluding Scotland Train Performance Measure (STPM), for years 3-5 of Control Period 7 (“the reset”). This recognises the level of uncertainty in forecasting performance during the 2023 Period Review (PR23).

The ORR and Network Rail (NR) have appointed Jacobs as Independent Reporter for the reset to provide independent advice to both NR and ORR on NR’s reset submissions. The advice will help determine whether the proposed train performance forecasts and trajectories are “ambitious yet realistic”, as required in the UK Government’s High Level Output Specification (HLOS).

As Independent Reporter, Jacobs will advise whether:

- NR has taken a reasonable approach to developing its forecasts and proposed target trajectories (referred to as the “trajectories” throughout this report);
- NR’s submission is clear and consistent; and
- NR’s proposed performance trajectories are “ambitious yet realistic”.

This report forms part of our assessment as well as advice as to where NR could improve its performance forecasting approach (where this is reasonable in the timeframe for the reset).

## 1.2 Objectives and Scope of Review

The project is split into three stages. Stage 1 was completed in April 2025, the findings and recommendations are summarised below. This report covers Stage 2, which began with NR’s submission to ORR of the proposed England and Wales passenger performance trajectories on 09 May 2025.

The objectives of this stage are to:

- Review Network Rail’s proposed trajectories, supporting evidence and analysis submitted to ORR and provide independent assurance to inform ORR’s industry consultation on draft trajectories; and
- Identify specific issues to be addressed by Network Rail regions and the System Operator following the publication of the Draft trajectories for consultation and can reasonably be actioned before Network Rail’s revised submissions in September 2025.

The ORR’s requirements for NR’s submission are to provide proposed trajectories for each success measure (excluding the Scotland Train Performance measure). These NR proposed trajectories are set out in 5.1.1 below:

**Table 2 : ORR required forecast measures**

<u>Tier</u>	<u>Measure</u>	<u>Disaggregation</u>
1: Success measures	Time to 3 (T-3)	Regions: Eastern, North-West & Central (NW&C), Southern, Wales & Western (W&W)  National: England & Wales  Network Rail/TOC disaggregation

<u>Tier</u>	<u>Measure</u>	<u>Disaggregation</u>
1: Success measures	Cancellations (by train services)	Regions: Eastern, NW&C, Southern, W&W, Scotland National: England & Wales, Great Britain Network Rail/TOC disaggregation
1: Success measures	Network Rail delay minutes per 1,000 miles train travel	Regions: Eastern, NW&C, Southern, W&W, Scotland National: England & Wales, Great Britain Assumed TOC delay
2: Supporting measures	On Time	Regions: Eastern, NW&C, Southern, W&W, Scotland National: England & Wales_

"On Time" is a supporting measure i.e. it provides a holistic view of performance that Network Rail will include in its forecasts and report against but will not be a success measure for year 3 to 5 of CP7 as it has in years 1 and 2; in particular it is required by ORR to compare to the baseline trajectories set in the PR23 Final Determination.

For Scotland Region only the Cancellations success measure is in scope for the Independent Reporter review.

### 1.3 Stage 1 findings and recommendations

This section summarises the findings from Stage 1. From the information received and process as described by Network Rail for the approach to developing the forecasts for the CP7 reset, it was our view that the approach was reasonable and was likely to meet the requirements of the ORR submission in terms of the required trajectory deliverables and supporting information. However, it was not possible, based on the information shared by the end of Stage 1, to determine whether the resulting trajectories would meet the "ambitious yet realistic" criteria. The objectives set out in the Network Rail guidance to the Regions covered consideration of both aspects of the criteria, with some that are indicative of the ambition to improve operational performance, yet also requiring robust evidence to ensure they are realistic. The specifics of how these are applied in the modelling assumptions, supporting evidence and application of stretch drives the eventual outcome.

We included 12 recommendations to support mitigation of areas of risk or to ensure consistency of approach and application of best practice identified during our review. These are set out below. Recommendations were grouped into High, Medium and Low priority based on the following descriptions. Where NR provided an indication of where these had already been addressed at the time of writing the Stage 1 report this is included in *italic text*. Additional commentary on consideration of whether we have evidence of it being addressed during Stage 2 is included in **bold text**.

**High Priority:** These address significant risks, compliance issues, or opportunities to have a substantial impact on the process.

(1): Ensure that the requirement to supply a trajectory for the On Time supporting metric is included in the submission to allow a comparison with the PR23 Determination baseline. We suggest this might be included as an annex in the submission where it is not included in the current template. Similarly, Network Rail should include the assumed TOC attributed delay trajectory. **Stage 2 findings: On Time trajectories were included in all Region submissions.**

(6): Ensure that all trends and one-off factors contained within the baseline have been assessed (i.e. identification and investigation of anomalies, consideration of events) and appropriate inputs prepared for

the model to adjust for these trends and factors. – *Stage 1 NR comment: Network Rail have stated that Regions have always had the opportunity to remove one off events from the base year.* **Stage 2 findings: We did not find any evidence of adjustments being made for particular high or low performance of specific categories in the base year for England and Wales Regions. There is an indication that the assumptions made for some schemes did incorporate consideration of performance in the base year for some areas. Scotland have made specific adjustments to normalise their base year for modelling, primarily due to the reduced timetable operated during part of the year.**

(9): The Regions should assess the impact of schemes on cancellations separately from delays to improve confidence in the cancellations forecasts. – *Stage 1 NR comment: Network Rail have stated that the cancellations are a separate set of schemes inputs to the model. They did not clarify whether all Regions would specifically develop different inputs for these schemes with consideration of the different impact on cancellations to delays.* **Stage 2 findings: Where the same scheme has been modelled in both delay and cancellations models, they frequently have the same assumed impacts. However, for the majority of schemes we considered that this was appropriate and there has been some consideration of applying different assumptions for cancellations to delays in some cases, or only applying the scheme to either delays or cancellations if appropriate.**

**Medium Priority:** These may offer meaningful improvements or address moderate risks, and we consider that addressing these will increase confidence in the modelling work.

(3): If utilising delay minute forecasts from the model, ensure that the category “Planned/Excluded Delays & Cancellations” is excluded if appropriate to reflect published industry metrics. Similarly ensure that the inclusion of Eurostar International delay minutes in any calculations is appropriate. – *Stage 1 NR comment: Network Rail have stated that planned/excluded and Eurostar delays have been removed from the modelling data and were not used in developing the punctuality regressions.* **Stage 2 findings: Planned/Excluded Delays & Cancellations were not included in the models supplied to us.**

(4): Carefully review any schemes that use the “All Delay” option to ensure that the intention is really to have the double impact on reactionary delays. – *Stage 1 NR comment: Network Rail have indicated that they have reviewed all schemes that use “All Delays”.* **Stage 2 findings: There were several schemes intentionally entered with All Delay using an absolute number of minutes. These are intentional and we consider them appropriate assuming that the issue discussed in section 4.3.1 is resolved. Western region also entered some schemes as All Delay using a factor. Some of these, based on the scheme description, we would not expect to impact the primary/reactionary ratio and have included a further recommendation in 2.3.6.1 related to these.**

(7): Ensure adequate assurance of ESG December 2025 timetable impact on Eastern Region given it is being modelled in a different way to other schemes (i.e. assess that the aggregate outputs are consistent with the ESG inputs and interactions with other schemes are being reflected in an expected manner). **Stage 2 findings: The modelling of December 2025 timetable impact is discussed in section 5.2.1.3. We did not identify any particular concerns with how the modelled overlay interacted with other schemes.**

(8): To ensure that passenger demand is adequately assessed and modelled, additional guidance should be provided to Regions to clarify what inputs they should provide for the central model. **Stage 2 findings: Each Region has adopted a different approach to modelling the impact of passenger demand. Most of these we considered a reasonable approach with the exception of Southern (see 5.4.1.5) where there are concerns about the scale of the impact modelled and the Region has made errors in applying what they intended to model (see 5.4.1.5).**

(11): Ensure that schemes which impact punctuality without a commensurate impact on recorded delays, such as schemes to reduce sub-threshold delay e.g. sectional running time refinement or timetable improvements to reduce small scale delays, are considered and applied as an overlay or used as the basis for an applied stretch to the modelled trajectories. Where included ensure that the disproportionate impact of such schemes on the On-Time metric is reflected. **Stage 2 findings: The Regions have not modelled any**

**schemes which only impact sub-threshold delay, although this consideration is discussed in the overlay applied to model the impact of the ECML December 2025 timetable (see section 5.2.1.3).**

**Low Priority:** These recommendations might be applied to future activities if not feasible to address during the CP7 performance reset programme. **The Low Priority items are for consideration for use in future projects and we did not engage with NR to understand if these have been progressed during Stage 2.**

(2): A transparent process for the approval of trajectories is recommended with clarity on the criteria that will be used to assess if the modelled forecasts meet the ambitious yet realistic requirements and hence will be approved by the Executive Leadership.

(5): Consider improved documentation for the scheme capture sheets to ensure clarity on how the inputs affect the model. This could be included within the scheme capture workbook with notes or tooltips to clarify how the settings, such as the "All Delays" option will impact the results.

(10): Consider a template for capturing Operator inputs to the process on a consistent basis building on the approach adopted by North-West and Central Region.

(12): Assess the practicality and benefit of implementing an industry wide, consistent process for 2-way TOC engagement for performance target setting e.g. for CP8.

## 2. Summary of Findings and Recommendations

### 2.1 Summary of trajectories assessment

The table below sets out our assessment scores for each of the Regions and below this we summarise the key factors informing our assessment. Section 5 sets out our findings for each Region and describes the basis of the assessment scores in more detail.

Table 3 : Trajectory Assessment Scores Summary

Time to 3/NR Delay	Realistic	Slightly Realistic	Balanced	Slightly Ambitious	Ambitious
Eastern		2			
North West & Central	1				
Southern		2			
Wales & Western			3		
Cancellations	Realistic	Slightly Realistic	Balanced	Slightly Ambitious	Ambitious
Eastern			3		
North West & Central	1				
Southern		2			
Wales & Western		2			
Scotland			3		

#### Punctuality and delays:

**Eastern:** Some schemes in the central model are currently modelled with a level of ambition and the assumed year 2 exit position requires significant improvement from current levels of performance. However, this is offset by the approach to deriving the impact of the East Coast December 2025 timetable overlay, some aspects of which we consider are driving a more realistic trajectory. Although some aspects drive a more optimistic view than we might expect as well, the net impact we consider to be contributing to more deliverable trajectories based on the information supplied by Network Rail and this informs our overall assessment level.

**North West & Central:** Factors contributing to our assessment of being realistic are the net deterioration assumed across all Network Rail cause categories. The Region has the highest modelled deterioration in asset performance, and we consider the “keep trains moving” scheme, which aims to reduce cancellations from certain incidents but could increase overall levels of delays, has a modelled impact on delays which is higher than we would expect. The Region also had higher impact from weather events on delays in the baseline period than we might expect in a typical year, and this is not adjusted for. We note some additional analysis was provided by the Region looking at the impact of weather on T-3 attrition rather than delays, which suggests it may be a more typical year; We have not had opportunity to examine this in detail at the time of finalising this report but will consider it during Stage 3.

**Southern:** The Region has assumed a stable level of delays in Network Rail categories with changes in the delay and punctuality trajectories being influenced by operator schemes, particularly the Arterio (new trains)

introduction on SWR. The forecast for year 2 does not achieve the levels targeted by the Performance Restoration Plan.

**Wales & Western:** Wales and Western have modelled an improving trajectory across all years with net benefits assumed across all categories, particularly for NR assets performance. We have classified slightly more schemes as ambitious than contributing to a more deliverable trajectory although do not consider that this quite reached the threshold of classification as slightly ambitious.

### Cancellations:

**Eastern:** The Eastern Region model the greatest reduction in the impact of Externals (trespass and vandalism), they have not applied uncertain risks that operators stated and have not assumed an incremental cancellation risk from the December 2025 East Coast timetable. These factors are offset by lower modelled benefits than set out in the Regions' plans (notably in Southern's and North West and Central's plans, but the benefits should apply to Eastern) for GTR and Northern Traincrew performance improvement.

**North West & Central:** There are assumed reductions in cancellations from the "keeping trains moving" initiative and they model both an increase in risk and mitigations in externals and weather to have roughly a net neutral impact. The base year had greater impact from weather impacts than is typical and did not adjust for this; The Region have set out this was a considered decision and the "keeping train moving" scheme mitigates this. There are no plans to further mitigate the increases in externals in recent years beyond year 2. The operator traincrew schemes are modelled to have less impact than is stated in the plan.

**Southern :** Southern have a lower level of impacts from weather than is typical in the base and assume this continues in future years and the trajectory improves in years 3 and 4. There is a modelled deterioration in year 2 though, related to assumptions for Arterio introduction, and they do not model the full benefit of the GTR traincrew project 94 scheme in year 5 that is set out in the plan. We have not been able to identify schemes that are consistent with their Performance Restoration Plan and the trajectory does not achieve the levels targeted by the Performance Restoration Plan.

**Wales & Western:** Wales and Western already had reduced cancellations in 24/25 and the modelled schemes continue this trend in year 2 with assumed reductions related to the Project Brunel improvement plan. This is not assumed to provide further improvement in subsequent years, unlike the related delays scheme. They model an improvement in performance for OLE when there was not a material incident in the baseline year; they acknowledge this was due to an error in updating the scheme assumptions. The trajectory does not achieve the level that is set out in the Performance Improvement Plan for the end of CP7.

**Scotland:** The baseline year had very low levels of weather impacts which, combined with the reduced timetable operated for part of the year, contributed to the performance that was better than target in 2024/25. It is, therefore, reasonable to expect that year 2 onwards should return to the previous steady trajectory. We might, however, expect some of the initiatives that are planned for future years to have significant benefits to STPM to also benefit cancellations and could be reflected in the trajectory.

## 2.2 Model findings

The model review aimed to verify the functionality of Network Rail's performance models and confirm that previously identified data issues had been addressed. The review process involved:

- Examining Python code logic;
- Analysing model outputs at various processing stages; and
- Testing with specific scheme inputs

The key findings were as follows:

- Base year data issues from Stage 1 were resolved;



- Models consist of 11-12 Python modules with well-structured, commented code; and
- Program flow aligned with the modelling team's described approach.

Some methodological and calculation issues were identified. The net impact of these issues is likely to have increased the level of change relative to the baseline year that was modelled, but the degree to which this is the case varies by Region due to the mix of schemes. These issues should be resolved before the model is used to prepare Network Rail's next submission.

The review was not exhaustive, and additional issues may exist. Network Rail has been informed of the identified problems during the engagement process.

## 2.3 Recommendations

The following recommendations are aimed at supporting NR to improve its performance forecasting approach in the timeframe for the reset including the updated submissions in September 2025.

### 2.3.1 Model Review

These recommendations relate to section 4.

1. We recommend that Network Rail change the model to address the issues identified in sections 4.3.1, 4.3.2, 4.3.3 and 4.3.5 and consider the scale of impact and any potential improvements related to the concern described in section 4.3.4.
2. We recommend that Network Rail consider the use of a source control system to manage the model code to reduce the likelihood of accidentally reverting to a previous version and have confidence of what is the latest version. Additional mitigations could be to develop automated or manual tests to confirm functionality, particularly to address specific issues, which would alert users should an issue be reintroduced. The investment in automated test development may only be of value if NR are confident the model will continue to be used after the CP7 performance reset project.

### 2.3.2 All Regions

These recommendations may apply to 2 or more Regions. The related content can be found in section 4.

3. For those Regions where the overall assessment is a more deliverable than ambitious trajectory, review the assumptions for schemes that we have classified as Deliverable where alternative assumptions are likely to have a material impact on the trajectory.
4. For those Regions where there is a Performance Improvement Plan in place and the full benefits of the plan have not been included in the modelled trajectory, consider adding assumptions to reflect the committed schemes in full.

### 2.3.3 Eastern

These recommendations apply to both delays and cancellations modelling and relate to section 5.2.

5. Update the Anglia Non-Track/Track and Externals scheme input sheets to correct for the error where the impact is applied to all cause categories. This will result in a more realistic forecast for those schemes and likely reclassification of these schemes as balanced. NR have advised that this has been done and will be included in the next model run.

#### 2.3.3.1 Time to 3 / Delays

These recommendations relate to section 5.2.1.

6. Revise the assumptions and approach for the ECML Dec 25 timetable where we have assessed these to be contributing to more realistic trajectories including adding Good and Average day impacts, weighting the bathtub impact by the proportion of the Region affected and the duration of the bathtub. Also consider carrying out the analysis directly using T-3 instead of On Time as this may provide a slightly optimistic view. We expect the net impact would be a slightly more optimistic view overall.

### **2.3.3.2 Cancellations**

These recommendations relate to section 5.2.2.

7. Consider the potential contribution from committed TOC schemes to cancellations where they are not currently modelled.

## **2.3.4 North West and Central**

These recommendations apply to both delays and cancellations modelling and relate to section 5.3

8. Consider whether the base position should be adjusted to account for worse than typical delays/cancellations in the base period, particularly for the weather category. We note the additional information provided by the Region that we have not fully assessed that may relate to this recommendation.
9. Consider the inclusion of schemes not currently modelled that could make a material contribution to mitigating punctuality risks, in particular for Externals and Asset related causes. If schemes do not currently exist, then consider whether it is practical to implement any.

### **2.3.4.1 Time to 3 / Delays**

These recommendations relate to section 5.3.1.

No additional recommendations to those set out in 2.3.2 and 2.3.4.

### **2.3.4.2 Cancellations**

These recommendations relate to section 5.3.2.

10. Ensure that assumed benefits from committed TOC schemes are fully reflected and are consistent with the latest proposals.

## **2.3.5 Southern**

### **2.3.5.1 Time to 3 / Delays**

These recommendations relate to section 5.4.1.

None beyond those set out in 2.3.2.

### **2.3.5.2 Cancellations**

These recommendations relate to section 5.4.2.

None beyond those set out in 2.3.2.

## **2.3.6 Wales and Western**

### **2.3.6.1 Time to 3 / Delays**

These recommendations relate to section 5.5.1.

11. Several schemes were entered as All Delays with a percentage improvement which also impacts the primary/reactionary ratio. For some of these we could not see the basis for this based on the scheme description. We recommend all schemes set to All Delay with a percentage input be reviewed to confirm the modelled impact is as intended.

### **2.3.6.2 Cancellations**

These recommendations relate to section 5.5.2.

12. Ensure that the assumptions for OLE scheme for cancellations are consistent with delays.
13. Consider whether the base position should be adjusted to account for worse than typical cancellations in the base period, particularly for weather category.

## **2.3.7 Scotland**

### **2.3.7.1 Cancellations**

These recommendations relate to section 5.6.1.

14. A more ambitious trajectory would be achieved by considering the areas of the plan that are assumed to contribute to the STPM and could contribute to a reduction in cancellations but have not currently been accounted for in the cancellations trajectory. We recommend NR review these schemes and where appropriate include the relevant impact in the cancellations trajectory.

## 3. Methodology

### 3.1 Submission Review

The initial stage of the assessment process was the review of the Network Rail initial submissions of 9 May 2025. The primary purpose of the submission review was to inform our assessment of whether the NR trajectories for each of the regions meets the HLOS requirement of being “ambitious yet realistic.” The definitions of ambitious and realistic are not set out in the HLOS and so we have used the following definitions as a reasonable interpretation and to inform our assessment:

**Ambitious** - a plan intended to satisfy high aspirations and therefore difficult to achieve.

**Realistic** - having or showing a sensible and practical idea of what can be achieved or expected i.e. the trajectory/plan has a relatively low level of ambition and there is a good likelihood of achieving the targets.

The NR submissions include a mixture of trajectories, narrative plans, list of scheme names/high level descriptions and supporting evidence. Our approach was to ask a series of questions of the submission for each Region geared primarily to consider the level of ambition or realism. Some example questions are:

- Is there a net improvement in performance? If so, is this in all years?
- For each category in the waterfall chart that illustrates the scale of the change in different performance areas included in the NR 9 May 2025 submission, how does the relative change compare to other Regions?
- For each category how does rate of improvement compare to historic levels achieved?
- Are the trajectories consistent with the narrative in the plan?
- Does the base (starting) position represent a typical level of performance?

The team was provided with a template to record evidence and observations gathered from the submission and the responses to the questions. The content in each Region’s submission was reviewed by two members of our team working independently.

For each question response a score was applied from 1 to 5, with 5 representing a strong positive response to the question and 1 a strong negative response. A supporting narrative was also provided for each rating. These scores were combined using weighting factors to provide an indication of the level of ambition or realism/deliverability of the submission. Based on the information gathered each reviewer assigned an overall assessment score for each of T-3 and Cancellations separately.

A moderation session between the reviewers with a third party not directly involved with the reviews of that Region took place. Here the evidence and assessment were discussed and initial assessment level range agreed.

### 3.2 Scheme assessment

We reviewed each scheme used in the modelling to provide a bottom up view of the trajectory. We compiled a list of schemes, along with their impact and description from the modelling. We categorised each scheme as one of Ambitious, Balanced or Deliverable:

**Ambitious** – We consider that the scheme assumptions result in providing a trajectory that is more ambitious than the Region could have chosen to apply. For example, for a risk this might mean that they have chosen to assume levelling off a deteriorating trend rather than assuming the trend continues at the same rate or assumed a significant benefit with limited evidence of similar schemes delivering a similar scale of improvement.

**Balanced** – We consider that the Region have chosen reasonable assumptions for the scheme that lead to a good balance between an ambitious and deliverable trajectory.

**Deliverable** - The Region has chosen assumptions for the scheme which leads to a more deliverable trajectory than we consider could reasonably have been applied.

Schemes were reviewed by one individual for each Region and then their rating and commentary cross checked by an independent team member. The factors considered during the review included:

- Are the assumptions consistent with the description / intent in the submission plan?
- The assumed likelihood of the scheme e.g. for a committed fleet scheme have they assumed likelihood of 1?
- The Min/Max range - is there a bias in the min/max range one way or the other? This has the potential to skew the P50 value used in the trajectory away from the central expected assumption; if so, is this justified?
- The categories/geography impacted and the number of delays/cancellations in the base and historically, considering any trends and our understanding of the status of change programmes/enhancements and the scale of impact similar schemes in the past.

The findings of the scheme review for each Region were summarised by the number of schemes rated by each category, whether the scheme models a risk or improvement and have a small, medium or large impact. The classifications for the scale of the impact are set out in Appendix B.

### 3.3 Region Engagement

We had at least one call with each Region to discuss the submission and scheme assumptions and gain a deeper understanding of the basis of the modelling work. We presented our emerging findings in 3 separate sessions to ORR and Network Rail during the Stage 2 review process and had separate follow up sessions or engaged by correspondence on specific topics with the regional teams to clarify.

### 3.4 Trajectory Assessment

For the overall trajectory assessment, we have assigned a score on a scale of 1 to 5 for each Region and T-3 & Cancellations trajectory where the score represents the following:

1. **realistic/deliverable:** We consider that there is not a high degree of ambition/challenge and hence there is a good likelihood of achieving the targets.
2. **slightly more realistic than ambitious:** The trajectory displays a degree of ambition, but we consider there is a high likelihood of the Region being able to successfully deliver the trajectory.
3. **balanced:** We consider the trajectory has a good balance between ambition and being realistic/deliverable. Network Rail and/or operators would need to deliver the mitigations and improvements set out in the plan to achieve the trajectory.
4. **slightly more ambitious than realistic:** We consider that the trajectory has a degree of ambition that will make it challenging to deliver and there is a reasonable likelihood that it would not be achieved in full.
5. **ambitious:** We consider that the trajectory has a high degree of ambition and that there is a low probability of achieving the trajectory.

The overall trajectory assessment considered all the of the review activities undertaken including:

- Submission review (as described in 3.1);
- Schemes review (as described in 3.2);
- Our analysis of the base year and year 1 exit position and consideration of whether it can be considered a typical year for each cause category and the assumptions/adjustments that each region has made in particular for externals (trespass & vandalism) (see 6.8) and weather impacts (see 6.9);
- Any specific assumptions made for the performance achieved in year 2 if not modelled as part of the schemes;
- Alignment of the trajectory and inclusion of schemes with existing Performance Recovery Plans (see 6.6); and
- The relative contribution of Network Rail and Operator schemes to delivering the trajectory (see 6.1)

## **4. Model Review**

### **4.1 Approach**

The purpose of the model review was to confirm that the model functioned in the way that was described by the model development team during Stage 1 and that specific issues with the model base data that were identified have been addressed.

Network Rail supplied copies of the delay/punctuality and cancellations models used to carry out the model runs which for most Regions derived the submitted performance trajectories for year 2 to year 5 of CP7 (with the notable exceptions of Eastern as described in section 5.2 and Scotland as described in 5.6). The files provided included:

- Python modules;
- Input scheme excel workbooks containing the regions scheme impact assumptions;
- Input base data and assumptions; and
- Output files from the model run used to prepare the submission.

The following activities were carried out:

- Examination of logic flow: We carried out examination of the python code, following the processing logic and confirming that it was consistent with the description of the intended functionality. We consider this to be a methodological review.
- Examination of model outputs: The model outputs include not only the final output results that are used to prepare the submission but also extracts of data at key processing steps. We interrogated this data at the various intermediate processing steps to understand and confirm the calculations being carried out are as we would expect.
- Testing with specific test schemes: We carried out full runs of the model with the submitted schemes to confirm comparable outputs (although not exactly the same as would be expected for a Monte Carlo analysis) as well as testing with specific scheme inputs, primarily to investigate and reproduce concerns identified in the model outputs.

We have not carried out a full technical review of the model and cannot be confident there are not issues beyond those identified and set out in the following sections.

### **4.2 Findings**

The issues with the base year delay data and train kilometres identified during Stage 1 were addressed. The base data inputs to the models are as we would expect for the baseline period set out by the modelling team.

The delay / punctuality model consists of 11 python modules with around 3000 lines of code. The cancellations model follows a similar structure but has an additional module for specific differences in functionality and adjustments to other modules to allow for where there are differences in the calculations required e.g. cancellations does not have separate primary and reactionary impacts.

We found the code to be well structured and the logic was reasonably easy to follow. It included sufficient comments and the module, function and variable naming was mostly clear to aid understanding. We found the program flow and intended logic was consistent with the approach that was described to us by the model team in Stage 1.

Although the code logic reflected the intended functionality some issues were identified. These consisted of a mixture of methodological issues, where the intended logic will not provide the outcome that the Region

might expect and faults in the code which result in miscalculation. These are set out in the following section. Network Rail have been informed of these issues during the engagement process.

## **4.3 Issues Identified**

### **4.3.1 Entering impact as absolute minutes**

Where the Region wishes to enter the number of minutes impacted instead of a factor they were advised to set the impact to apply to "All Delays". The model converts the number of minutes entered to a factor of the total primary and reactionary delays in the relevant geography/cause categories. The factor is applied to the primary and reactionary delays (compounded with other schemes as necessary) but is then applied again to the primary: reactionary ratio; this is intended functionality when entering factors with the "All Delays" setting.

The result is to reduce/increase the total delays by more than the amount entered because it is essentially applied to the reactionary delays twice. Network Rail have confirmed this is an issue. They estimate that it impacts a total of 32 schemes, 14 of which had an intended increase of more than 2,500 and 5 had intended decrease of more than 2,500 minutes.

### **4.3.2 Gaps in scheme impact years**

The intended functionality is that the impact entered for a scheme should be rolled forward to subsequent years unless a different impact has been entered. This is functioning correctly to roll forward the final impact entered to the end of the control period. However, where there is a gap in the impacts entered, the intervening years do not have the impact applied e.g. where impacts are entered for 25/26 and 27/28, we would expect the 25/26 impacts to also be applied in 26/27 but it is not.

Network Rail are investigating and have confirmed this is an issue. We would expect a very small number of schemes to be impacted (less than 5) and it would not impact the year 5 position.

### **4.3.3 Schemes with no impact modelled**

We identified 3 schemes where no impact has been calculated by the model. The issue appears to be with the scheme configuration e.g. text for delivery unit is not prefixed with a dash.

We would recommend that the model raise a warning if a scheme impact fails to match any rows in the baseline data to highlight to the users the scheme misconfiguration.

### **4.3.4 Mean instead of P50 for waterfalls and Delay per 1000 Train Miles Trajectory**

The waterfalls and the delay per 1000 train miles trajectories currently use an average or mean function. Therefore, there is the potential that they are not consistent with the P50 punctuality and cancellations trajectories. The impact is likely to be small.

Since identifying this concern we have had some further discussions with NR about this. They have concerns that using the median against sub-categories of performance i.e. NR attributed delays and the waterfall sub-categories, also risks being inconsistent with the P50 trajectories depending on the specific mix of scheme impacts in the Monte Carlo iterations. This is the reason for use of mean in these cases.

### **4.3.5 Scheme impact applied to incorrect geographies/categories**

We identified a fault in the code that can impact schemes that have multiple impact rows for a single year e.g. they have rows that impact different routes by different factors. The factor can be applied to base delays



other than the specific category that it is configured to apply to e.g. each impact configured to apply specifically to Kent, Sussex and Wessex might be applied to the whole of the Region.

The result is the impact of the schemes are overstated. Network Rail have confirmed this is an issue in the model run used to prepare the submission. This was an error that had previously been resolved but the code has been reverted to an earlier version by mistake. Network Rail have rerun the model with the corrected code and provided the tables to illustrate the impact on the end position.

This only impacts the delay/punctuality trajectories. The improvements (change in T-3 relative to Year 1 of CP7) modelled for the Eastern and Wales & Western regions would have been around 20% less and the deterioration modelled by North West & Central would have been about 50% less. The net impact on the Southern year 5 position would be minimal.

## 5. Assessment of Submitted Trajectories

This section describes our assessment of the T-3 and Cancellations trajectories for each Region. Note that since the T-3 trajectories are based on the modelling of delays we have not included a separate section in the report for the NR Delay per 1000 Train Miles trajectories. The contribution of the NR attributed delays is considered and described as part of the T-3 trajectory assessment in the following sections.

A high level summary of our assessment of the regions trajectories can be found in section 2.1.

### 5.1 Overview

The general structure of the Regions' submissions is consistent, but the level of detail and the way schemes are described varies. For example, two Regions present the outcome of the key schemes on the overall metric, one presents a summary of the input assumption of the scheme, and one just indicates if it impacts punctuality and/or cancellations without stating the of scale of impact.

We have not identified any significant discrepancies between the plans and intent of scheme modelling assumptions but have identified some cases where scheme inputs are not as the Region intended.

Generally, the level of detail of the rationale for the assumed impact of the schemes included in the submission packs is at a high level. It is not always possible to identify the schemes in the list that relate to these and the modelling assumptions for the schemes are not always clear from the descriptions in the schemes input sheets.

The focus of the submissions is on the end state position in year 5. The modelled schemes can have different impacts on the trajectory in year 3 & year 4.

The submissions include commentary on factors that the Region considers drives uncertainty in the outcomes. They did not include a range of forecasts output from the Monte Carlo model. The ranges were included in the model outputs provided by Network Rail, but we have not carried out an assessment of these ranges.

#### 5.1.1 Summary of historical and forecast trajectories

The tables below show the historic actuals for CP6 and year 1 of CP7 alongside the Network Rail submission trajectories from May 2025.

Note that 2020/21 and 2021/22 were the years that were impacted by Covid restrictions and reduced ridership and services on the rail network. There were significant improvements in punctuality and delays during these years with a decline in performance since this period. 2020/21 also saw improved cancellations performance due to reduced services with similar resource levels but this position started to deteriorate in 2021/22 as training backlogs and staff absences increased and some of the services previously removed were reinstated.

**Table 4 : Time to 3 May submission trajectories, historic values and Final Determination trajectories**

T-3 %	CP6						CP7			
	Historic Actuals						NR Submission Forecast			
	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Eastern	84.7%	93.2%	90.2%	86.7%	85.7%	85.0%	<b>85.5%</b>	<b>81.9%</b>	<b>82.3%</b>	<b>84.6%</b>
	Final Determination Trajectory (equivalent)					86.5%	86.5%	86.5%	86.5%	86.5%
NW&C	79.3%	92.0%	87.5%	82.8%	82.7%	82.5%	<b>82.3%</b>	<b>82.2%</b>	<b>82.2%</b>	<b>82.2%</b>
	Final Determination Trajectory (equivalent)					82.0%	82.0%	82.2%	82.3%	82.3%

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T-3 %	CP6					CP7				
	Historic Actuals					NR Submission Forecast				
	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
S'thn	85.2%	93.0%	90.1%	85.6%	86.2%	85.2%	<b>85.0%</b>	<b>85.1%</b>	<b>85.2%</b>	<b>85.4%</b>
	Final Determination Trajectory (equivalent)					85.8%	85.9%	85.9%	85.9%	85.9%
W&W	81.6%	91.8%	85.0%	79.2%	76.1%	78.6%	<b>79.1%</b>	<b>79.5%</b>	<b>79.9%</b>	<b>80.0%</b>
	Final Determination Trajectory (equivalent)					77.8%	77.8%	78.9%	78.9%	79.0%

**Table 5 : Cancellations May submission trajectories, historic values and Final Determination trajectories**

Cancel %	CP6					CP7				
	Historic Actuals					NR Submission Forecast				
	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Eastern	3.5%	2.0%	3.0%	3.5%	3.7%	3.9%	<b>3.6%</b>	<b>3.5%</b>	<b>3.4%</b>	<b>3.4%</b>
	Final Determination Trajectory					3.4%	3.3%	3.1%	2.9%	2.7%
NW&C	4.0%	1.9%	3.4%	4.2%	4.4%	5.1%	<b>4.7%</b>	<b>4.8%</b>	<b>4.8%</b>	<b>4.7%</b>
	Final Determination Trajectory					3.7%	3.5%	3.3%	3.2%	3.0%
S'thn	3.5%	2.3%	3.9%	4.0%	3.4%	3.9%	<b>4.0%</b>	<b>3.9%</b>	<b>3.8%</b>	<b>3.8%</b>
	Final Determination Trajectory					3.5%	3.5%	3.4%	3.2%	3.1%
W&W	2.6%	1.7%	3.1%	3.7%	4.9%	4.7%	<b>4.4%</b>	<b>4.3%</b>	<b>4.3%</b>	<b>4.3%</b>
	Final Determination Trajectory					3.8%	3.8%	3.6%	3.5%	3.3%
Scot	2.6%	2.1%	2.8%	3.0%	2.5%	2.2%	<b>2.3%</b>	<b>2.3%</b>	<b>2.3%</b>	<b>2.3%</b>
	Final Determination Trajectory					2.3%	2.3%	2.3%	2.3%	2.3%

**Table 6 : NR Delay per 1000 train miles May submission trajectories, historic values and Final Determination trajectories**

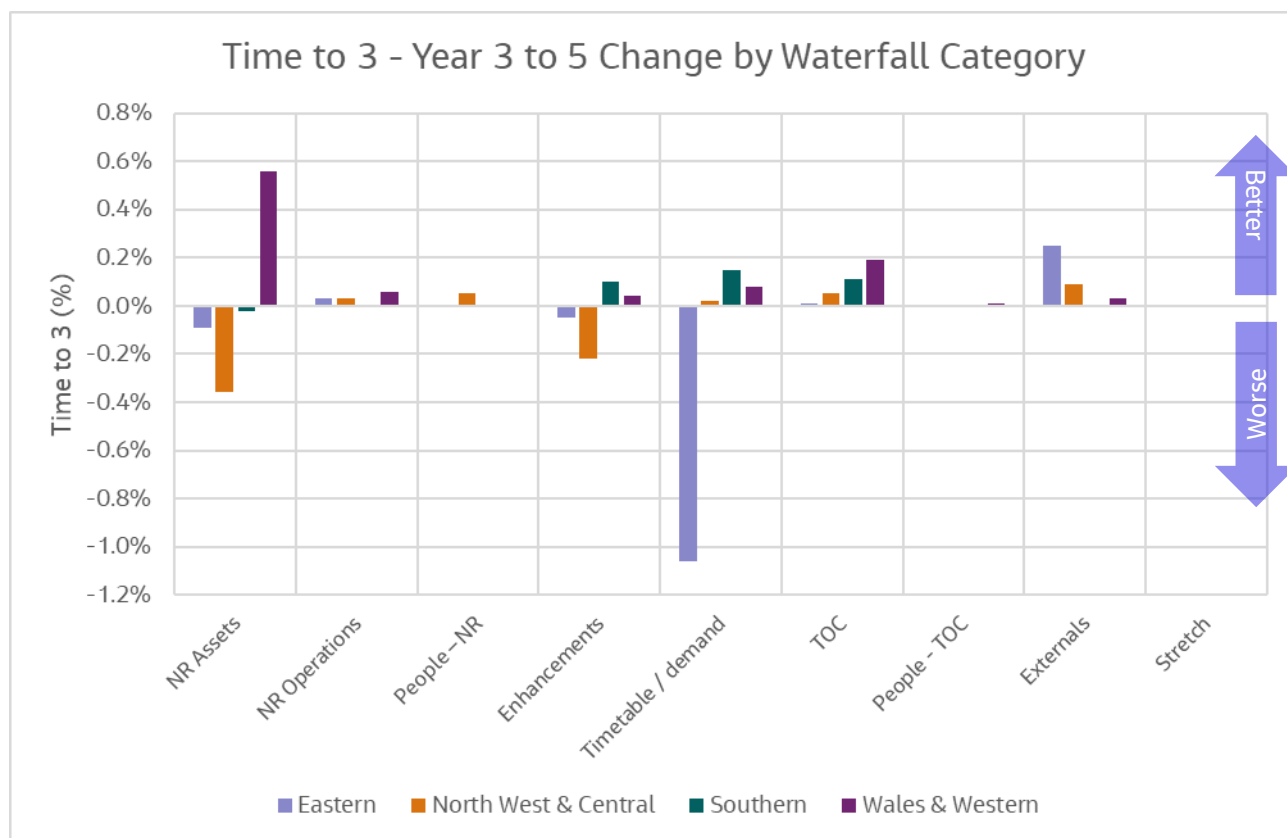
NR Delay per 1000 Train Miles	CP6					CP7				
	Historic Actuals					NR Submission Forecast				
	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Eastern	26.20	16.30	19.80	26.80	28.80	28.40	<b>28.51</b>	<b>35.25</b>	<b>34.57</b>	<b>30.34</b>
NW&C	32.50	18.20	22.20	29.30	31.20	32.20	<b>32.90</b>	<b>34.00</b>	<b>34.20</b>	<b>34.60</b>
S'thn	41.80	22.60	29.40	42.60	40.30	42.10	<b>42.50</b>	<b>42.30</b>	<b>42.10</b>	<b>41.80</b>
W&W	24.80	15.40	28.60	38.50	45.10	36.70	<b>35.93</b>	<b>34.63</b>	<b>33.79</b>	<b>33.30</b>

### 5.1.2 Summary of year 3 to year 5 change by category

The charts below illustrate the total change in each waterfall category (as selected by the Regions on the scheme input sheets) between year 2 exit position and year 5 to Time to 3 (T-3) and Cancellations as indicated on the waterfall charts in the submission. Note, this is to the final position in year 5. Other years could have changes of different scale (and direction) in year 3 and year 4. Values were read from charts so changes below 0.01% are not shown. Scotland do not include an equivalent waterfall chart in their submission.

The year 2 exit position to which these deltas are applied is also modelled as the impact of schemes on the year 1 actual performance values at the end of rail year 2024/25 for most Regions. The notable exception to this is the Eastern Region where the year 2 exit position is based on the forecast recovery of their regulatory Performance Improvement Plan. The year 2 exit positions are discussed further in the following sections for each Region.

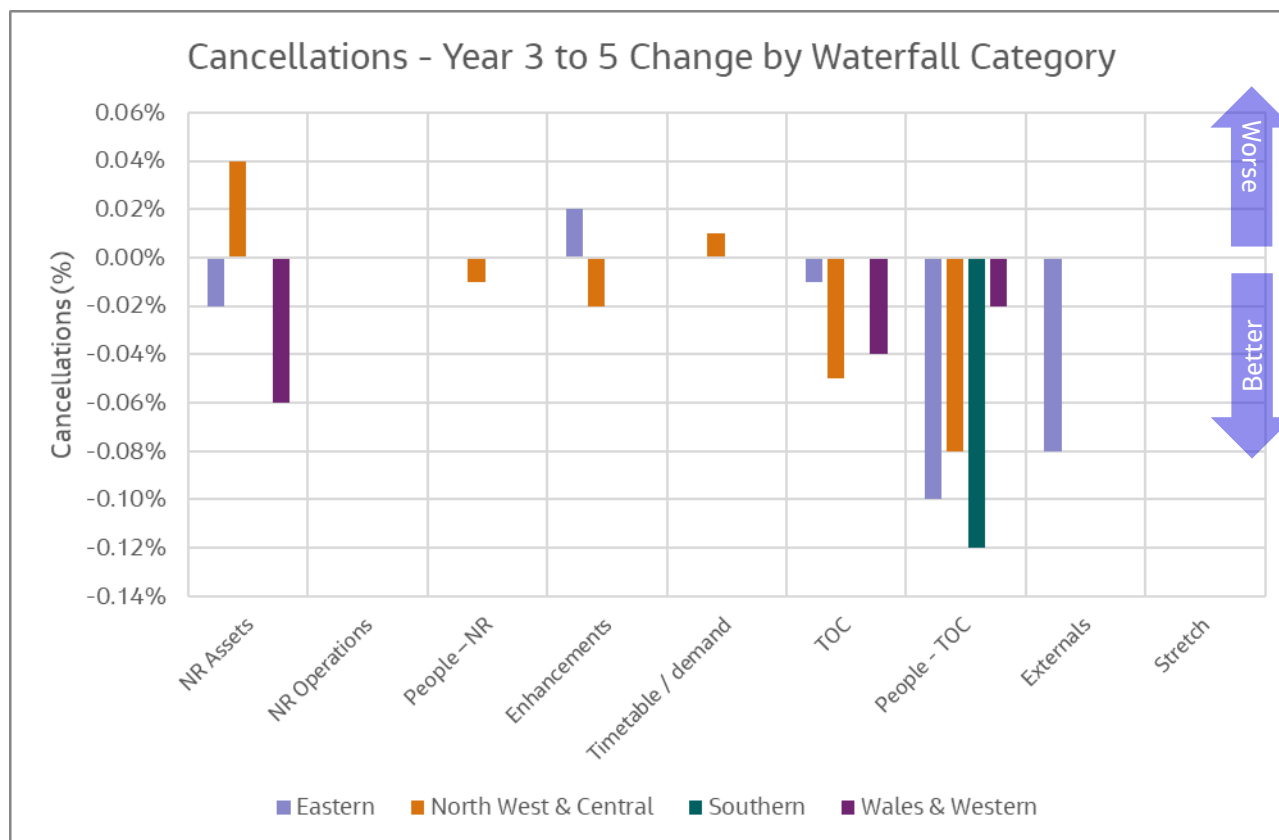
Figure 5-1 : Time to 3 - Year 3 to 5 Change by Waterfall Category



For T-3:

- Wales & Western and Southern have net improvement or no change across all waterfall categories;
- Eastern have forecast greatest improvement in Externals;
- NW&C have forecast greatest net deterioration from assets schemes;
- Largest net impact is timetable on Eastern Region, driven by the ECML Dec 25 timetable change; and
- None of the Regions have modelled any additional stretch related to schemes that are not committed.

**Figure 5-2 : Cancellations - Year 3 to 5 Change by Waterfall Category**



For Cancellations:

- Like T-3, Wales & Western and Southern have net improvement or no change across all waterfall categories;
- Eastern is the only Region forecasting net reduction in impact of externals (narrative suggest this is primarily trespass & vandalism);
- Eastern is not forecasting any impact on Cancellations from ECML December 25 timetable;
- All Regions have forecast some benefit from TOC schemes, although this is limited to committed funded initiatives; and
- Scotland did not provide a waterfall in their submission so are not included on the chart.

## 5.2 Eastern

### 5.2.1 Time to 3

#### 5.2.1.1 Base position

Punctuality has been declining through 2023/24 and 2024/25 to a level below the PR23 Final Determination target. The region published a Performance Improvement Plan in December 2024 to reverse this trend, this is described in the next section.

Weather impacts were lower than the years immediately prior but comparable to historical levels. We do not consider that the Region needed to adjust for these levels in the forecast trajectory.

There was an increase in the impact of external events on delay of circa 32% in 2024/25 compared to 2023/24.

Across other categories performance in the base period delays were either similar or slightly worse than the performance in the years immediately prior, although for several categories this is higher than the levels that have been achieved in the past.

### **5.2.1.2 Performance improvement plan / Year 2 Exit**

The Eastern Performance Improvement Plan was put in place in December 2024. The plan forecast a range of outcomes between 69.7% and 70.5% On Time for the end of year 2. The delivery of the plan was via a combination of joint plans with operators and NR initiatives.

Eastern Region have aligned their trajectory with the plan by setting the year 2 exit position as the equivalent of the mid point of the Performance Improvement Plan forecast. The benefits in the plan are therefore included in the year2 exit forecast.

We consider the year 2 exit position to be ambitious as the T-3 trajectory is currently worse than the plan forecast trajectory for year 2.

The submission sets out that the benefits of the plan beyond the first 18 months are incorporated into the scheme assumptions. This is clear in schemes such as externals which assume additional benefits. It is not always clear whether other schemes have been adjusted to incorporate the components of the plan but there are several schemes modelled to improve performance in various areas.

### **5.2.1.3 East Coast Main Line December 2025 Timetable**

The December 2025 East Coast Main Line (ECML) timetable represents a complete recast of the timetable structure for all operators using the ECML. For LNER, the new timetable allows for an increase in the number of services provided each hour, up from five Long Distance High Speed (LDHS) trains per hour (tph) per direction currently to 6tph in a standard hour. A 7th LDHS path is available for Open Access operators to Hull, Bradford Interchange, Sunderland and Edinburgh.

For LNER, an additional hourly service between London King's Cross and Newcastle is delivered therefore allowing journey time improvements for Edinburgh services. This is enabled by reducing the number of TransPennine Express services north of York. Subject to infrastructure works, the two-hourly London King's Cross to York services will be extended to Middlesbrough.

The restructuring of the timetable allows Great Northern, Thameslink and Greater Anglia services to call at the new Cambridge South station.

This is modelled as an overlay to the main delay modelling. There are three elements to the analysis. Two of these are used to estimate the year 5 impact: a Railsys model of "good day" and the expected change in "average day" performance. A "bathtub" effect is used for Years 3 and 4.

The Railsys model is used to estimate the impact on punctuality on a "good day"; Eastern subsequently clarified during engagement that this is more representative of the change in specification loss under no or limited perturbation rather than necessarily "good day" performance. The On Time outputs from the model are taken and scaled to a Region level impact; this has been done using a reasonable approach and reflects the Railsys outputs. It does not attempt account for reactionary impact of those services included in the RailSys modelled area on services that are outside the modelled area, and we consider this to be a more optimistic assumption. This is then converted into a T-3 equivalent using a regression model. Railsys does provide T-3 outputs and using these directly results in a greater negative impact on modelled performance which the Region could have used.

The “average day” analysis uses a regression of historical data of the number of trains and total delays to estimate the proportional increase in delay from the increase in number of trains associated with the timetable change. The factor applied was selected by Eastern by reading from the regression chart using an exponential fit line. A slightly higher factor was selected than suggested directly by the regression line. The Region indicated this was to reflect additional risk associated with the complexity and expected congestion impacts of the timetable change as the growth in services is concentrated in higher impact areas to network performance such as Leeds, the ECML (King’s Cross, Welwyn, Peterborough, York and Newcastle), and Sheffield. The Region also applied an uplift based on the increase in the proportion of trains. We do not consider that this additional uplift is required as the regression already factors in the increase in train services. If the regression only considered the relationship to delay per incident or the primary:reactionary ratio then we might consider it was also reasonable to apply the train service proportional change factor.

For the “average day” analysis the increase in the number of train services is based on the number of additional services in the RailSys modelling. This could potentially understate the increase in the number of services for the Region as it only models a 6-hour period of the day. However, the number of services as presented from RailSys counts each train as a whole for each Route that it operates in, even if only partially operating in that Route; therefore, there is the potential that this overstates the increase in train services. We therefore have some uncertainty about the number of train services used in the analysis and it is unclear whether this risks making the analysis outcome more or less optimistic.

The good day and average day are then added together. Eastern Region do this as they consider that the RailSys modelling incorporated in the “good day” analysis provides a view of what the base plan will deliver with little or no perturbation and that the “Average Day” provides a view with more typical perturbation. As punctuality loss is a factor of both attributable and sub-threshold delays, they believe the RailSys output scaling assists them with understanding the latter. However:

- the T-3 impacts in the RailSys model are disproportionately high relative to On Time. Although the RailSys modelling does not specifically model increases in attributable delays e.g. instances of failure in infrastructure, fleet, traincrew etc we would expect these increase in T-3 failures to result in related attributable delay in most instances. Therefore, we consider that the RailSys modelling indicates a material proportion of the increased risk would be realised as attributable delay;
- the “average day” analysis includes all day types in the regression, good, average and bad; and
- the Region have incorporated an uplift into the “average day” analysis to reflect the additional risks posed by the timetable.

Therefore, we consider there is a risk of double counting the impacts by adding the “good” and “average” day values.

The bathtub analysis is used to estimate the impact of the timetable change in Years 3 and 4 where the impact is expected to be more severe than year 5. The approach taken is as follows:

1. The impact on the On Time Moving Annual Average (MAA) of 7 operators following timetable changes is collated.
2. A trajectory based on the On Time change following the timetable implementations is calculated. The average of these deltas is calculated.
3. The value of this trajectory at periods 13 and, 26 after the timetable change is used as the impact to On Time for years 3 and 4. The region clarified during engagement that their intention is that the difference between the values at periods 13 and 26 relative to period 39, which represents the end state after 3 years, should be used to estimate the impact in year 3 and 4 relative to the end state position suggested by the “good + average” analysis. Because the bathtub period 39 and “good + average” value for year 5 had the same value, this intention was not clear until late in the stage 2 review.

4. A proportion (1/4) of the year 3 impact is applied to year 2 on the basis that the timetable would be implemented in period 10.
5. The On Time is converted to T-3 factors to apply in each year using regression.

**Figure 5-3 : Eastern Region Timetable Change On Time "bathtub" impact analysis**

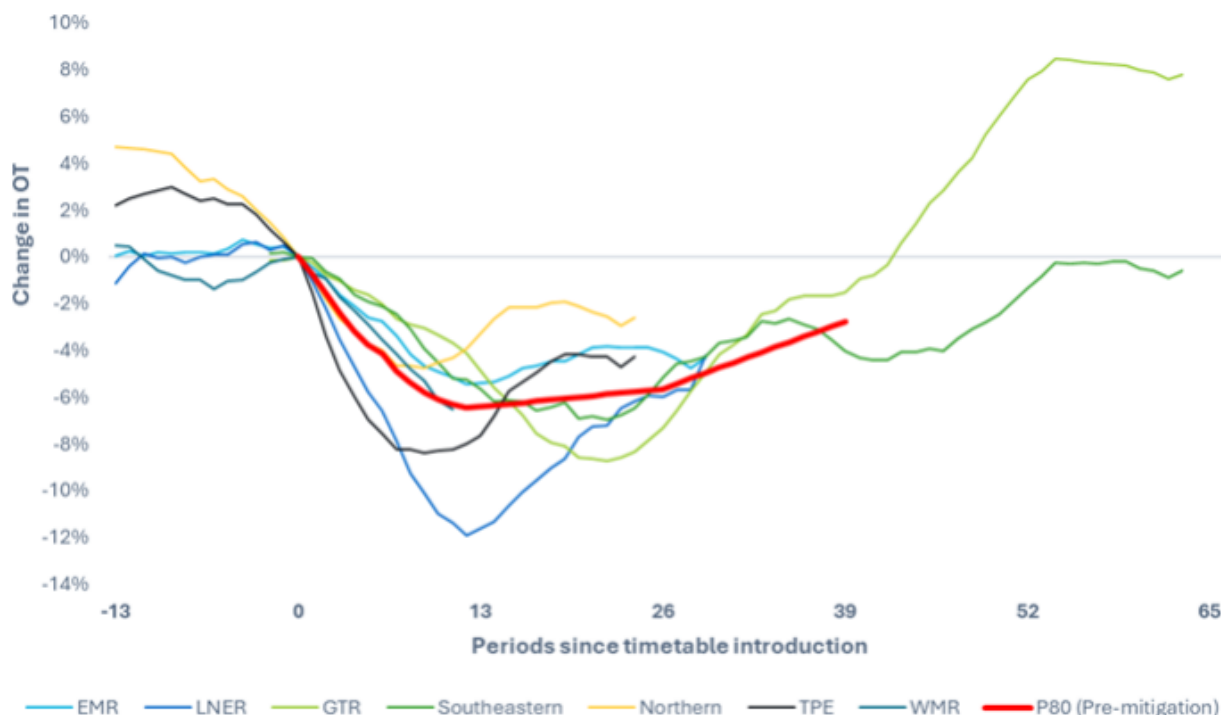


Figure 5-3 is a chart taken from the Eastern Region 9 May 2025 submission that illustrates the TOC On Time change profiles used in the analysis and the resulting assumed trajectory. The Region state that they view the result of the bathtub analysis as a P80 position (i.e. that it would be worse than this 20% of the time, and better than this 80% of the time) but that it is not a mathematically derived P80.

The trajectories considered by Eastern's analysis are calculated against the main operators on the Route impacted by the timetable change. This is then used as the assumption for the Region On Time trajectory. Although we might expect a material proportion of the Region to be impacted by the ECML Dec 25 timetable change, we would expect some adjustment to reflect the proportion of services that would suffer a lesser or no impact in the Region. Weighting by the proportion of the Region impacted would make the estimated impact less in years 3 and 4.

The GTR May 2015 change is impacted by a subsequent deterioration from further substantial timetable changes in May 2016. When looking at the average regional level this suggests even worse performance 2 years after introduction. All the other operators start to show improvement after 13 periods with a more stable position achieved by the end of year 2. This suggests to us that a reasonable assumption would be that the bathtub should only materially apply to year 2 and year 3 of CP7 with the expectation that year 4 should reflect the end state position and not year 5.

We note that if the bathtub analysis is completed using T-3 directly instead of On Time it is likely to provide a trajectory with worse performance.



Overall, based on the information received on the approach to date, we view the estimated impact of the ECML timetable as contributing to a slightly realistic position. Our concerns include:

- the risk of double counting by adding the RailSys to the delay impacts analysis;
- the application of change in train service factor in addition to the delay regression factor;
- the impact of GTR on the bathtub analysis and our view that the bathtub should primarily only impact year 3 of CP7; and
- the bathtub analysis is not scaled from the TOC to the Region level.

These concerns will in part be offset by the Region's use of On Time in their analysis and then converting to T-3. Working with T-3 directly is likely to suggest a greater impact on T-3 punctuality.

We acknowledge that, despite our specific concerns, the analysis of the RailSys outputs and trends following previous timetable changes are useful in forecasting the potential impacts of the ECML timetable change. We note the high degree of uncertainty given limited data and the unique nature of each significant timetable change. Eastern Region have continued to provide clarification on their methodology and have not accepted our findings at this point and is continuing its analysis and evidence gathering for Stage 3 of the reporter process.

### **5.2.1.4 East Coast Digital**

Eastern have an overlay for the East Coast Digital programme which plans to expand European Train Control System (ETCS) to parts of the Eastern Coast route during CP7.

The modelling is based on the observed change in On Time on the Northern City Line (NCL) in the 13 periods following introduction (November 2023) with an assumed return to pre-ETCS levels by the end of CP7. The impact of ETCS overlay between Hitchin and Welwyn is modelled based on the observed change in On Time on NCL and extrapolation to adjacent stations. This is assumed to have 60% more impact than observed on NCL.

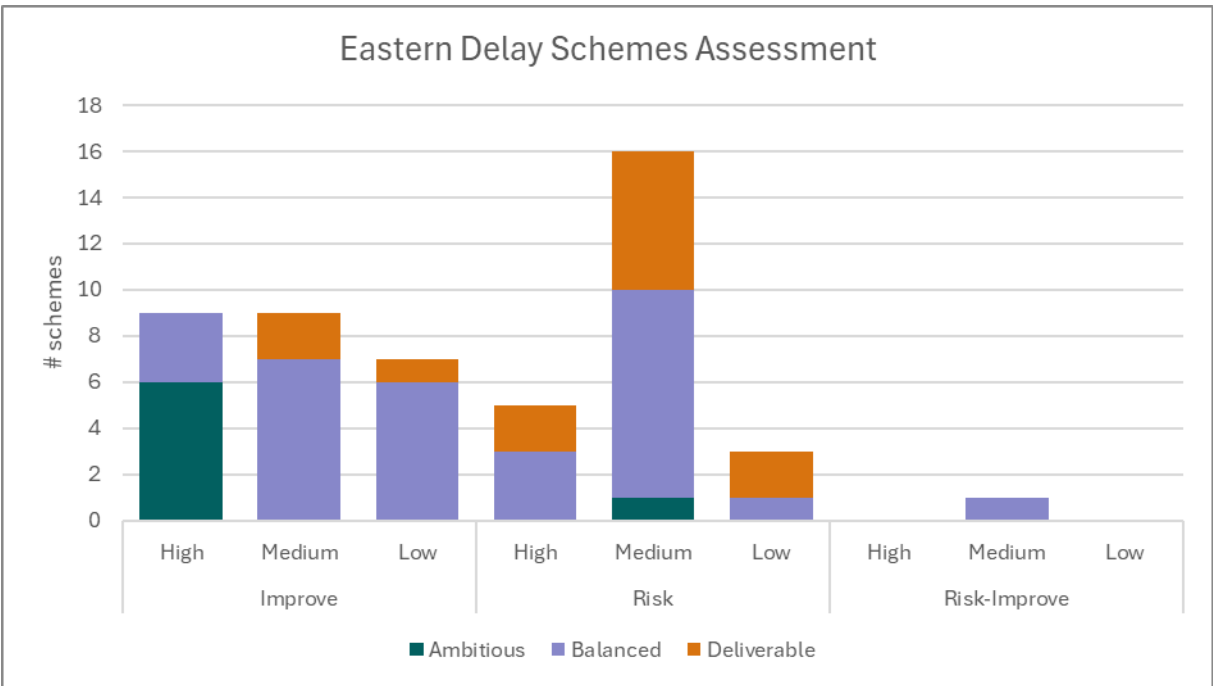
Eastern described how a reliability board has been established to manage the impact of East Coast Digital programme. This mostly covers monitoring of the performance impacts.

We consider that the Region modelling of the impact is reasonable.

### **5.2.1.5 Scheme Review**

Our scheme review (illustrated below) identified the majority of schemes were balanced, with 6 High impact improvement schemes classified as ambitious offset by 13 schemes rated Deliverable across Medium and Low Improvements and High, Medium and Low Risks. The classifications for the scale of the impact are set out in Appendix B.

Figure 5-4 : Eastern Delay Schemes Assessment



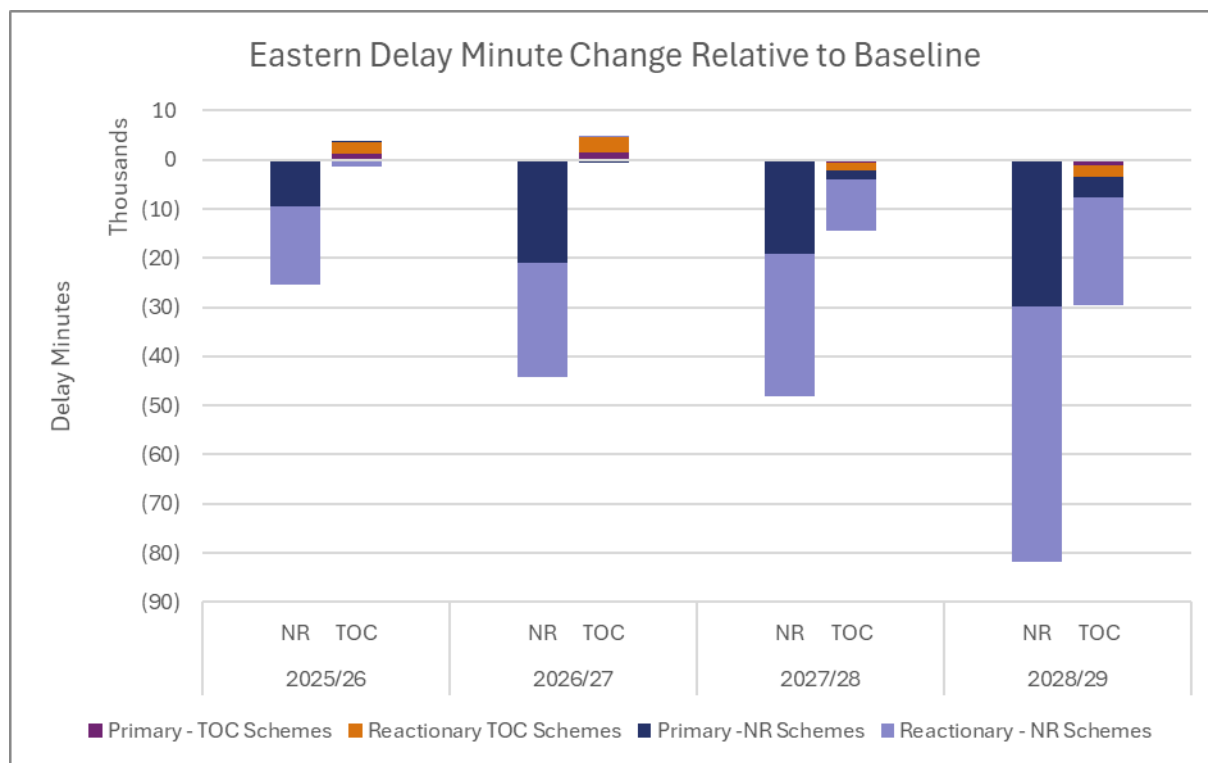
Following clarification Eastern Region confirmed that two of the schemes rated ambitious were modelled incorrectly. These are Anglia Externals and Anglia Local Improvement Plans where the impact has been applied to all cause categories rather than Externals and Track/Non-Track respectively. This results in the benefits of the schemes being overstated. The Region have confirmed they plan to recalculate the potential impact of these schemes and it is possible the correction may result in reclassification as balanced.

### 5.2.1.6 TOC Scheme Contribution

The chart illustrates the net impact of the schemes on delay minutes. Each column represents a different model year and either delays attributed as TOC responsibility or attributed to Network Rail.

TOC Schemes are those informed by assumptions from the operators; these are schemes generally classified in the TOC and People (Traincrew) waterfall categories. A positive number represents a net deterioration in performance relative to the base in that category.

Schemes classified as Network Rail can also impact TOC attributed delays for example where they assume an overall improvement in dealing with incidents and may include schemes that require joint working and contribution from operators to deliver.

**Figure 5-5 : Eastern TOC/NR Delay Minute Change Relative to Baseline**

Most of the reduction in delays is driven by the NR schemes. A significant portion is the Anglia Externals scheme (which may be overstated due the scheme being applied to all cause categories) which more than offset the negative impacts of assets risks and TRU.

The main contributor to the increase in TOC category delays in year 2 & year 3 followed by subsequent improvement is the East Midlands new fleet.

Other risks such as aging Northern fleet is offset by assumed improvements in Northern traincrew and Elizabeth Line fleet and, in the final 2 years, TPE class 185 refurbishment.

### 5.2.1.7 Overall assessment

Overall, we view the proposed T-3 trajectory for Eastern region to be **slightly more realistic than ambitious**. Factors that suggest a more ambitious trajectory include:

- Externals: modelled benefit year 3 to year 5 is the greatest across all the Regions (mainly on trespass & vandalism). Noting that Eastern have had the greatest proportional increase in externals in 24/25 so have more to recover. It should also be considered that the scale of this impact is likely to reduce once the corrections described above are applied;
- Year 2 exit: set at mid-point of improvement plan range, which NR indicate is ambitious because they are currently not on trajectory to achieve this; and
- TOCs: Eastern have been consistent in not applying operators risks which are not committed as with opportunities e.g. GA risk of required service strengthening to address crowding and c2c ageing fleet.

Whereas areas that are considered more realistic are:

- TOCs: small benefit from new EMR bi-modes (which has deterioration modelled in year 3 & year 4) but not for any other TOCs. EMR note their T-3 programme and Dec 25 regional recast which may offer punctuality improvements, and no punctuality benefit has been assumed for the GTR additional Traincrew which we might expect given the potential for improved recovery from incidents;

- ECML Dec 25 timetable: assumes significant performance risks in CP7. As described above there are reasons to view this as contributing to a more realistic modelled trajectory; and
- Weather: The Region has plans to tackle both weather risks and impacts and remains positive that it can continue to become more resilient to these factors yet overall assume a net neutral position.

## **5.2.2 Cancellations**

### **5.2.2.1 Base position**

Cancellations have been increasing in Eastern Region from 3.5% in 2023/24 to 3.9% in 2024/25, the PR23 FD cancellation target level for 2024/25 is 3.4%. The Region published a Performance Improvement Plan in December 2024 to reverse this trend, this is described in the next section.

Weather impacts were lower than the years immediately prior but comparable to historical levels. We do not consider that the Region needed to adjust for these levels in the forecast trajectory.

There was an increase in the cancellations related to External category incidents to deliver the highest levels recorded with a year on year increase in related cancellations by around 40%.

### **5.2.2.2 Performance improvement plan / Year 2 Exit**

The Eastern Performance Improvement Plan was put in place in December 2024. The range for cancellations forecast for the end of year 2 was 3.3% to 3.8%. The delivery of the plan was via a combination of joint plans with operators and NR initiatives.

Eastern Region have aligned their trajectory with the plan by setting the year 2 exit position as the equivalent of the mid point of the Performance Improvement Plan forecast. Eastern Region are currently not meeting the plan forecast trajectory so meeting the year 2 exit position might be considered as ambitious.

The submission sets out that the benefits of the plan beyond the first 18 months are incorporated into the scheme assumptions. This is clear in schemes such as externals which assume additional benefits. It is not always clear whether other schemes have been adjusted to incorporate the components of the plan but there are several schemes modelled to improve performance in various areas.

### **5.2.2.3 East Coast Main Line December 2025 Timetable**

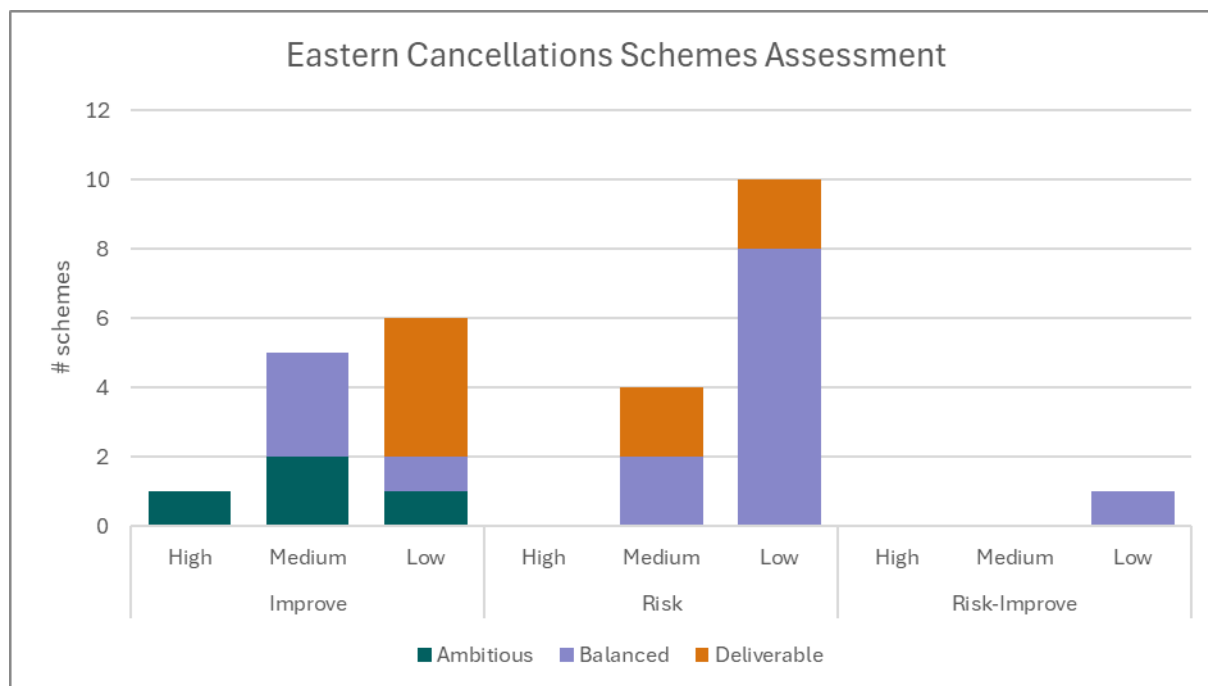
Eastern have assumed no impact on cancellations from the introduction of the ECML December 2025 Timetable. Some deterioration in cancellations, at least in the short term after the implementation, may be expected following a significant timetable change.

### **5.2.2.4 East Coast Digital**

Eastern have assumed no impact on cancellations from the East Coast Digital programme, which is the Hitchin to Welwyn overlay during CP7.

### **5.2.2.5 Scheme Review**

Our scheme review (illustrated below) identified the majority of schemes were balanced, with 4 improvement schemes classified as ambitious offset by 8 schemes rated Deliverable across Medium and Low Improvements and Medium and Low Risks. The classifications for the scale of the impact are set out in Appendix B.

**Figure 5-6 : Eastern Cancellations Schemes Assessment**

Externals schemes have significant savings assumed. The Region indicated this was against the year on year increase they had seen in the base (generally larger than other regions) and a specific strategy to target this. Note, for Anglia the same issue identified on the equivalent delay scheme affects some of the cancellations schemes, where schemes aimed at reducing Asset and External impacts for the have been applied to all cause categories thus overstating the impact. NR have confirmed these are to be updated. Once corrected these schemes may be reclassified.

The asset management & OLE scheme for the incremental risk on the Anglia route assumes a 5% increase in Non-Track asset incidents. This appears to be higher than the increase indicated in the SAF forecast chart in the Eastern Region Performance Improvement Plan and so has been classified as Deliverable.

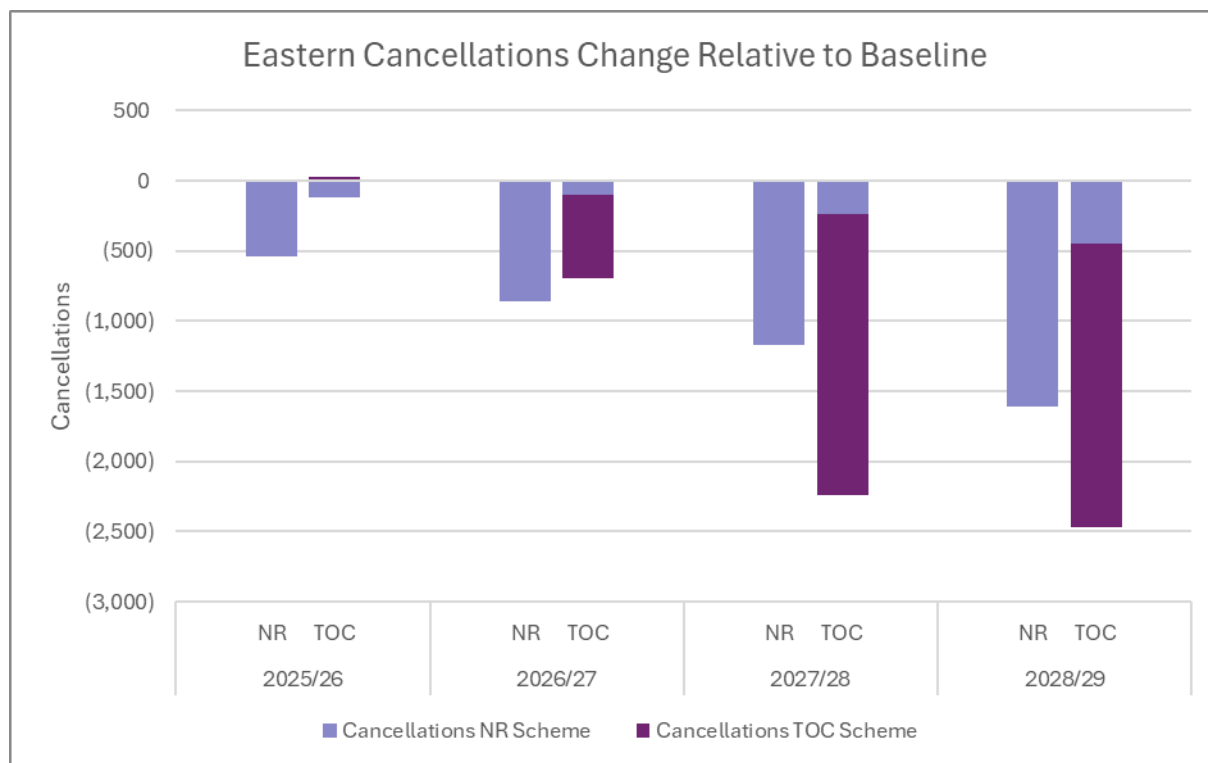
The East Coast Externals scheme description states expected savings of 5% but only 3% is assumed in the scheme inputs. Therefore, this has been classified as deliverable.

#### 5.2.2.6 TOC Scheme Contribution

The chart below illustrates the net impact of the schemes on cancellations. Each column represents a different model year and either delays attributed as TOC responsibility or attributed to Network Rail.

TOC Schemes are those informed by assumptions from the operators; these are schemes generally classified in the TOC and People (Traincrew) waterfall categories. A positive number represents a net deterioration in performance relative to the base in that category.

Schemes classified as Network Rail can also impact TOC attributed delays for example where they assume an overall improvement in dealing with incidents and may include schemes that require joint working and contribution from operators to deliver.

**Figure 5-7 : Eastern Cancellations Change Relative to Baseline**

Like delays, the main driver of improvement in NR cancellations (and NR scheme driven improvement in TOC attributed cancellations) is the externals scheme for Anglia, which may be overstated as has been applied to all cause categories.

The main driver of TOC improvements is the project 94 traincrew for GTR. The impact of this in year 5 is probably understated due to the way the scheme assumptions have been input (see 5.4.2.3).

### 5.2.2.7 Overall assessment

Overall, we view the proposed Cancellations trajectory for Eastern region to be **balanced**. Cancellations are predicted to decrease in all years.

Factors that suggest a more ambitious trajectory include:

- Externals: the modelled benefit in year 3 to year 5 is greatest across all the regions. Noting that Eastern have had greatest proportional increase in externals in 24/25 so have more to recover and that some of the scheme impacts are overstated due to modelling error;
- Operations and Timetable: Excluding the ECML timetable there are small net improvements modelled for incremental operations and timetable refinement in year 3 to year 5;
- ECML December 25 Timetable: There is no assumed deterioration in cancellations due to the Dec 25 timetable; and
- TOCs: Eastern have been consistent in not applying operator's risks which are not committed as with opportunities e.g. GA risk of required service strengthening to address crowding and c2c ageing fleet.

Areas that suggest a more realistic trajectory include:

- TOCs : There is no assumed reduction in cancellations from TOCs other than the GTR committed driver increase (which is the largest single reduction in Cancellations from a scheme set up by Southern as the lead Region but as modelled is understated in year 5 relative to the expected benefits set out in the Southern plan) and small benefit from EMR bi-mode (which has deterioration modelled in year 3 & year 4). There are other potential opportunities mentioned in the TOC submissions which are not included (e.g. LNER fleet schemes); Eastern have indicated that they consider that all committed TOC schemes have been included in the modelling. The reduction in cancellations of 10% from Northern's performance stabilisation plan described in North West and Central's submission has been modelled by North West and Central Region to apply to all relevant regions but not at the full 10% indicated.

## **5.3 North West & Central**

### **5.3.1 Time to 3**

#### **5.3.1.1 Base position**

Punctuality has been declining through 2022/23 and 2024/25 but remains better than the PR23 Final Determination target for year 1.

Weather impacts on delays were higher than the immediate previous years and above the historical average. Given these levels are higher than historically typical for the Region we would expect some adjustment in the forecast trajectory to compensate for this. The Region have provided us with some analysis whilst drafting this report which instead examines the direct impact of weather on T-3 and suggests 2024/25 may be a more typical year. We have not had the opportunity to consider this in detail at this time but will account for it during our stage 3 review.

Consistent with other Regions, North West & Central has seen an increase in delays attributed to External factors in the base period compared to previous years slightly above the trend. Other categories of delay have performance that is comparable to the performance in the years immediately prior.

#### **5.3.1.2 Year 2 Exit**

North West & Central Region have carried out a year 2 forecasting review. This focussed on NR Assets, NR Operations and Externals and resulted in the production of schemes for each route being included in the modelling. These scheme assumptions are used to model the change in performance from the actual year 1 (2024/25) end position to provide the year 2 exit.

For NR Assets the Region has assumed an overall increase in delays in the year 2 forecasting review. This is driven by an increase in delays caused by Track and Non-Track asset failures. We view the assumed impact as reasonable in most cases except for Central Non-Track Assets and West Coast South Track which we view as deliverable. For Central Non-Track the assumption is based on a one year trend on 302A (Signalling System & Functional Power Failures) and ignores an improving trend in 302B (Other Signal Equipment Failures) caused delays. For West Coast South Track NR are assuming an increase on a relatively high base position which is contrary to the accompanying commentary of maintaining a steady state.

NR are assuming an improvement in NR Operations, driven by an 50% reduction in the uninvestigated subcategory. Overall, we view this as balanced.

The year 2 forecasting review schemes contribute to an improvement in the base position for Externals, particularly on the North West route, including reversing the increasing trend on delays related to fatalities/trespass and a 15% improvement in structures. The rationale given for structures improvement was the replacement of Clifton Bridge, however this will not be replaced until late January 2026 so is unlikely to

have as large an impact in 2025/26. We consider these elements ambitious, although the structures benefit is likely to be reasonable for subsequent years.

Trespass & vandalism mitigation is assumed to remove ~20% of the increase in external delay observed between 2023/24 and 2024/25. We would expect a more ambitious plan to continue to focus on mitigation to provide continual improvement after year 2.

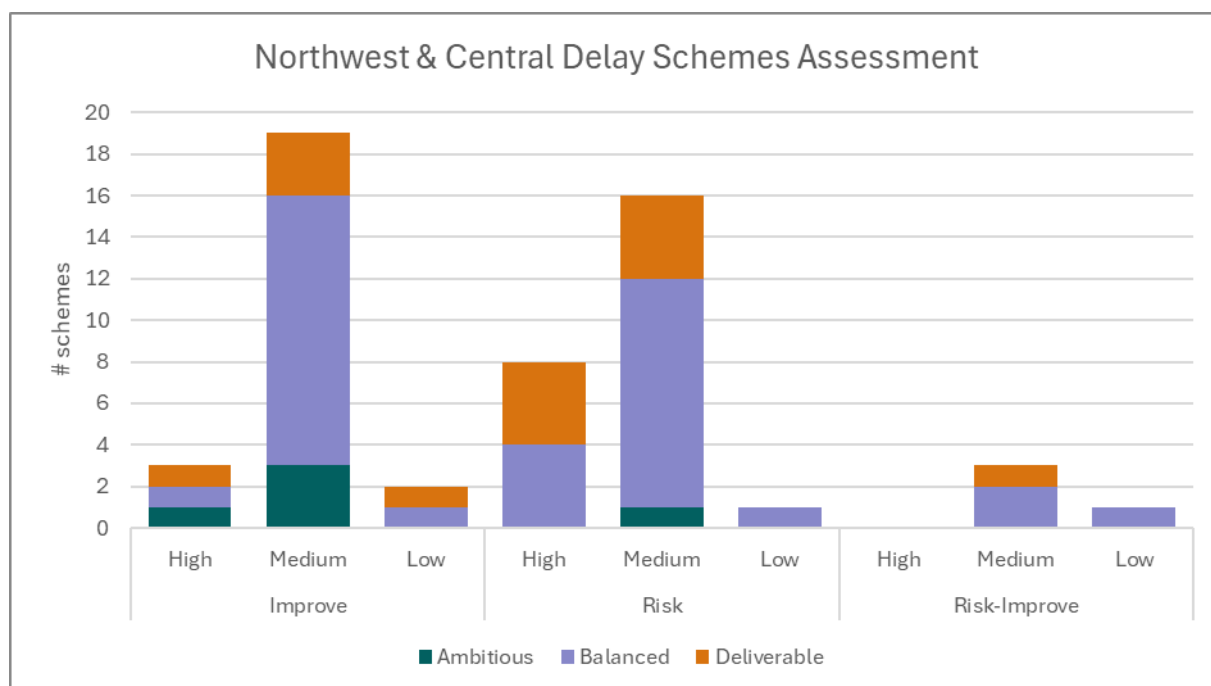
In addition to the year 2 forecasting review schemes NW&C region have included year 2 impacts for various other schemes. The most significant of these are the delay impact of “Keep trains moving” and the Transpennine Route Upgrade (TRU) Primary and Reactionary delay. For TRU although we might expect increased impact from incidents (reactionary delay) due to complexity of operations and diversionary routes it is unclear why we should see an increase in incidents across all categories. NR did not provide evidence to support the assumed impact of Keep Trains Moving on delay. Overall, we view these as deliverable.

NR are assuming a net increase in delays in year 2, continuing the trend in Year 1. We view this as contributing to a deliverable trajectory.

### 5.3.1.3 Scheme Review

Our scheme review (illustrated below) identified the majority of schemes were balanced, with 1 High impact and 4 Medium impact schemes classified as ambitious offset by 14 schemes rated Deliverable across High, Medium and Low Improvements and High and Medium Risks. Overall, we consider the net impact of the schemes to be Deliverable. The classifications for the scale of the impact are set out in Appendix B.

Figure 5-8 : Northwest & Central Delay Schemes Assessment



Examples of the schemes rated Ambitious include:

- Dec 26 – MNTP state 2 completion: as there is already another scheme modelled to have similar benefits from the associated timetable change;
- TPE class 185: relatively high savings from refurbishment of a fleet which is already reasonably reliable for a DMU; and
- Externals risk: Assumed risk is below the growth trend in recent years (and there is assumed net improvement in externals when combined with mitigations) although no assumed continuing



improvement after year 2. We discussed this with the Region, and they are considering whether there are further opportunities for improvement from year 3 onwards.

In addition to the schemes impacting year 2 described above the following schemes we viewed as particularly deliverable:

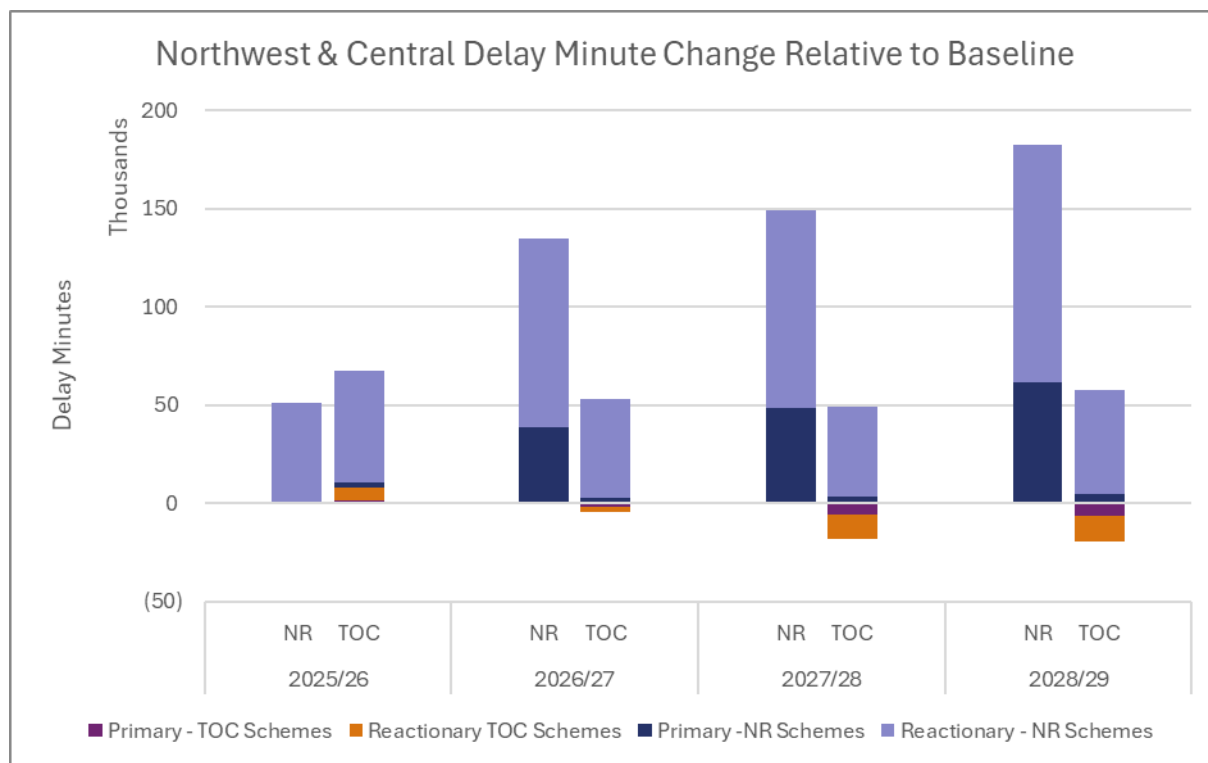
- Keep trains moving: assumed 2.5% increase in all reactionary delay. This is linked to the 0.1%-0.2% reduction in cancellations through keep trains moving initiative. We have discussed this with the Region, and they indicated they will consider refining this assumption for the next submission;
- Asset Strategy Central Route: Assumed increase in Service Affecting Failures (SAF) through reduced renewals through CP7. We initially had concerns about the level of change modelled for all 3 Routes appearing to not be consistent with SAF forecasts included in the submission, but the Region shared their supporting calculations, and the process used to develop and assure the SAF forecasts. Our remaining concern with the Central Route's modelled assumptions is the asymmetric Min and Max levels assumed around the expected increase which will increase the impact on the P50 trajectory above that of the SAF forecast;
- Merseyrail fleet: Fewer delay minutes modelled as saved in year 5 than year 4. The plan states that fleet reliability is expected to return to pre-COVID levels by 2027 and this is not modelled for delays.
- AWC Traincrew: there is a gradual improvement in traincrew delays assumed, but in the 6 periods since the base we have already seen improvement in excess of this level; and
- Northern traincrew: The plan sets out that the improvement in traincrew is a 10% reduction in incidents, but this is modelled as 6% and in the operations category instead of the traincrew.
- TransPennine Route Upgrade (TRU): We have concerns that due to the overlap between categories used to model the difference aspects of risk the compounded risk in the model may be overstated. Applying schemes to more specific categories may mitigate this concern.

### 5.3.1.4 TOC Scheme Contribution

The chart illustrates the net impact of the schemes on delay minutes. Each column represents a different model year and either delays attributed as TOC responsibility or attributed to Network Rail.

TOC Schemes are those informed by assumptions from the operators; these are schemes generally classified in the TOC and People (Traincrew) waterfall categories. A positive number represents a net deterioration in performance relative to the base in that category.

Schemes classified as Network Rail can also impact TOC attributed delays for example where they assume an overall improvement in dealing with incidents and may include schemes that require joint working and contribution from operators to deliver.

**Figure 5-9 : Northwest & Central Delay Minute Change Relative to Baseline**

NW&C punctuality trajectory is primarily driven by net deterioration in both NR and TOC cause categories.

Significant risks including assumed impacts from increased asset Service Affecting Failures drive an increase in NR Primary (and associated Reactionary) delay. This is partially offset by assumed improvements in externals and some benefits from Manchester and Northwest Transformation Programme (MNTP) Config state 2.

The assumed impacts from TRU, HS2 materials by rail and "Keep Trains Moving" increase both NR and TOC attributed reactionary delays.

The assumed benefits from MerseyRail, Avanti West Coast and West Midlands Trains fleet drive the reduction in TOC delays toward then end of the Control Period.

### 5.3.1.5 Overall assessment

Overall, we view the proposed T-3 trajectory for North West and Central region to be **realistic** rather than ambitious. NW&C's trajectory is stable from year 3 onwards. This stabilisation relies on TOC scheme benefits to offset the net impact of NR schemes continuing to increase delays. Factors that suggest a more ambitious trajectory include:

- Steady state assumed for fleets with availability risk; and
- Benefits from Manchester North West Transformation Programme.

Whereas areas that are considered more realistic are:

- Base year performance was relatively poor compared to recent years, particularly in the weather category, and is not adjusted for;
- The current assessment of schemes has more schemes classified as deliverable than ambitious;
- They note that their plan is to hold steady punctuality performance despite material risks, including renewals funding that is below the level needed to sustain a steady state of asset reliability. NW&C are assuming the biggest deterioration in punctuality due to asset related risk across all Regions;
- The net impact of timetable schemes is neutral. Little evidence in the plan for the basis of the assumed negative impact of AWC and WMT timetable changes (or the positive impact of the Northern and Merseyrail);
- Risks that impact NR performance categories overall have a net greater impact than opportunities. This is observed in the relatively stable T-3 trajectory but increasing NR Delay per 1000 Train Miles, with operator benefits, particularly from Merseyrail offsetting NR category deterioration;
- Assumed risks from infrastructure enhancements on TRU; and
- Plan notes increase in delays in Externals category in 24/25 is due to increase in delay per incident, with overall reduction in incidents. No plan to address this increase in delay per incident included in trajectory.

### 5.3.2 Cancellations

#### 5.3.2.1 Base position

Cancellations have been increasing in North West & Central Region from 4.4% in 2023/24 to 5.1% in 2024/25, the PR23 FD cancellation target level for 2024/25 was 3.7%.

Weather impacts were higher than historical levels. Given these levels are higher than historically typical for the Region we would expect some adjustment in the forecast trajectory to compensate for this.

Similarly, the cancellations impact from Externals was higher than the historical average. Traincrew and fleet cancellations levels reached their highest levels across the period for which we had data available.

#### 5.3.2.2 Year 2 Exit

North West & Central Region have carried out a year 2 forecasting review. This focussed on NR Assets, NR Operations and Externals and resulted in the production of schemes for each route being included in the modelling. These scheme assumptions are used to model the change in performance from the actual year 1 (2024/25) end position to provide the year 2 exit.

NR have used the same assumptions in their year 2 forecasting review assessed in the T-3 section for the equivalent cancellation schemes. We view this as slightly more deliverable than balanced.

Similarly Trespass & vandalism mitigation is assumed to remove part of the increase in cancellations between 2023/24 and 2024/25. We would expect a more ambitious plan to continue to focus on mitigation to provide continual improvement after year 2.

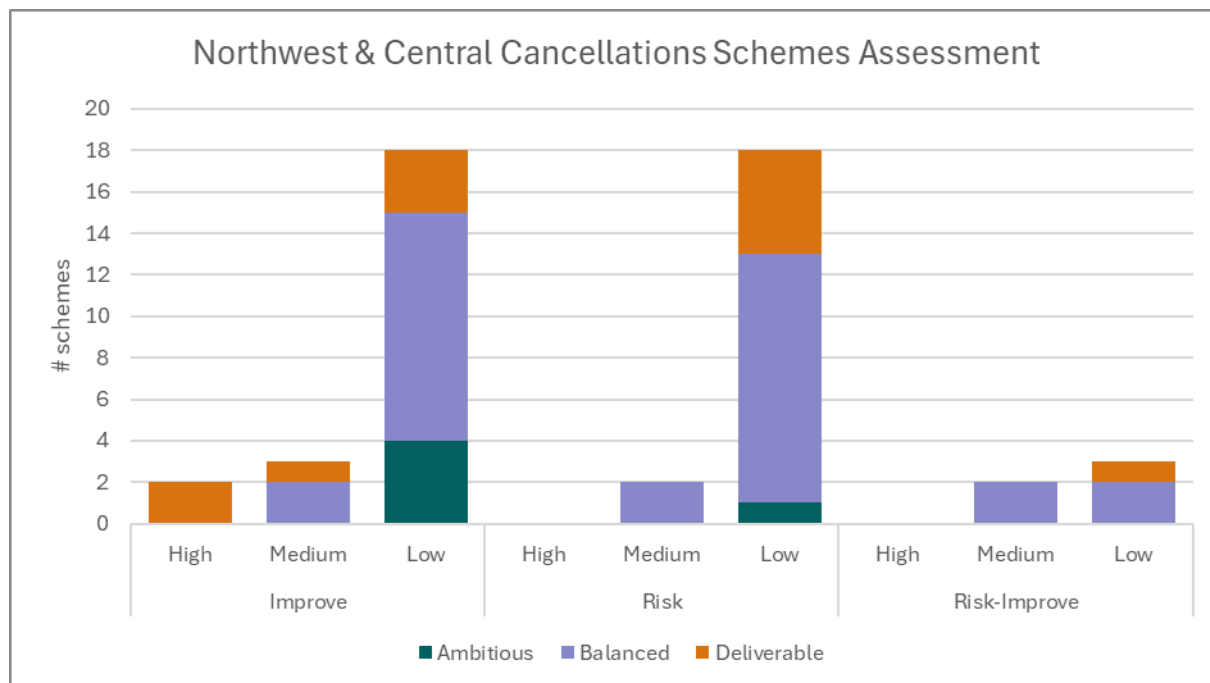
In addition to the year 2 forecasting review schemes NW&C region have included year 2 impacts for various other schemes. The Keep Trains Moving scheme has the most significant impact on cancellations. The assumed benefit is applied across all cause categories rather than being focussed on the categories related to external and weather described in the plan. This is resulting in a relatively small benefit to NR caused cancellations. We might expect a higher saving but focussed on the specific cause categories. They also assume a significant improvement in Avanti cancellations.

NR are assuming an overall improvement in year 2. We view this as slightly more deliverable than balanced.

### 5.3.2.3 Scheme Review

Our scheme review (illustrated below) identified the majority of schemes were balanced, with 4 low impact improvement schemes classified as ambitious offset by 12 schemes rated Deliverable across High, Medium and Low Improvements, Low Risks and Low Risk-Improve. The classifications for the scale of the impact are set out in Appendix B.

Figure 5-10 : Northwest & Central Cancellations Schemes Assessment



All the schemes identified as ambitious had minimal impact on the trajectory and like the delay schemes, the externals growth risk was lower than recent years trajectory. The Birmingham resignalling scheme assumed cancellations benefits, from the description of the benefits we would only expect punctuality improvement.

The schemes that we rated as deliverable included:

- Avanti performance where the scheme is described as resulting in a 64% reduction in cancellations but is only modelled to deliver a 35% reduction;
- The weather impact on cancellations in the base was the highest level across the data series we examined (since 2014/15). We might expect future years to be more typical of previous years rather than this highest level, but the Region has assumed the same levels (with balanced uncertainty either side);
- Merseyrail class 777 which has been modelled to be worse in year 5 than year 4 which is not consistent with the description in the plan which states fleet reliability is expected to return to pre-COVID levels by 2027;
- Externals with an assumed improvement only in year 2 to partially offset increase seen in the base relative to previous years with no assumed continuous improvement in subsequent years to target returning to historic levels of impact; and
- Northern traincrew improvements have been modelled against operations category of cancellations instead of traincrew giving a lower impact than we might expect and have only been modelled as an expected improvement of 6% which is less than the 10% stated in the submission documentation.

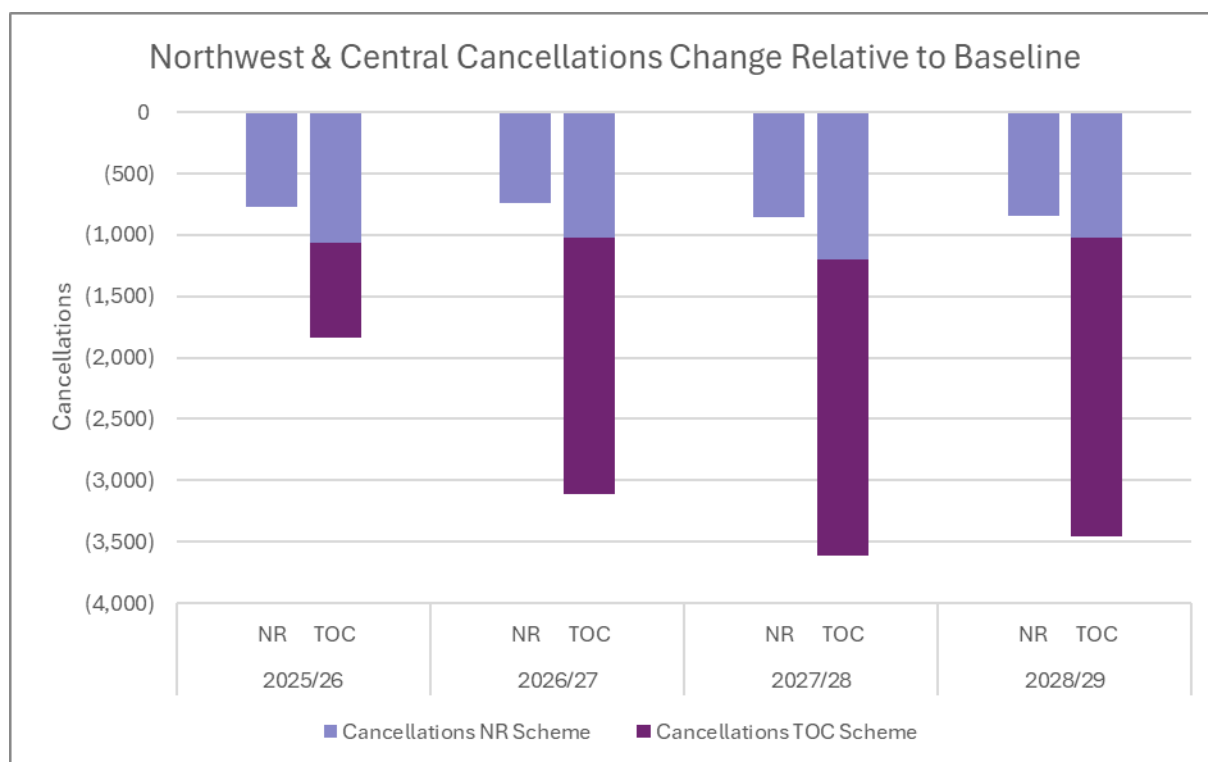
### 5.3.2.4 TOC Scheme Contribution

The chart illustrates the net impact of the schemes on cancellations. Each column represents a different model year and either delays attributed as TOC responsibility or attributed to Network Rail.

TOC Schemes are those informed by assumptions from the operators; these are schemes generally classified in the TOC and People (Traincrew) waterfall categories. A positive number represents a net deterioration in performance relative to the base in that category.

Schemes classified as Network Rail can also impact TOC attributed delays for example where they assume an overall improvement in dealing with incidents and may include schemes that require joint working and contribution from operators to deliver.

Figure 5-11 : Northwest & Central Cancellations Change Relative to Baseline



Most of the improvement in cancellations is driven by TOC attributed cancellations. A significant proportion of these is from NR schemes though which is unexpected. A significant driver of this is the “keep trains safely moving” initiative. This is described as improved delivery for external factors and other incidents causing partial line blockage. We would not expect the assumed benefits to operator cancellations on this basis.

Other TOC benefits are primarily driven by Avanti and Merseyrail class 777.

### 5.3.2.5 Overall assessment

Overall, we view the proposed cancellation trajectory for NW&C region to be **realistic** rather than ambitious. Cancellations are predicted to decrease overall with an improvement assumed in TOC cancellations (mostly traincrew).

Factors that suggest a more ambitious trajectory include:

- There are plans for External factors focusing on both severe weather and Trespass and Fatalities, although these result in no net impact to Externals category when combined with assumed increase in risk; and

- Assumed benefits from Network Performance Board-driven initiative 'Keeping Trains Safely Moving' scheme.

Areas that suggest a more realistic trajectory include:

- The baseline year had greater impact from weather than is typical for the region and has not been adjusted for. ; The Region have set out this was a considered decision and the "keeping train moving" scheme mitigates weather impacts;
- The schemes rated ambitious have minimal impact on the trajectory and there are more schemes rated deliverable;
- NW&C assume net neutral impact of risk and mitigation schemes in the Externals category, without plans to reverse recent increases; and
- Like punctuality, most of the improvement is driven by TOC schemes (Merseyrail fleet and CrossCountry, Avanti and Northern traincrew). However, the assumed benefits from Avanti are modelled as around half of the 64% reduction set out in the submission plan and there are relatively small improvements assumed for other operators.

## 5.4 Southern

### 5.4.1 Time to 3

#### 5.4.1.1 Base position

After some improvement in 2023/24, punctuality declined through 2024/25 to a level below the PR23 Final Determination target. The region has a Performance Restoration Plan which has been reviewed in alignment with the modelled schemes and presented in the following sections.

Weather impacts on delays were lower than previous years with a relatively low-level impact on the base year compared to historic levels. We do not consider that the Region needed to adjust for these levels in the forecast trajectory.

However, external impacts were higher than previous years with an increase in delays in 2024/25 slightly above the trend of the previous 2 years. Southern include some schemes to mitigate externals in year 2.

The impact of non-track assets incidents on the base year was higher than typical but other categories were comparable to recent years.

#### 5.4.1.2 Year 2 Exit

The year 2 exit position is based on the modelling of schemes using the national model. These scheme assumptions are used to model the change in performance from the actual year 1 (2024/25) end position to provide the year 2 exit. Performance is estimated to worsen marginally at the end of year 2 from year 1, primarily driven by assumed operator risks relating to the introduction of Arterio trains.

#### 5.4.1.3 Performance Restoration Plan

The restoration plan focuses on 5 major areas described below:

- **Unattributed delays:** data led approach to identify opportunities through changing the train plan, planning rules or timetable delivery. Also improved Autumn timetables, particularly for SouthEastern to address higher than expected levels in Autumn 24. The performance restoration plan does not make a specific claim for improvement. We have not been able to identify corresponding schemes in the CP7 modelling.

- **Reactionary delay:** specific initiatives for each route intended to deliver improvements at Regional level of **0.14% On Time** and **0.06% cancellations**. We have not been able to identify corresponding schemes in the CP7 modelling.
- **Fixed infrastructure:** The Routes in the Southern Region have plans to target commonly occurring root causes and reduce the time it takes to attend. Key to “CP7 strategy is ‘filled and skilled’ maintenance workforce, with recruitment accelerated to drive down frontline vacancy gap to 2% and ambitious training plans to develop existing teams”. The Performance Restoration Plans aims to deliver **0.15% On Time** and **0.04% cancellations** improvement. We have not been able to identify corresponding schemes in the CP7 modelling.
- **Trespass & antisocial behaviour:** Trespass workshops identify risks & mitigations, rollout of EDDY process to keep trains safely moving during a trespass incident, drone trials, mobile response security teams, intelligent camera trials, extended drone coverage, BTP relocation. The Performance Restoration Plans aims to deliver **0.08% On Time** and **0.02% cancellations** improvement. There are schemes which deliver **0.16%** improvement in On Time and **0.01%** improvement in cancellations in External category in the Southern Region CP7 reset modelling.
- **NR Responsible cancellations (and traincrew availability impacts):** Maintenance and asset management improvements and improved day to day operations. The Performance Restoration Plans aims to deliver **0.17% On Time** & **0.06%** cancellations improvement. We have not been able to identify corresponding schemes in the CP7 modelling. Assets performance is generally modelled to have greater performance impacts.
- **Other areas: Fleet:** The Performance Restoration Plans includes improvement in South Eastern fleet of **0.03% On-Time** and **0.01% Cancellations**. We have not been able to identify corresponding schemes in the CP7 modelling.

A review of the Southern Region Performance Restoration Plan in alignment with the modelled schemes indicates that only Externals (trespass and vandalism) are consistent with the restoration plan. The plan sets out to achieve performance of 68.3% On Time and 3.5% cancellations (3.7% if traincrew benefits are excluded) by the end of year 2. The submission trajectory is for performance for be 67.4% and 4.0% respectively.

Southern Region have highlighted that there are key differences in the scope, intent and timeframe of the restoration plan and the reset submissions. The restoration plan is to respond to the performance drop in rail year 2024/25 to recover the Final Determination Trajectory by the end of year 2, whilst the reset work is focussed on the performance opportunities and risks across the last 3 years of CP7. They set out that the restoration plan is ambitious and dependent on delivering near maximum benefit of opportunities and that so far this year further performance challenges are emerging. The reset trajectory is intended to strike a balance between ambitious and realistic. It therefore has a different expectation for year 2 exit position from which years 3 to 5 are forecast.

### 5.4.1.4 East Coast Main Line December 2025 Timetable

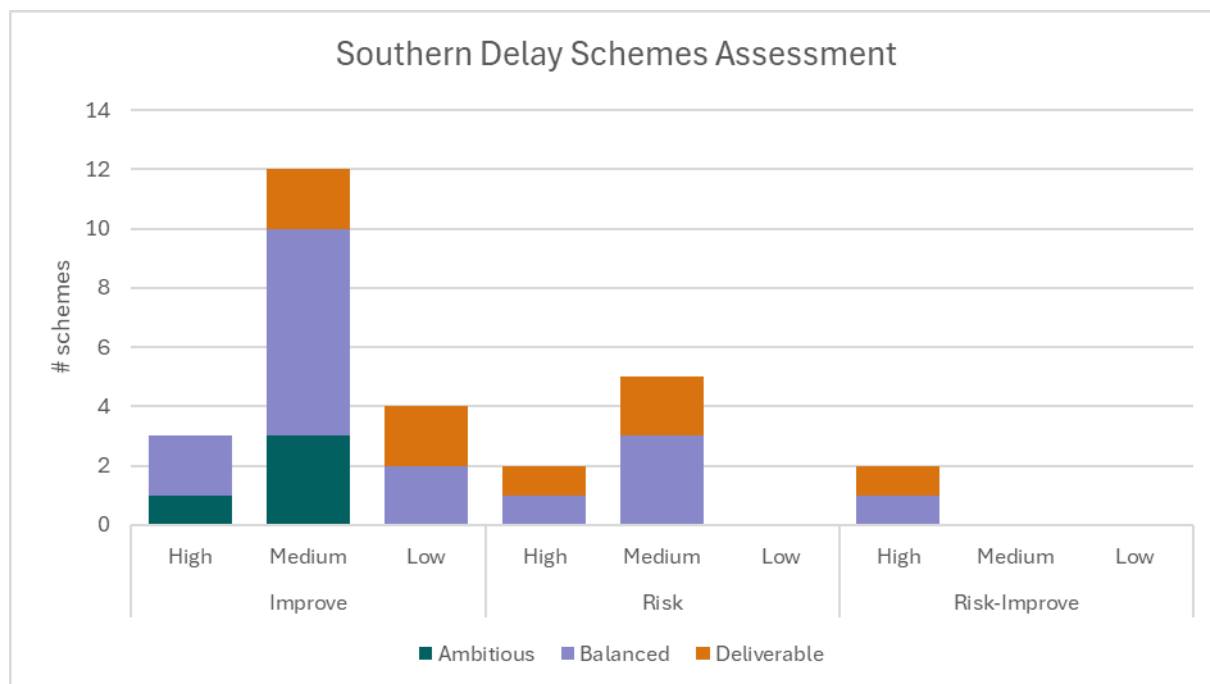
The Southern Region have applied an overlay to their punctuality trajectory of -0.1% Time to 3. They have set out that this is based on review of the RailSys modelling and the likely impact of transferred delays to the region via GTR. We consider the scale of the impact applied is not unreasonable although we would not expect it to be applied in full in year 2 when the timetable will only impact the final 4 periods.

### 5.4.1.5 Scheme Review

Our scheme review (illustrated below) identified the majority of schemes were balanced, with 1 High impact and 3 Medium impact improvement schemes classified as ambitious offset by 8 schemes rated Deliverable across Medium and Low Improvements and High and Medium Risks as well as High Risk-Improve. Overall, we

consider the net impact of the schemes to be towards deliverable. The classifications for the scale of the impact are set out in Appendix B.

**Figure 5-12 : Southern Delay Schemes Assessment**



Examples of schemes classified as ambitious include:

- Wessex timetable enhancement Dec 26: The Region are confident that there is opportunity to improve punctuality through the recast of the timetable. Factors including the wider max benefit range in the uncertainty and the difficulty in delivering performance improvement through timetable change, particularly in full in the year following introduction, informed our position;
- Victoria phase 5 and Hayes branch: In the specific geographies described the delays in the base are a similar order to the saving, suggesting complete removal of all risk of asset faults which we considered an ambitious assumption; and
- Balcombe tunnel: There does not appear to be any incidents in the base relating to the specific concern the scheme is addressing.

Examples of schemes classified as deliverable include:

- Passenger demand: The Region applied the year-on-year demand change factors supplied by the central team as a direct factor to all delays. Application of journey growth as factor to all delays is not appropriate. The year to December 2023 has a 23% increase in journeys but only a 4% increase in delay per 1000 train miles, and the year to December 2024 has a 8% increase in journeys but a 2% increase in delay per 1000 train miles. We would expect analysis of the relationship between passenger demand and delays to inform the appropriate factor to be applied to delays based on the central demand forecasts, rather than applying them directly. Note, the Region applied year on year growth as the absolute factor applied to the base so year 5 has minimal impact from this scheme. This contributes to the punctuality improvement in the trajectory but is not the Region's intended position. The Region have not accepted the findings at this point and is continuing analysis and evidence gathering for stage 3 of the reporter process.
- Passenger delays at stations: It is unclear how this is linked to the passenger demand forecasts. We consider the 15% increase in all station delays relative to the base is high considering the more stable demand growth now; and



- Externals funding for top 20 sites: Assumption equates to reducing about 20 incidents in the year. The top 20 sites have around 800 externals incidents. We consider that more balanced assumption would be to prevent more of these incidents with the focused interventions described.

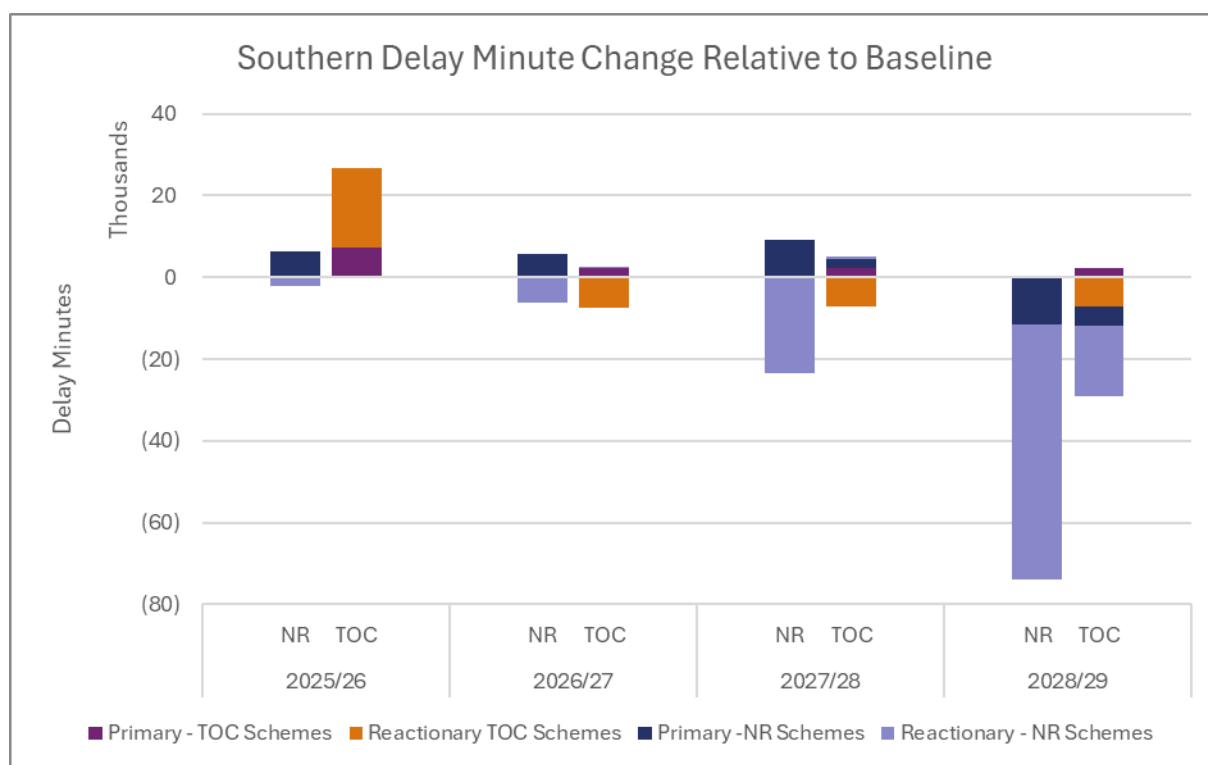
#### 5.4.1.6 TOC Scheme Contribution

The chart illustrates the net impact of the schemes on delay minutes. Each column represents a different model year and either delays attributed as TOC responsibility or attributed to Network Rail.

TOC Schemes are those informed by assumptions from the operators; these are schemes generally classified in the TOC and People (Traincrew) waterfall categories. A positive number represents a net deterioration in performance relative to the base in that category.

Schemes classified as Network Rail can also impact TOC attributed delays for example where they assume an overall improvement in dealing with incidents and may include schemes that require joint working and contribution from operators to deliver.

Figure 5-13: Southern TOC/NR Delay Minute Change Relative to Baseline



In the Southern region, Arterio trains introduction drives most of the impact on TOC schemes with risk in year 1 and benefit in later years. There is also an increase in all years in TOC scheme primary delay driven by the stations delays risk assumption.

The passenger demand impact assumption is impacting year 4 results in the subdued benefit from the December 26 Wessex timetable, which is modelled as an NR scheme but benefits both NR and TOC performance. This demand impact, affecting all delays, is not applied in full in year 5 and this results in the increased benefits, particularly on reactionary delay.

#### 5.4.1.7 Overall assessment

Overall, we view the proposed T-3 trajectory for Southern region to be **slightly more realistic than ambitious**.

Factors that suggest a more ambitious trajectory include:

- Relatively low level of weather impact on the base results in a better starting base position from which the trajectory is projected;
- Assumed benefits from the Wessex timetable in years 4 & 5.

Areas that suggest a more realistic trajectory include:

- More schemes have been assessed as deliverable than ambitious. Of note are the passenger demand impacts that are assumed to be greater than other regions (although due to entry error in scheme capture are not fully applied in year 5); and
- We have not been able to identify schemes that are consistent with several areas of the Performance Restoration Plan, and the trajectory does not achieve the levels set out in the plan for year 2 even by the end of the control period. We note the Region's subsequent comments on the different scope and intent of the Restoration Plan forecasts compared to the reset submission proposed trajectory.

### **5.4.2 Cancellations**

#### **5.4.2.1 Base position**

Cancellations have increased in the Southern Region from 3.4% in 2023/24 to 3.9% in 2024/25, the PR23 FD cancellation target level is 3.5%.

Weather impacts on cancellations were relatively low compared to historical levels, particularly compared to the previous 2 years. The cancellations percentage is around 0.07% below the median annual level. Southern Region could have considered adjusting for this and as they have not it could be considered contributing to a more ambitious trajectory.

Like delays, the impact of external incidents (trespass & vandalism) on cancellations was slightly above the increasing trend suggested by the previous years.

The impact of non-track assets incidents on the base year was higher than typical but other NR categories were comparable to recent years. The Traincrew cancellations levels were 50% higher than the previous year though, driven by deterioration for both GTR and SWR.

#### **5.4.2.2 Performance Restoration Plan / Year 2 Exit**

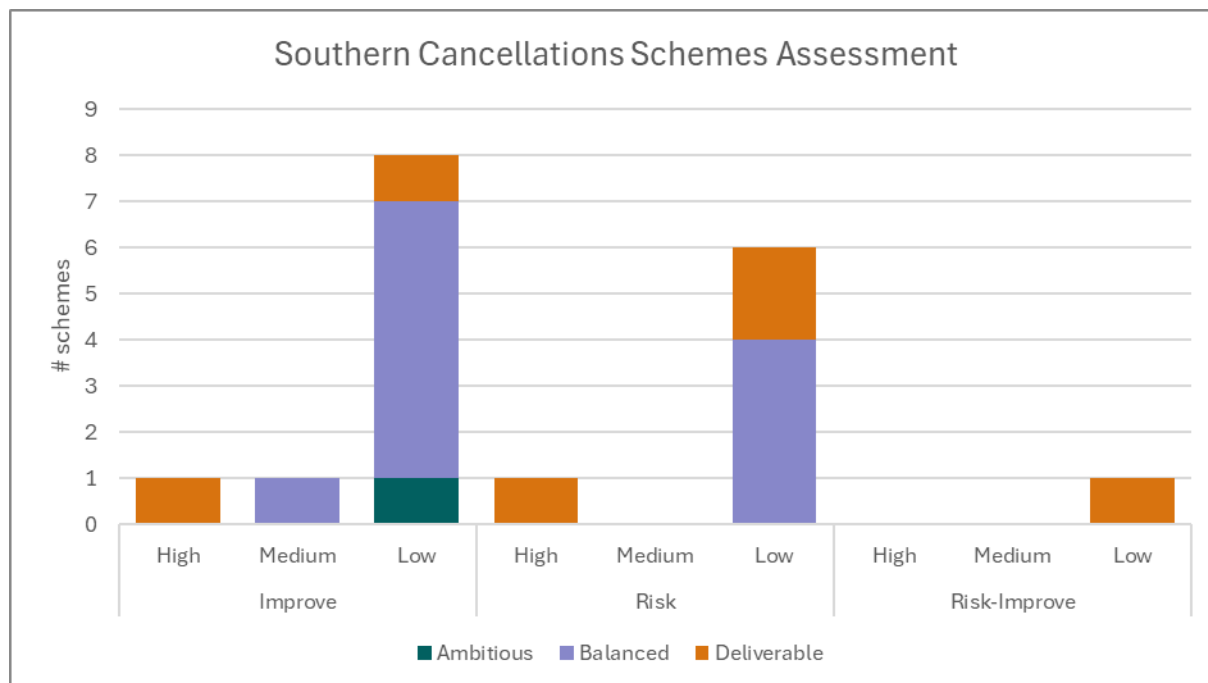
The year 2 exit position is based on the modelling of schemes using the national model. These scheme assumptions are used to model the change in performance from the actual year 1 (2024/25) end position to provide the year 2 exit. Similar to punctuality, the Region's performance is modelled to worsen marginally at the end of year 2 to 4.0% from year 1 level of 3.9% driven primarily by an assumed operator risks relating to the introduction of Arterio trains.

The Region has a Performance Restoration Plan in place. This is discussed for both punctuality and cancellations in section 5.4.1.2. We have not been able to identify schemes that are consistent with several areas of the Performance Restoration Plan.

### 5.4.2.3 Scheme Review

Our scheme review (illustrated below) identified the majority of schemes were balanced, with 1 low impact improvement scheme classified as ambitious offset by 6 schemes rated Deliverable across High and Low Improvements, High and Low Risks as well as Low Risk-Improve. Overall, we consider the net impact of the schemes to be Deliverable. The classifications for the scale of the impact are set out in Appendix B.

Figure 5-14: Southern Cancellations Schemes Assessment



An example of schemes classified as ambitious include:

- Balcombe tunnel: There does not appear to be any incidents in the base relating to the specific concern the scheme is addressing.

Examples of schemes classified as deliverable include:

- SWR Traincrew: assumed increase in traincrew cancellations in all years. We would expect this risk relating to training to be removed in later years once Arterio introduction is complete;
- GTR Project 94: The plan states expectation of saving 6,600 total cancellations but only a 4,500 reduction has been assumed (some for Eastern Region). The Southern modelling team have confirmed that this is an entry error on the scheme input sheet, and they intended for the full impact to be modelled; and
- Externals top 20 sites: Like the delay schemes, given the proportion of all incidents at the top 20 sites we might expect more benefit.

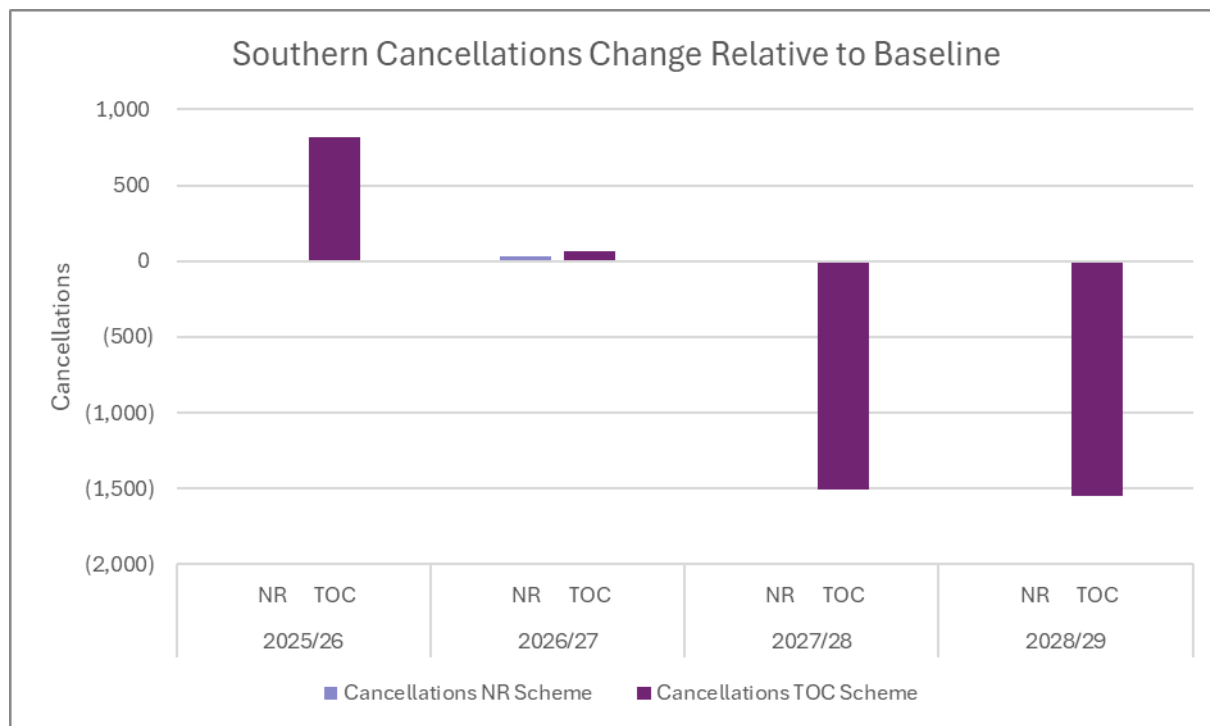
### 5.4.2.4 TOC Scheme Contribution

The chart illustrates the net impact of the schemes on delay minutes. Each column represents a different model year and either delays attributed as TOC responsibility or attributed to Network Rail.

TOC Schemes are those informed by assumptions from the operators; these are schemes generally classified in the TOC and People (Traincrew) waterfall categories. A positive number represents a net deterioration in performance relative to the base in that category.

Schemes classified as Network Rail can also impact TOC attributed delays for example where they assume an overall improvement in dealing with incidents and may include schemes that require joint working and contribution from operators to deliver.

Figure 5-15: Southern TOC/NR Cancellations Change Relative to Baseline



The net impact on NR attributed cancellations is approximately neutral in all years. The change in TOC cancellations is driven by assumed increase in SWR traincrew cancellations in all years (despite some periods in base already being relatively high) and the benefit of GTR project 94 in year 4 & year 5. Note that the modelled impact of GTR project 94 in year 5 is less than the region intended (see 5.4.2.3).

#### 5.4.2.5 Overall assessment

Overall, we view the proposed cancellation trajectory for Southern Region to be **slightly more realistic than ambitious**.

Factors that suggest a more ambitious trajectory include:

- Southern forecasts Cancellations to remain under 4% for the duration of CP7 and to fall in each year 3 and 4; and
- Relatively low level of weather impact on the base.

Areas that suggest a more realistic trajectory include:

- More schemes have been assessed as deliverable than ambitious;
- We have not been able to identify schemes that are consistent with several areas of the Performance Improvement Plan; and
- The full benefit of the GTR project 94 set out in the plan has not been modelled in year 5 due to scheme entry error and assumed increase in SWR traincrew cancellations in all years, even after the Arterio implementation is complete.

## **5.5 Wales & Western**

### **5.5.1 Time to 3**

#### **5.5.1.1 Base position**

Punctuality improved in 2024/25 and is above the PR23 Final Determination target for year 1 of CP7.

Weather impacts were reasonably typical for performance in 2024/25 and better than 2023/24. We do not consider that the Region needed to adjust for these levels in the forecast trajectory.

Consistent with other Regions, Wales & Western has seen an increase in delays attributed to External factors in the base period aligned to the trend in recent years. They have schemes to model continued growth in Externals, with some schemes to partially mitigate this.

Track, non-track assets and network management categories saw improvements in 24/25 compared to 23/24 aligned to their recovery plan. Similarly, fleet saw improvements in 24/25 compared to 23/24 to be more typical of historic performance. Traincrew related delay continues to be higher than historic levels achieved, but better than 23/24.

#### **5.5.1.2 Year 2 Exit**

Wales & Western have not made any specific assumptions about the year 2 exit position or carried out any specific modelling exercise for year 2. The position is set based on the modelled impact of schemes and hence is considered as part of the Scheme Review (see 5.5.1.4). These scheme assumptions are used to model the change in performance from the actual year 1 (2024/25) end position to provide the year 2 exit.

#### **5.5.1.3 Performance Improvement Plan**

In response to a formal investigation into NR's contribution to the delivery of train service performance in the Wales & Western Region, the Region published their improvement plan in August 2024. This plan incorporated activities that were already being enacted, including Project Brunel focussing on infrastructure performance and recovery in the Thames valley.

The Performance Improvement Plan targeted achieving On Time performance of 63.4% and Cancellations of 3.3% for the end of CP7. The modelled trajectory included in the Network Rail's May submission is for an end of CP7 position of 62.7% On Time and 4.3% Cancellations. Our initial assessment therefore was that the trajectory was not aligned to the targets indicated in the plan. However:

- The Region have highlighted that the Improvement Plan targets reflect a level of stretch that is not consistent with their approach for the reset submissions.
- The Region have clarified that the figure of 63.4% stated as the Regional On Time target in the Performance Improvement Plan was actually the Western Route figure and was a drafting error. This compares to the equivalent Route forecast for year 5 in the reset submission of 63.6%. This would suggest that for punctuality the submission does model benefits that are equivalent to the improvement plan. However, we note that the modelling issues in 4.3.1 and 4.3.5 will be contributing to a higher T-3 forecast trajectory for Wales and Western.

Based on this additional information the punctuality trajectory is broadly in line with the plan.

The CP7 year 1 end position was 61.0% On Time compared to plan of 60.4%. Exceeding the expectation for the region for year 1 was primarily driven by performance on the Wales Route. Their On Time MAA increased from 56.3% at 24/25 P5 (when the final plan document was prepared) to 58.5%. This was in part delivered by improved performance post timetable changes. Western also improved from 61.5% to 62.3% but this was behind their forecast of 62.7%.

In the Network Rail submission, Project Brunel benefits are modelled as improvement against track, points and train detection categories. The scheme describes total baseline as saving 70k minutes (to achieve target level of around 33k minutes per annum) and they assume an increasing proportion of the 70k saved in each year up to 70% of it in year 5. For cancellations, the Brunel scheme assumed a reduction of 1192 train cancellations in all years, which equates to approximately 0.15% reduction to the Region's Cancellations.

The Brunel specific schemes, therefore, do not assume the target level of delays will be achieved in year 5 of CP7. Note however, that due to how "All Delays" are being applied in the model (see 4.3.1), the submission's On Time trajectory will include the equivalent of the full impact. It is unclear why cancellations are not assumed to continue to reduce in each year aligned to delays.

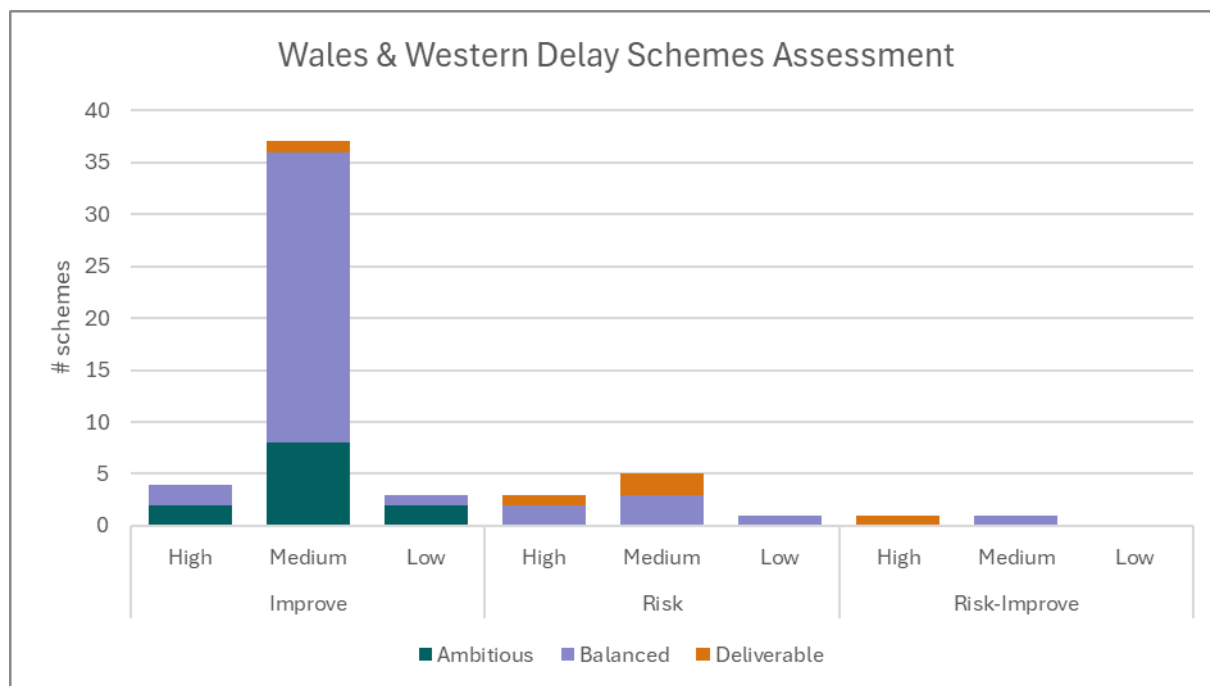
We reviewed the activities in the Performance Improvement Plan and could identify schemes with modelled benefits for activities that were due to be completed after March 2025. We could not, however, identify schemes modelling residual benefit of activities which were planned to be completed prior to this.

The cancellations trajectory position for year 5 (4.3%) is higher than the Performance Improvement Plan (3.3%). Contributors might be continued modelling of residual benefits of improvement plan activities and year on year benefits from Project Brunel. However, to close this gap would also require assumed improvements from operator fleet and/or traincrew performance. It is not clear from the Performance Improvement Plan how this would be delivered but the Region have stated that the Improvement Plan target was dependent on operator contributions.

### **5.5.1.4 Scheme Review**

Our scheme review (illustrated below) identified the majority of schemes were balanced, with 2 High impact, 8 Medium and 2 Low impact improvement schemes classified as ambitious offset by 3 medium and 2 High impact schemes rated Deliverable. Overall, we consider there is a reasonable balance in the level of schemes modelled, although with a slight skew toward ambitious. The classifications for the scale of the impact are set out in Appendix B.

Western route entered most of its schemes as an absolute change in minutes and so will be impacted by the issue described in 4.3.1. We cannot be certain of the net impact of this on the submitted trajectory, but it is likely to increase the scale of the net change. In carrying out the scheme review for Western we have considered primarily the scheme input assumptions i.e. the Region's intent in how the scheme should be modelled.

**Figure 5-16 : Wales & Western Delay Schemes Assessment**

Examples of schemes classified as ambitious include:

- Thames Valley Asset Resilience: Project Brunel is Western's flagship improvement works in the Thames Valley area improving performance and operational resilience. Despite not modelling realising the full benefits of the original plan, we recognise that delivering improvement at the current rate is likely to be challenging;
- Network Rail – People: This includes a variety of schemes to fill vacancy and competency gaps. Assumed to save 2% of all NR delays;
- Timetable changes: include new services and stations which overall adds to congestion. The scheme amalgamates all the timetable changes, with some having a negative impact but they are considered a net benefit;
- Old Oak Common station: Tracsis modelled impact for TfL Rail and Heathrow Express shows improvements although this modelling is being revisited and this scheme may change; and
- GWR schemes: several of the GWR related schemes are entered as All Delay using a percentage adjustment. This not only changes the level of primary and reactionary delay but also is applied to the primary/reactionary ratio. For most of these GWR related improvement schemes we would not expect them to drive this change in the ratio and so have classified them as ambitious, unless there was another consideration (such as low modelled likelihood) that made the scheme more balanced.

Notable schemes classified as deliverable:

- OLE Equipment: Programme of overhead line equipment renewals. Assumed risk applied because lower level of incidents in base than previous year. Reduces to no impact by year 5;
- Western Improved operations: Improved operations through technology etc. Assumes as 0.2% saving of the 1.5million reactionary delay minutes in the baseline; and
- Western Service Affecting Failures and External Risks: These risks schemes have been entered as All Delay using a percentage adjustment. This not only changes the level of primary and reactionary delay but also is applied to the primary/reactionary ratio. This did not seem appropriate based on the description of the schemes, so we classified them as deliverable.

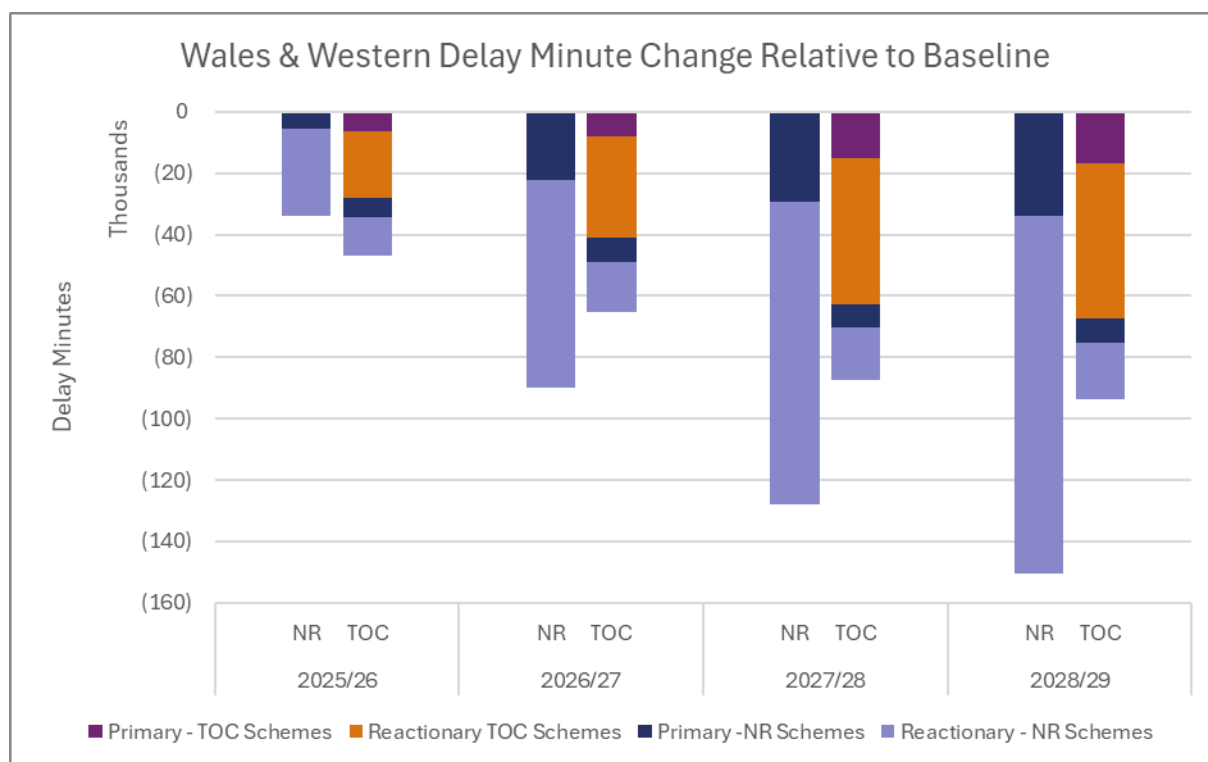
### 5.5.1.5 TOC Scheme Contribution

The chart illustrates the net impact of the schemes on delay minutes. Each column represents a different model year and either delays attributed as TOC responsibility or attributed to Network Rail.

TOC Schemes are those informed by assumptions from the operators; these are schemes generally classified in the TOC and People (Traincrew) waterfall categories. A positive number represents a net deterioration in performance relative to the base in that category.

Schemes classified as Network Rail can also impact TOC attributed delays for example where they assume an overall improvement in dealing with incidents and may include schemes that require joint working and contribution from operators to deliver.

Figure 5-17 : Wales & Western TOC/NR Delay Minute Change Relative to Baseline



The TOC schemes that are driving the benefits are the assumed benefits from TfW schemes, the introduction of the class 175 fleet in Devon and Cornwall, replacing existing diesel fleets providing improved resilience, door obstruction improvements on Elizabeth Line class 345 fleet and schemes to improve reliability and availability of GWR's IET fleet and GWR Sunday traincrew.

NR schemes that also drive TOC benefits are timetable improvements and station crowding management in Wales.

### 5.5.1.6 Overall assessment

Overall, we view the proposed T-3 trajectory for Wales and Western region to be **balanced** between ambitious and realistic. Given the assessment of the schemes we did consider the slightly ambitious classification, but did not consider that it is reasonably likely that it would not be achieved in full although there is the potential for this to be the case.

Factors that suggest a more ambitious trajectory include:



- Year on year improvement in all years. The Wales and Western region assume improved performance from asset related incidents, the only region to have a net benefit and no modelled deterioration in any specific category;
- Our assessment of the schemes has more schemes classified as ambitious than deliverable; and
- The net improvement trajectory incorporates assumed operator contributions alongside the assumed improvements from Network Rail schemes.

Areas that suggest a more realistic trajectory include:

- Some schemes we have identified could contribute to a slightly more realistic position and the Region has not modelled any uncommitted stretch that would lead us to consider it is overly ambitious.

## **5.5.2 Cancellations**

### **5.5.2.1 Base position**

Cancellations reduced slightly in the Wales & Western Region from 4.9% in 2023/24 to 4.7% in 2024/25, the PR23 FD cancellation target level is 3.8%. The greater part of the year-on-year improvement was from Network Rail attributed cancellations.

Weather impacts were a bit higher than more typical historical levels, although better than 2023/24. The levels were just under 0.2% higher than median annual levels. Therefore, the Region could have considered adjusting for this but have not done.

Similarly, the cancellations impact from Externals was higher than previous years but follows the trend over recent years.

Non-track assets category saw improvements in 24/25 compared to 23/24 aligned to their recovery plan, although the track related cancellations did not, unlike delays. Similarly, fleet saw improvements in 24/25 compared to 23/24, but Traincrew related cancellations increased to be higher than previous highest levels achieved in the time period we considered back to 2014/15.

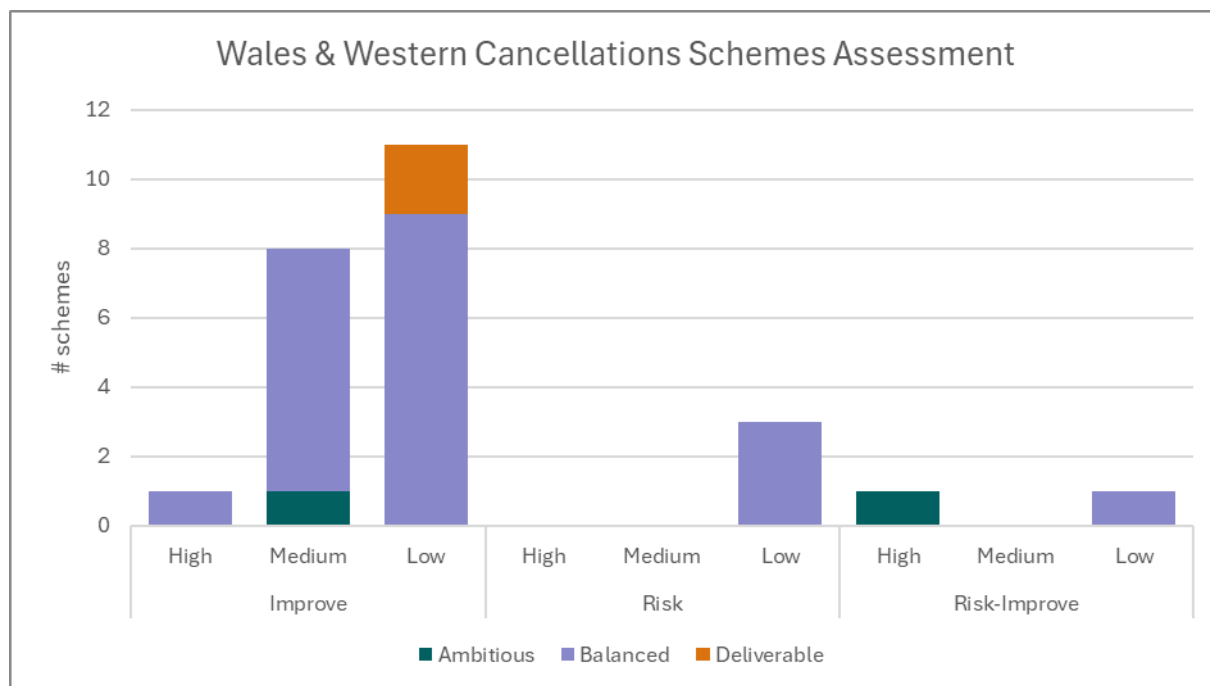
### **5.5.2.2 Performance Improvement Plan / Year 2 Exit**

Wales & Western have not made any specific assumptions about the year 2 exit position or carried out any specific modelling exercise for year 2. The position is set based on the modelled impact of schemes in the national model and hence is considered as part of the Scheme Review (see 5.5.2.3). These scheme assumptions are used to model the change in performance from the actual year 1 (2024/25) end position to provide the year 2 exit.

Wales & Western have a Performance Improvement Plan in place. Both delay and cancellations aspect of this plan are discussed in section 5.5.1.3.

### **5.5.2.3 Scheme Review**

Our scheme review (illustrated below) identified the majority of schemes were balanced, with 1 medium impact improvement scheme and one high impact mixed risk/improve classified as ambitious offset by 2 low impact risk schemes rated Deliverable. The classifications for the scale of the impact are set out in Appendix B.

**Figure 5-18: Wales & Western Cancellations Schemes Assessment**

Examples of schemes classified as ambitious include:

- The class 175 fleet introduction in Devon and Cornwall, increasing fleet reliability. Performance gains based on improved fleet resilience, particularly in first year of introduction; and
- The scheme is described as a programme of overhead line equipment renewals which has been prioritised following recent incidents which will mitigate risk of full dewirements and reduce scale of impacts and Wales & Western assume an increased risk prior to the implementation relative to the baseline period (because there were no major incidents in this period). Unlike the delays scheme there is an assumed improvement from year 3 of CP7. However, the Route confirmed this is an entry error and intend a similar risk profile through the years. Therefore, as they have modelled an improvement in performance against a risk which is not material in the base, we have assessed this as ambitious.

Examples of schemes classified as deliverable include:

- Improved operations: Schemes include the use of technology to improve service recovery and traffic management, reducing cancellations by allowing more strategic decision making. The route assumed a reduction in around 50 cancellations which we consider to be a low assumption.

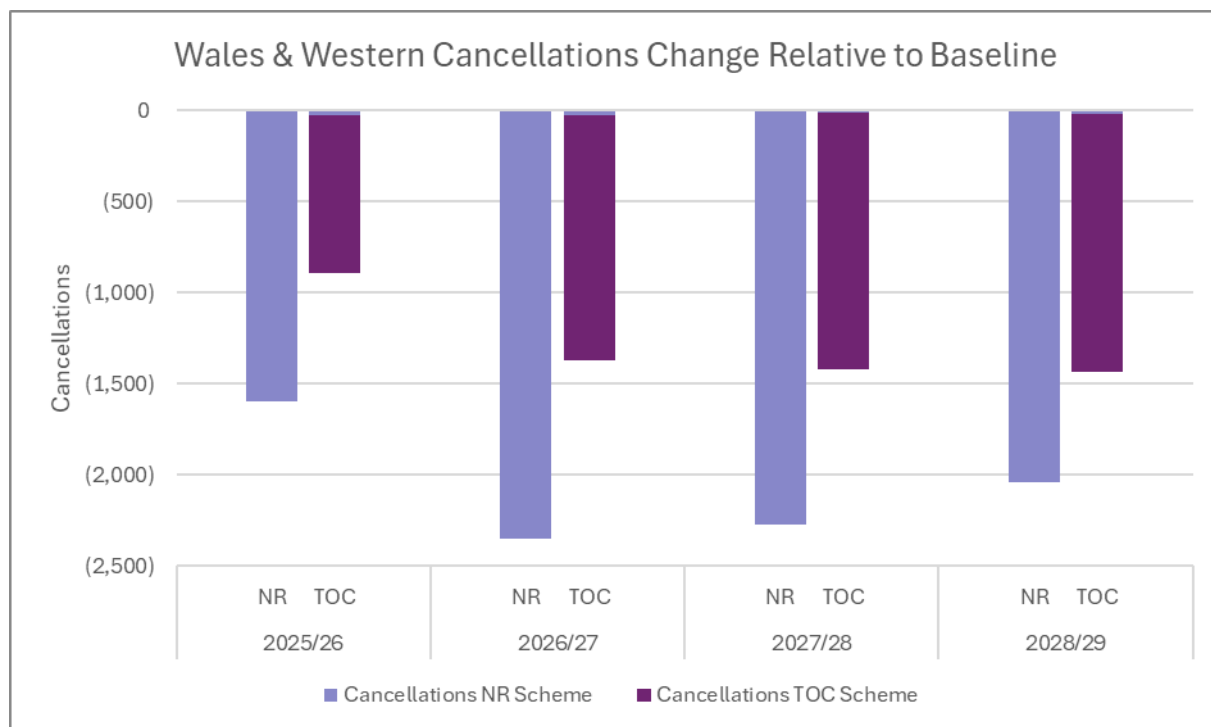
#### 5.5.2.4 TOC Scheme Contribution

The chart illustrates the net impact of the schemes on delay minutes. Each column represents a different model year and either delays attributed as TOC responsibility or attributed to Network Rail.

TOC Schemes are those informed by assumptions from the operators; these are schemes generally classified in the TOC and People (Traincrew) waterfall categories. A positive number represents a net deterioration in performance relative to the base in that category.

Schemes classified as Network Rail can also impact TOC attributed delays for example where they assume an overall improvement in dealing with incidents and may include schemes that require joint working and contribution from operators to deliver.

**Figure 5-19: Wales & Western TOC/NR Cancellations Change Relative to Baseline**



GWR schemes deliver most of the TOC improvement:

- Introduction of class 175 fleet in Devon and Cornwall. Reduces cancellations, particularly from 2026/27, and improvement in IET reliability;
- GWR drivers being available to work on Sundays. DfT has already approved funding for rest day working but full funding for change in T&Cs is not approved. Also guard establishment improvements; and
- To reduce cancellations, Heathrow Express will operate in short formations if a train fault would otherwise mean a cancellation.

### 5.5.2.5 Overall assessment

Overall, we view the proposed cancellation trajectory for Wales & Western region to be **slightly more realistic than ambitious**.

Factors that suggest a more ambitious trajectory include:

- Assumed benefits from TOC schemes on both cancellations and fleet, although it might have been reasonable to assumed further improvement in TfW fleet towards the end of CP7 as they move through their introduction reliability bathtub; and
- Slightly more schemes assessed as ambitious than deliverable.

Areas that suggest a more realistic trajectory include:

- Slightly higher than typical weather impacts in base; although some schemes mitigate this there is no specific adjustment to a typical level;
- Continued year on year benefits from Performance Improvement Plan are not modelled;
- The trajectory does not achieve the level that is set out in the Performance Improvement Plan for the end of CP7.

## **5.6 Scotland**

### **5.6.1 Cancellations**

#### **5.6.1.1 Base Position and Year 2 Exit**

Cancellations in the Scotland Region have been on an improving trend, reducing from 2.5% at CP6 exit to 2.2% in Year 1. Scotland have forecast performance to deteriorate in Year 2 to 2.3%.

Weather had a low impact on cancellations in the base year compared to the historical average with the proportion of trains being cancelled due to weather related incidents being of the order of 0.3% less in 2024/25 than might be expected in a typical year. The level of cancellations in the base related to externals category (trespass & vandalism) is higher than historic years but comparable to the years immediately prior.

The other incident categories had fairly typical levels of cancellations compared to previous years. The only exception is traincrew which had 0.1% higher levels in 2024/25 than 2023/24, primarily related to the traincrew dispute and availability challenges which impacted on the day performance immediately prior to the reduced timetable being introduced in late spring of 2024.

#### **5.6.1.2 Scheme review**

NR Scotland have not modelled schemes using the central model, so a scheme review has not been completed. Our assessment has been based on the submission and discussion with the Region.

#### **5.6.1.3 Overall assessment**

Scotland improved performance from 2.5% at CP6 exit to 2.2% in Year 1, forecast performance to fall back in year 2 to 2.3% and aim to maintain performance in Years 2 to 5 at 2.3%.

The Region have not shared specific Cancellations forecast modelling; the focus of their modelling is on Scotland Train Performance Measure (STPM).

The submission indicates benign weather conditions and the reduced timetable in Year 1 helped performance. Therefore, the Region trajectory includes a rise in cancellations in year 2 and no further improvements as performance returns to the plan. Had weather impacts been typical in year 1 outturn would have been between 2.3% and 2.4%.

The Region acknowledges that several of their schemes may drive a reduction in cancellations but maintain the flat trajectory for cancellations is appropriate to allow flexibility in operational decisions to deliver the best outcome for the passenger (i.e. whether to run train late or cancel the service for recovery).

Factors that we considered Ambitious include:

- The trajectory maintains performance across the control period, maintaining most of the improvement in cancellations already achieved in the last 2 years, although does not return to historic levels; and
- Most of the reduction in 24/25 compared to 23/24 was due to less impact from severe weather, autumn & structures category. We might expect more cancellations in this category in a typical year.

The plan includes several schemes that might result in performance benefits to cancellations and not just STPM punctuality, but no net improvement has been assumed, suggesting a more realistic/deliverable trajectory, these include:

- Improvement following investment in fleet sanding.
- Further collaboration with all parties in Scotland to address issues across the industry.
- ScotRail have established driver recruitment plans.
- PRIMA introduced to reduce weather events impact.
- Vegetation clearance schemes
- Hyndland Guardian Presence aims to stop disruption to the network but is also highly valuable to society and the individuals impacted by these incidents.

We view the Scotland cancellations trajectory as **balanced**.

## 6. ORR Themes

ORR asked us as Independent Reporter to provide our views, and conduct deeper assessment where required, on specific topics. Our findings and views are set out in the section below.

### 6.1 Impact of risk and opportunity schemes and NR/TOC contribution

*The impact of risk and opportunity schemes for both cancellations and punctuality (inputs to the model) and the split between NR contribution and TOC contribution*

This formed part of our overall review of the Regions' trajectories. The findings can be found in the section 5, in particularly in the sub sections 5.2.1.6, 5.2.2.6, 5.3.1.4, 5.3.2.4, 5.4.1.6, 5.4.2.4, 5.5.1.5 and 5.5.2.4.

During Stage 1 of our work, we discussed with Network Rail Regions their process for engaging with the operators to seek contributions to the CP7 performance reset work. We directly engaged with some operators to understand their contribution and the type of information that had been provided. Generally, we found that their contributions were more certain for the immediate term but beyond 2025/26 was less detailed due to the annual business planning cycle and less certainty beyond the next year.

All of the Regions included information in their plans on the committed schemes that they had identified with operators. The level of detail included did vary between the Regions. From our review of the plans and modelled schemes, the majority of the committed operator plans have been included in schemes. For the small number of cases where there is a potential operator benefit or risk that is mentioned in the plan, we have highlighted it in the relevant Region's section. For some operator schemes the full benefit identified by the operator has not been modelled. Where this has been identified the specific scheme has been classified as deliverable and we have highlighted it in the relevant Region's section.

### 6.2 Great British Railways

*GBR – are there likely early benefits from GBR or pre-GBR integration that should have been included.*

The Passenger Railway Services (Public Ownership) Bill 2024-25 allows for the transfer of services of privately owned operators to public ownership under DfT Operator Ltd (DfTO). This process began in May 2025 with South Western Railway and will continue until October 2027. Great British Railways (GBR) is expected to be established in late 2026 at the earliest, and Shadow GBR (SGBR) with leaders from Network Rail, DfT Rail Services Group and DfTO was formed in autumn 2024 to prepare for this transition.

Prior to the expected establishment of GBR from late 2026 there are some potential opportunities for improvements in operational performance. For example:

- Closer integration of performance management and operations teams: This could lead to improved collaboration between Network Rail and train operating companies, resulting in more efficient problem-solving and decision-making processes;
- Improved data sharing and analysis: Enhanced sharing of operational data across different parts of the railway system could provide deeper insights into performance issues and potential solutions;
- Better prioritisation and decision-making across the system: A more holistic view of the railway network could allow for improved resource allocation and more effective planning of maintenance and upgrades; and
- Enhanced incident recovery: Closer coordination between infrastructure and operations teams could lead to faster and more efficient responses to disruptions, minimising passenger inconvenience.

However, the scale of benefits is uncertain and will take time to realise. There are indications of changes already happening that could support delivery of these opportunities, such as the recent announcement of joint leadership team for South Eastern Railway.

There are many potential avenues for the formation of GBR to deliver improvements in operational performance. Some areas for example:

- Refocused delay attribution teams: Without the need for Schedule 8 payments between GBR infrastructure and publicly operated services (although they will still apply to open access, freight and devolved services like TfL and Merseyrail), these teams could shift their focus to collaborative problem-solving and performance improvement rather than dispute resolution;
- Improved train service requirements and timetable planning: A single organisation responsible for defining requirements across all operators could lead to more efficient and performance-focused timetables, potentially including standardised hourly services at multi-operator stations;
- Aligned planning processes: The formation of GBR could allow for better synchronisation of planning cycles between infrastructure and operations, leading to more consistent delivery outcomes and targets; and
- Long-term strategy development for workforce and rolling stock: GBR could take a more comprehensive approach to issues such as skills shortages and aging fleets, potentially avoiding future operational challenges.

Therefore:

- Short-term benefits could be realised from closer integration of performance and operations teams, but require careful management of organisational change; and
- We might expect material benefits from long-term strategic initiatives, particularly in areas requiring structural timetable changes and strategic planning for rolling stock and resources. This is unlikely to deliver benefits in CP7 though.

The prioritisation of conflicting requirements by GBR, such as reducing net subsidy versus improving performance, could impact the potential outcomes on operational performance.

The transition to GBR offers opportunities for operational performance improvements, but these are more likely to be realised in the long term. Short-term benefits are possible and careful management of the organisational change process will be crucial for success.

No Regions have included potential GBR benefits in their plans, reflecting the uncertainty surrounding the timing and scale of improvements. We consider that were NR wishing to set an ambitious trajectory they could assume some small benefits from pre-GBR and GBR establishment towards the end of the Control Period.

## 6.3 Industrial Relations

*Has each region taken a reasonable and consistent approach to considering the impact of industrial action? Especially considering how any industrial action may have impacted the base year, has the baseline or entry point been adjusted accordingly?*

*Operator plans to address industrial relation issues.*

To consider the impacts of Industrial Relations on performance we have focussed on the impact on cancellations as it typically has the greatest impact on cancellations although will have direct impact on traincrew related delays and indirect impact on reactionary impacts.

Strikes across the rail industry started in June 2022, with strike action by Network Rail workers continuing to June 2023 and strike action from drivers until May 2024 (with some continuing action on specific operators after this date related to specific disputes). Cancellations had already increased nationally by around 1.3% prior to the start of strikes with 0.9% of this due to traincrew attributed cancellations. This was in part driven by action short of a strike (ASOS), such as staff working to their contractual commitments and are unwilling to volunteer for overtime, whilst the operational plans of TOCs assume that a certain level of staff volunteer each week, but is mostly due to training backlog post covid and elevated sickness absence.

There were some strikes during the first 4 periods of the baseline period used for the modelling (December 2023 to November 2024). The pay deal was agreed in September 2024. There is even less direct impact of Industrial Action on the Year 1 exit position, which is used as the starting point for modelling changes in performance.

There is limited evidence for an improvement in performance following the core period of Industrial Action (IA), and hence direct impact on operational performance affecting the baseline period. This is likely due to:

- Training backlog and higher sickness levels: elevated traincrew cancellations were evident prior to the start of the core period of IA. This was primarily driven by elevated levels of sickness and training backlog following the period of Covid related restrictions. The period of IA has contributed to continued challenges to reducing the training backlog at several TOCs. This is contributing to the continued high levels of cancellations;
- Rest Day Working (RDW): There remain challenges at some operators with uptake of rest day working, particularly on weekends. This is unlikely to be resolved without changes to terms and conditions to make Sunday part of the working week; and
- Continued Industrial Relations challenges at some operators: Recent challenges at specific operators have usually centred on agreement of RDW agreements. Some have resulted in short periods of reduced uptake of RDW due to gaps between the end of one agreement and the uptake of the new agreement. Avanti had 3 strike days (and 2 strikes cancelled at short notice) related to RDW pay for Train Managers in January/February 2025.

None of the Regions have modelled any adjustment to the base for Industrial Relations. Given that the core IA period impacted a small proportion of the baseline, and there is little evidence for improvement in performance impacts following the core IA period, this is not unreasonable for year 2.

None of the Regions have modelled operator plans to address industrial relations issues specifically. This is consistent with NR approach to only model committed schemes by operators. The operators' position is generally that changes to traincrew terms and conditions is dependent on commitment from funders.

Some improvements in traincrew performance have been modelled. The majority do not model a return to levels of traincrew cancellations seen prior to the rise in 2021/22, although the GTR project 94 does approach these levels if the benefits modelled were as described in the plan.

## 6.4 Maintenance Filling & Skilling

*Has each region taken a reasonable and consistent approach to improvement in performance from "filling and skilling" for maintenance vacancies (since "modernising maintenance": previous NR research has indicated a shortage of skilled maintenance staff can have a "multiplier" effect similar to the traincrew effect described in one of the regional presentations)*

Several Regions have schemes that reference benefits from "filling and skilling", i.e. increasing staffing levels and competency in maintenance. Benefits assumed are mostly applied to reactionary impacts on track and non-track assets categories i.e. teams will be able to more rapidly respond and address incidents to reduce the total scale of the incident.

NW&C have 2 specific schemes:

- One aimed at reducing the maintenance resource and competency gap with a forecast improvement of ~5% in Track and Non-Track delays (Primary and reactionary delay reduce by same proportion); and
- Another for the Aston Hub Training Facility with a forecast improvement on the Central route of 1.5% in External and Non-Track Assets (All Delay i.e. 1.5% Primary and approximately 3% reactionary).



Wales and Western have two schemes:

- One to close the vacancy gap on the Wales Route with a forecast improvement of 2% on all NR categories and an additional 7% on Track defects (Primary and reactionary delay reduce by same proportion); and
- The Western Route 21st Century Maintenance scheme includes upskilling and recruitment with a forecast improvement of 1% in Track and Non-Track (All Delay i.e. 1% Primary and approximately 2% reactionary).

Eastern and Southern Regions include descriptions of recruitment and upskilling in their recovery plans, but we have not identified specific schemes modelled as part of the CP7 Reset. For Eastern it could be assumed the benefit is in their year 2 exit assumption.

The assumed scale of scheme benefits is reasonable (in some cases ambitious) and consistent in the categories affected. The scale of impact does vary between Regions, but this may be justifiable on the basis that Regions are not starting from the same position in terms of asset risk and resourcing/skill levels.

## 6.5 External Modelling

*Where the national model has not been used for all or some parts of the modelling for the region*

Eastern Region has carried out modelling for the East Coast December 25 timetable change outside of the central modelling tool and applied it as an overlay to the trajectory as discussed in section 5.4.1.4. The modelling consists of a combination of approaches to consider the final operating state and risks following introduction. There are some aspects of the approach used by the Region that will contribute to a more optimistic view on the likely performance, but we consider that overall the methodology results in a slightly realistic view of the likely outcome. However, we note that each timetable change is different, and it is very difficult to anticipate what the impacts will be from a specific timetable change based on historic patterns. Eastern do not model any negative impact on Cancellations from the timetable change.

Southern Region has applied an overlay for the East Coast December 25 timetable change outside of the central modelling tool as discussed in section 5.4.1.4. We consider the overlay applied to be reasonable.

Eastern have carried out external modelling for the East Coast Digital programme which is applied as an overlay to their Time to 3 trajectory as discussed in section 5.2.2.4. The analysis is based on observed impact on the North City Line. We consider the analysis to be reasonable.

Eastern have applied a year 2 exit assumption that is not based on the scheme modelling as discussed in section 5.2.2.2. This is based on the Performance Improvement Plan forecast outturn levels for 2025/26. We consider this as a more ambitious assumption considering currently performance levels and the improvement required to reach this level.

Scotland do not use the national model to develop their trajectory. The focus of their modelling is based on the Scotland Train Performance Measure (STPM). They then consider the Cancellations component of this once the main STPM modelling is complete as a follow-on process rather than considering the proportion of the STPM improvement that will be delivered through punctuality improvement vs cancellations improvement.

## 6.6 Performance Recovery Plans

*How any existing and committed recovery plans and impacts have been taken into consideration.*

Eastern have a performance improvement plan which is discussed in section 5.2.1.2 and 5.2.2.2.

Southern have a performance restoration plan which is discussed in section 5.4.1.3.

Wales and Western have a performance improvement plan which is discussed in section 5.5.1.3.

## 6.7 Scotland's Targeted Performance Fund

*How the Targeted Performance Fund schemes have been considered in Scotland's forecasts.*

Scotland have badged 5 schemes as "Targeted Performance Fund (TPF)" –

- OLE Infrastructure Monitoring Technology;
- Switch and Crossing Monitoring;
- Third Party Tree Management;
- Hyndland Guardian Presence; and
- Hubble.

In year 2 these have a combined benefit of 764 trains to the STPM (about 1/3rd of the overall improvement from Schemes).

The description for year 3 to 5 is more vague. They say some schemes listed above which start part way through the year will continue and have a full year impact. Also, the TPF continues to receive and fund additional schemes which will provide incremental and continued benefit in future years.

## 6.8 Impact of External (Trespass & Vandalism)

*Has each region taken a reasonable and consistent approach to considering the impact of externals such as trespass and adjusted the baseline or entry point accordingly?*

We looked at the trends in delays and cancellations for each Region since rail year 2014/25 in the externals category.

All of the Regions covering England and Wales saw an increase in the impact on delays from external incidents in 2024/25 rail year compared to 2023/24. This reflects a continuing trend over the last decade. However, the increase in 24/25 was mostly driven by an increase in the impact of incidents (i.e. the delay per incident) with the actual number of incidents in some Regions reducing year on year. It is not possible to tell from the data whether this increase in delay per incident is due to changes in the types and location of incidents or due to how Network Rail is managing performance recovery.

**Eastern:** Had the highest year on year increase in delays between 23/24 and 24/25 of all the Regions, with delays increasing by 32%. A year-on-year increase in cancellations of around 20% was also seen. The assumed year 2 exit position (see 5.2.1.2) incorporates assumed improvement in externals from their Performance Recovery Plan and they have schemes that assume further reductions in the impact from external events in all subsequent years. Of note is the input error for the related schemes on Anglia route that applies the intended improvement for externals against all cause categories.

**North West & Central:** Delays and cancellations from external events rose by 25% year on year between 23/24 and 24/25. The Region models a mitigation scheme that recovers some of this increase (about 1/5) in year 2 but does not model any improvements in subsequent years.

**Southern:** The increase in delays in 24/25 was slightly above the trend indicated by the previous 2 years. They include some schemes to mitigate the occurrence of external events in year 2 in the modelled trajectory but no further improvement in subsequent years.

**Wales & Western:** The year-on-year increase in externals delays and cancellations in 24/25 was consistent with the trend in recent years. They include schemes to model continued growth in external incidents with some schemes to mitigate these.

**Scotland:** Scotland has not seen the increase in impacts of external incidents seen in the other Regions. The delays and cancellations in 24/25 were typical.

Due to the long-term trend for increase in the impact of External incidents on performance it is difficult to isolate what might be an abnormal impact in the baseline year that might warrant a specific adjustment to the trajectory. We therefore consider the Network Rail approach of modelling specific schemes to mitigate External incidents is appropriate. Considering Eastern Region's increase in the base period above trend the greater impact its schemes relative to the other Regions is understood. Both North West and Central and Southern also have increases that are slightly above the trend in recent years and these Regions only have schemes to provide mitigation in year 2 with no further improvement. We might expect more ambitious trajectories for these Regions to include incremental mitigation benefits in subsequent years.

Network Rail set out that they expect the trend in the increase in externals events to continue and activities to mitigate the impacts are unlikely to reverse this trend.

## 6.9 Impact of Weather

*Has each region taken a reasonable and consistent approach to considering the impact of weather and adjusted the baseline or entry point accordingly?*

Although there are concerns about the impact of climate change over the longer term and there are signs that the patterns of weather are changing, the year-to-year variability in the impacts of weather events is greater than any current trends are likely to drive in the shorter term during CP7.

We looked at the trends in delays and cancellations for each region since rail year 2014/25 in the weather category to consider whether the Region should have considered an adjustment to their trajectory for the base being a particularly abnormal year for the impacts of weather on performance.

**Eastern:** Weather impacts on delays was relatively low in 2024/25 compared to the years immediately prior but is comparable to historic levels. Similarly, the cancellations for weather related incidents are reasonably typical. We do not consider that the Region needed to adjust for these levels in the forecast trajectory.

**North West & Central:** Was the only Region with an increased impact from weather events in 2024/25 compared to 2023/24. For delays this was only slightly higher than 2023/24 but was the second highest absolute annual level since 2014/15. The cancellations were the worst annual level it has been since 2014/15, with the proportion of services cancelled 25% higher than the next worse year. Given these levels are higher than historically typical for the Region we would expect some adjustment in the forecast trajectory to compensate for this.

**Scotland:** The baseline year is considered benign with delays at a lower level than the previous 3 years and cancellations the section lowest annual level since 2014/15, about 0.3% cancellations lower than normal, about a quarter of the level of normal cancellations related to weather. This, along with the reduced timetable, forms the key rationale for why a higher level of cancellations can be expected in year 2 than in year 1.

**Southern:** Lower impacts from weather on 2024/25 than years immediately prior, particularly for cancellations, but not abnormally low. We do not consider that the Region needed to adjust for these levels in the forecast trajectory.

**Wales and Western:** The Region had a typical year in 2024/25, although with higher cancellations than most years. This was an improvement from the 2023/24 impacts of weather. Several interventions are in place especially on the Western route for which benefits are assumed. We do not consider that the Region needed to adjust for these levels in the forecast punctuality trajectory but should probably be considered for the cancellations.

None of the Regions have adjusted for the level of weather impacts in their base year.

## **6.10 ECML December 2025 Timetable**

*If the depth of the ECML TT bathtub curve appears reasonable given past experience (i.e. does it look too optimistic or pessimistic, in light of mitigations since previous comparator timetables such as creation of Industry PMO and other readiness assessment activities?)*

See section 5.2.1.3.

## Appendix A. Documents Received

The following documents were received during this stage of the project and considered during our review.

- Wales & Western CP7 2+3 performance reset initial submission.pdf
- 2025 05 09\_Performance reset national overview\_FINAL.pdf
- Eastern CP7 2+3 performance reset initial submission.pdf
- May 2025 Cancellations model input schemes.csv
- May 2025 Punctuality model input schemes.csv
- North West & Central CP7 2+3 performance reset initial submission.pdf
- Scotland CP7 2+3 performance reset initial submission.pdf
- Southern CP7 2+3 performance reset initial submission.pdf
- Reset National Overview Slides FINAL (002).pdf
- Summary of CP7 modelled scheme impacts.xlsx
- CP7 modelled scheme impacts v2.xlsx
- Southern Region Performance Restoration (ORR Walkthrough, 13 Feb).pdf
- KPI Summary - Output from Forecasting Sessions (Route).xlsx
- ECML TT Calculations Detail v1.pptx
- RF11 19022025 SAF Forecast.xlsx

We were also supplied with the model packages that included a total of 496 files including:

- Python modules for both delay and cancellations models
- Input data including base delays, cancellations, train counts, train km, and regression coefficients
- Regions Scheme input sheets
- Model run outputs from the model run used to produce the submission trajectories
- Supporting spreadsheets used to produce the trajectories and waterfall charts included in the Regions submissions, noting these were generic versions of the tools and not the final ones actually used by the Regions.

We also refer to the Wales and Western Performance Improvement Plan in the report which can be found at <https://www.networkrail.co.uk/wp-content/uploads/2024/11/Wales-Western-Region-Performance-Improvement-Plan.pdf>

## Appendix B. Scheme Categorisation

The following ratings are used for scheme categorisation.

- Type of impact
  - Improve – reduction in delays relative to base in all years
  - Risk – increase delays in all years relative to the base
  - Risk-Improve – Increase delays relative to base in some years and reduce in others
- Delays scale of impact
  - High – Increase or reduce delay by more than 10,000 minutes in any year
  - Medium – maximum increase or reduction in delay is between 500 and 10,000 minutes
  - Low – maximum increase or reduction in delay is less than 500 relative to base
- Cancellations scale of impact
  - High – Increase or reduce delay by more than 500 cancellations in any year
  - Medium – maximum increase or reduction is between 100 and 500 cancellations
  - Low – maximum increase or reduction is less than 100 cancellations relative to base