Oliver Stewart
RAIB Recommendation Handling Manager

5 April 2024

Mr Andy Lewis
Deputy Chief Inspector of Rail Accidents

Dear Andy,

RAIB Report: Train overspeeding at Spital Junction, Peterborough on 17 April 2022

I write to report[1] on the consideration given and action taken in respect of the recommendations addressed to ORR in the above report, published on 10 July 2023.

The annex to this letter provides details of actions taken in response to the recommendations and the status decided by ORR. The status of recommendation 1 is **'Open'.** The status of recommendations 2 and 3 is **'Insufficient response'**. The status of recommendation 4 is **'Closed'**.

ORR will advise RAIB when further information is available regarding actions being taken to address these recommendations.

We will publish this response on the ORR website.

Yours sincerely,

Oliver Stewart

[1] In accordance with Regulation 12(2)(b) of the Railways (Accident Investigation and Reporting) Regulations 2005

Initial consideration by ORR

1. All 4 recommendations were addressed to ORR when the report was published on 10 July 2023.

2. After considering the recommendations ORR passed recommendation 1 to all TOCs and FOCs, recommendations 2 & 3 to Network Rail and recommendation 4 to Lumo asking them to consider and where appropriate act upon them and advise ORR of its conclusions. The consideration given to each recommendation is included below.

3. ORR also brought recommendation 4 to the attention of TOCs and FOCs as it was concluded that that there are equally important lessons for them. ORR did not ask these organisations to provide a reply.

4. Annex A identifies the correspondence with end implementers on which ORR's decision has been based. Annex B has the responses received from TOCs and FOCs to recommendation 1.

Recommendation 1

The intent of this recommendation is to reduce the risk of Lumo drivers overspeeding at diverging junctions where there is a significant reduction in maximum permitted speeds.

Lumo (East Coast Trains Limited) should review, and amend as necessary, its route risk assessment process to ensure that it considers junctions where there is a potential for a greater risk of overspeeding (such as where there is a large distance between the point where a driver is given a clear aspect and the junction and/or where there is a large speed differential between the main and diverging routes).

Based on this revised risk assessment, Lumo should review the control measures in place intended to ensure that the risk from drivers exceeding permissible speeds at diverging junctions is adequately mitigated. This review should include consideration of the professional knowledge, training and assessment of its train drivers. Lumo should implement any changes necessary to mitigate the risk of overspeeding at junctions.

ORR decision

5. Lumo has conducted a review of route risk assessments with an emphasis on junctions with a greater risk of overspeed, together with the associated training and briefing material given to drivers. We have asked Lumo for an update on the actions set out in October 2023 letter (as most were expected to be completed by January 2024) and more information on the programme to fit C-DAS and if it will address the exceedance of permissible speeds at diverging junctions.

6. As Grand Central was the TOC involved in the 4 May 2023 overspeed incident at Spital junction[2], we have considered its response to this recommendation equally to

[2] Train overspeeding incident at Spital Junction, Peterborough - GOV.UK (www.gov.uk)

that of Lumo. We have asked Grand Central for an update on the review of route risk assessments that was expected to be completed by the end of 2023.

7. The recommendation was passed to all TOCs and FOCs, all of whom have acknowledged it, apart from Rail Operations Group (ROG). The responses are summarised in Annex B.

8. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Lumo and Grand Central have each:

- taken the recommendation into consideration; and
- are taking action to close it

Status: Open.

Information in support of ORR decision

9. On 13 October 2023 LUMO provided the following initial response:

Lumo, following on from the incident carried out:

- *A full review and revision into all Lumo's route risk assessments, training, briefing, and assessment documentation given to customer drivers relating not just to this junction but to all other junctions on the route where the potential for overspeeding could occur. This review and update was completed on 27/05/2023 and has been subject to further ongoing update and review since.*

- *Produced regular bulletins around the risks of this particular junction signal, incorporating the content into safety briefing cycles. This was completed in July 2022 and has been further repeated since following on from a similar incident at the same location.*

And in addition to this Lumo has also:

- *Carried out a further review of the content of its driver training and associated procedures, this is an ongoing piece of work, expected to be completed in December 2023 and expected to be implemented in time for the new driver intake in January 2024.*

- *Recently introduced an on-site full cab simulator into the business to strengthen scenario- based training to its customer drivers and apprentice customer drivers, this is expected to be fully operational in time for the next driver intake in January 2024.*

- *Recently introduced a new layer of Driver Managers into Lumo with the aim of strengthening resilience, improving assessment, operational knowledge, and training capacity within the Customer Driver team.*

As a result of this review, Lumo has also fully engaged with its sister organisations, Network Rail and others involved on the East Coast Main line through

- *Sharing learnings and the sharing of updated route risk assessments at industry meetings such as Train Operators Sub Group, Operations Standards Expert Group and National Operations Standards Forums*

- *Engaged with Network Rail at a number of both local and national level bow tie risk assessment events to look at both operational and technical mitigations that would prevent a future incident from occurring, making suggestions to Network Rail on technical solutions to mitigate the risks from this event occurring at high-risk locations such as OTTO and re- introducing technical signalling mitigations such as approach release to yellow. It is also anticipated that the introduction of ECTS to the Southern Section of the East Coast Main line in 2026 will also reduce this risk further*

- *Worked with Hitachi to provide an overarching speed limiter to prevent overspeed above 125mph running. Work is also ongoing to develop the ETCS software required for the introduction on the ECML (Expected in 2025/2026). We are also assisting Hitachi in the development of the train Driver Advisory System (DAS) that will provide dynamic train speed advice to our drivers.*

Lumo will continue to work with industry partners both internally with our operations and fleet partners and externally with the infrastructure manager and the RSSB to ensure risks from overspeeding presented at this and other locations are controlled to a level that is as low as reasonably practicable with the full involvement of our employee appointed safety advocates.

8. On 13 October 2023 Grand Central provided the following initial response:

Thank you for your email concerning the above incident and I am sorry that I haven't been able to get back to you sooner.

Upon becoming aware of the incident at Spittal Junction, GC Drafted an initial Bulletin on what we had learned at that time, for all our drivers highlighting the potential risks of sun blinds restricting view of signals This was of course, well before the RAIB investigation and report were issued.

Since this incident, we have discussed all aspects of P468 / Spital Jn when carrying out a formal driving assessments with our Drivers that include :

- *the anticipated approach when not on green signals*
- *the route options which can & cannot be accepted*
- *the line speeds for the diverging junctions*
- *the need to check and double check whether there is an associated junction indicator illuminated having approached P468 at caution.*

This was of course, well before the RAIB investigation and report were issued. On 4th May this year, a further incident occurred at this location with one of our own GC services. This is now subject of a further RAIB investigation, as you will no doubt be aware. In line with our internal incident investigation process, a 72 Hour review was undertaken following this incident and the outputs from this were that a further Bulletin was issued to our drivers highlighting this route risk, along with reminding drivers of this risk in a wider context (ie – can apply in other locations too) and so to remain vigilant at all times.

GC have held a special workshop involving all managers involved with train drivers (training, assessing, line management, etc), along with our professional safety and operational heads. An action to review all existing Route Risk Assessments was agreed, with a focus on location. This will review will be completed by year end 2023 and will additionally form part of the review we are undertaking as part of the East Coast Digital Programme workstreams.

It is worth also highlighting that this workshop considered a wide range of driver safety performance factors and expert speakers from several external bodies provided support to this event. There are follow up sessions planned to monitor and ensure progress with the actions agreed through this exercise.

Whilst not specifically a reaction to the incident on 17th April 2022, we have implemented a process where our planning teams will help inform our Driver Leadership team on any significant timetable changes that may trigger a further review of route risk assessments.

Recommendation 2

The intent of this recommendation is for Network Rail to work with operators of trains to assess the risks of trains overspeeding at junctions fitted with approach controls.

Network Rail should:

a) Identify junctions fitted with approach controls where the risk from overspeeding could lead to derailment, injuries or damage.

b) Share this information with the operators of trains which use the identified junctions to facilitate a collective re-assessment of the risk of trains overspeeding at those

junctions. This assessment should consider, among other factors, the acceleration capability of the rolling stock using the junctions, the degree of overspeed and the potential consequences.

ORR decision

9. We consider the response provided by Network Rail to recommendations 2 and 3 to be insufficient. We have requested a meeting with Network Rail to discuss how the risk of trains overspeeding at junctions fitted with approach controls is being assessed. In addition, we have asked Network Rail to provide more information on the work being done with RSSB, the timescales for any outputs from the workshops and contingency measures if the project does not achieve what is expected or RSSB is unable to provide sufficient resource.

10. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration; but
- has not provided a sufficient response setting out how it will be delivered.

***Status: Insufficient response*. ORR will advise RAIB when further information is available regarding actions being taken to address this recommendation.**

Information in support of ORR decision

11. On 5 March 2024 Network Rail provided the following initial response:

Action Plan

Please provide milestones with dates

The action plan for this recommendation is co-dependant with that for recommendation 3.

Preliminary and enabling work.
Network Rail in collaboration with RSSB and via a Request for Help, will facilitate workshops with train operators to identify types of junctions and/or characteristics where there is a perceived greater risk relative to other junctions. In addition, those driving factors pertinent to safely traversing junctions will be identified. These actions will be used to gain some understanding of driving behaviours relevant to junctions and which may be used to inform risk models.

Recommendation 2a will be addressed as follows:
Network Rail, in conjunction with RSSB and train operators will take the outputs of the preliminary and enabling work, the relevant signalling arrangements and infrastructure characteristics, to identify those junctions where there may be an increased overspeeding risk.

Recommendation 2b will be addressed as follows:

NR will present to TOCs/FOCs the characteristics of those junctions identified for 2a including where appropriate, details of the junction signalling arrangements, aspect sequences, signage, speed reductions, distance from junction indicator and cautionary aspects, approach releasing arrangements, signal sighting information.

TOCs and FOCs will determine from the information and their understanding of driving behaviour and train characteristics, the likelihood of overspeed at the junctions identified.

Network Rail, RSSB and train operators will collaborate to assess the relative risk for identified junctions using the information above. This may require the development of risk assessment tools separate from these recommendation action plans. Any resulting recommendations will be classified into those which can be addressed locally e.g. signal sighting opportunities, those which require an intervention into the signalling system such as a change to aspect sequences and release conditions, and those which impact on the established principles of junction signalling and need to be considered as part of Rec3. Reasonability tests will be applied to recommendations in order to contain the scope to that which can be achieved within industry constraints.

Evidence required to support closure of recommendation

Evidence that each action point has been considered and/or addressed.

Outputs will be defined further when work has progressed sufficiently.

Recommendation 3

The intent of this recommendation is to reduce the risk of trains overspeeding at junctions by considering appropriate mitigation measures.

Based on the findings of the assessments undertaken as part of Recommendation 2 (paragraphs 202c and 203b), Network Rail, in conjunction with train operators, should jointly consider and implement risk mitigation measures at the junctions identified where the risk from overspeeding could lead to derailment, overturning or damage. Such risk mitigation measures could include:

a) technical means (such as additional protection by signalling configuration changes) and/or the use of new technology (such as in-cab information systems to better inform drivers)

b) operational considerations (such as reinforcing driver awareness, changes to service patterns and/or how signallers regulate trains at these junctions).

ORR decision

12. As stated in paragraph 9, we consider the response provided by Network Rail to recommendations 2 and 3 to be insufficient.

13. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration; but
- has not provided a sufficient response setting out how it will be delivered.

***Status: Insufficient response*. ORR will advise RAIB when further information is available regarding actions being taken to address this recommendation.**

Information in support of ORR decision

14. On 5 March 2024 Network Rail provided the following initial response:

Action Plan

Please provide milestones with dates

The action plan for this recommendation is co-dependant with that for recommendation 2.

Recommendation 3 will be addressed as follows:
Network Rail, in conjunction with RSSB and train operators will identify opportunities for risk reduction taking consideration of results and learning from Rec 2. Two areas of parallel research will be necessary to identify measures that could provide mitigation. These are detailed below.

Recommendation 3a will be addressed as follows:
Network Rail will submit a Request for Help to RSSB with the aim of conducting a review of current junction signalling practice. An early initial review will determine the scope of further review based on a number of considerations including, reasonableness of carrying out further in-depth review, repetition of previous studies into junction signalling, practicability of any changes to current practice.

A parallel study will look at technical solutions beyond current conventional signalling arrangements including speed advisory and supervisory speed systems and opportunities ahead of ETCS deployment.

A further request for help to RSSB to seek opportunities to improve driver behaviours and awareness at junctions using factors identified in rec 2.

Recommendation 3b will be addressed as follows:
Network Rail will submit a Request for Help to RSSB asking that research be carried out into operational factors that could reduce the risk to trains traversing junctions by modifying driver behaviour or changing awareness.

Network Rail in conjunction with RSSB will investigate whether changes in train regulation could result in reducing the risks to train traversing junction by, for example, changes in timing, aspect sequences, release conditions and assess the reasonability of such changes in the context of running the operational plan.
Evidence required to support closure of recommendation
Evidence that each action point has been considered and/or addressed. Outputs will be defined further when work has progressed sufficiently.

Recommendation 4

The intent of this recommendation is to minimise the risks from falling luggage on Lumo train services.

Lumo should assess the risks of high volumes of large and likely heavy luggage stowed in overhead luggage racks which can fall on passengers if trains suffer significant lateral accelerations. This assessment should specifically examine the design of overhead luggage racks, the amount of alternative luggage storage space provided and passenger luggage policies. Lumo should implement any control measures identified as appropriate

ORR decision

15. In response to the recommendation, Lumo has assessed the risk from falling luggage on its services and implemented controls, principally making passengers aware of the luggage policy and associated restrictions; and providing additional space for luggage by the removal of some seats.

16. ORR approved the 9th supplemental agreement to East Coast Trains Limited's (trading as "Lumo") Track Access Contract on 12 September 2023, under section 22 of the Railways Act 19933. The purpose of the supplemental agreement was to allow Lumo to remove 8 seats on each of its trains to replace them with floor mounted luggage racks.

17. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Lumo has:

- taken the recommendation into consideration; and
- has taken action to close it.

Status: Closed.

[3] https://www.orr.gov.uk/sites/default/files/2023-09/east-coast-trains-limited-section-22-9th-supplemental-agreement-decision%20Letter.pdf

Information in support of ORR decision

18. On 13 October 2023 Lumo provided the following initial response:

Following on from this incident, Lumo carried out a full review of the risks involved with high volumes of large and likely heavy luggage.

The outputs included:

- *The introduction of a dedicated 'Lumo Luggage Working Group' (LLWG) comprised of business leaders from the majority of departments – with input from front line colleagues and safety advocates – to look specifically at the issues of luggage on board and implement solutions. This is ongoing and LLWG meets every four weeks#*

- *The introduction of a clear luggage Policy on board for all its customers, stating specifically what can and cannot be brought onto a train. This includes the dimensions of permitted luggage, and the Policy is now embedded into the Lumo Conditions of Carriage. This work has been completed but remains under regular review.*

- *A full review and update of all information relating to luggage limitations through social media, website and through engagement with external third-party associates (such as Trainline our biggest 3rd party seller). This enables Lumo to provide clear information on the limitations on luggage carried to make it clear to customers at the point of sale. This work has been completed, but remains under regular review and update*

- *Signposting to a dedicated luggage carrier (Lumo Luggage) to support customers with transporting significant amounts of luggage or other items not permitted on board via another means. This work was completed prior to the incident.*

- *Introducing clear signage on board all Lumo's fleet at the point a customer boards the train. This is to educate and inform customers on the on-board luggage allowance and including storage locations, supported by further customer messaging within the train (information posters, signage within the bulk store plus on board announcements. This work was completed in June 2023 and remains under review.*

- *Customer Experience Ambassadors patrolling the train regularly at the start of the journey and during the journey to ensure luggage is stored correctly and safely at various points during the journey, including:*
    - *Larger / heavier cases stacked in specific bulk storage which is contained within the vestibule ends of coaches D and B,*
    - *Medium and less heavy items stored in overhead lockers; and*
    - *Smaller items placed under seats.*
    - *Supplemented by an ad-hoc customer experience presence at stations during known high traffic periods (such as school holidays, student return days, Christmas etc) to inform customers of the on-board luggage allowance.*
    - *Particular attention is paid during the journey to where the brackets are located against the placement of luggage.*
- *Working with both the ORR Permissions and the Regulatory Team and Hitachi Rail Europe to remove eight seats from the Lumo fleet and create more luggage space through the introduction of an additional four luggage racks on board (this work is expected to be completed in June 2024).*
- *As an interim whilst awaiting completion of the above work, Lumo have removed ten seats from general sale on each service. Portable seat covers have been introduced and can be brought into use at any time, with the ten covered seats providing the option to store excess luggage at the ends of each coach (introduced in July 2023). Lumo have also changed the existing seating plan and seating algorithm based on feedback from frontline staff within the product inventory (how we fill up the train) to improve the passenger experience.*
- *Worked with Hitachi to ensure that shelving demarcation points are clearly visible to customers and provide a means to prevent luggage from sliding off and from luggage racks (this work is expected to be completed in June 2024). Included within this is a short-term solution of signage (to denote where these brackets are located) and a longer-term solution of a fitment attached to the existing bracket to prevent luggage being stored on them.*

Responses to Recommendation 1

1) On 13 October 2023 Arriva Rail London provided the following initial response:

Arriva Rail London (ARL) recognise that whilst our 'metro' type operation has a differing risk profile to that of an inter-city operator, it is still appropriate for us to review our Train Driver route risk assessments to consider junctions where there is a potential for a greater risk of over speeding, and apply appropriate controls where a risk is identified, through the Train Driver route training and assessment process.

The initial tranche of work will be sponsored via the ARL Operations Safety Group, a forum attended by the senior Driver Management team and the Operations Standards department.

Across the three ARL operating areas, route champions will be tasked with reviewing routes to identify any potentially at-risk junctions and addressing the risk accordingly through updates to the relevant Train Driver route risk briefings.

To then embed this specific aspect of route risk assessment into the ARL Train Driver route risk assessment process (as set out in ARL operating standard SQE 08.15), the route risk assessment template will be updated accordingly, using the same mechanism that will be applied to assess potential at risk junctions in the initial work outlined above.

ARL are also cognisant of Recommendation 2 within the same RAIB report. We are still awaiting these outputs from the Network Rail regions across which ARL operate, and when received will use this information to further inform / refine our route risk assessment reviews, working collaboratively with the relevant Network Rail regions.

2) On 27 October 2023 Avanti West Coast provided the following initial response:

Actions taken by AWC are as below

- *A review of route risk and route risk assessments to identify the areas of risk relevant to the nature of the incident*
- *Route risk assessments have been updated where necessary*
- *The upcoming Drivers safety brief has the detail of the RAIB report included and areas of risk relevant to the depot in which the safety brief is being undertaken is shared.*

3) On 13 October 2023 c2c Ltd provided the following initial response:

The Essex Thameside routes over which c2c operates have very few locations where there is a significant distance between junctions and signals, nor high-speed approaches permitted through clear signal aspects. We have revisited our route risk

assessments as requested and have identified two junctions where there may be a potential for a greater risk of over speeding. We have satisfied ourselves that existing engineering controls at each junction are sufficient to avoid such an event from occurring. These are detailed below:

Pitsea Junction

Our assessment of Pitsea Junction identified that there is an increased risk for services that are travelling on the Up Main Line into Platform 4 from the Up Tilbury Line, or platform 3 from the Down Tilbury Line, but that these are effectively controlled by the approachcontrolled nature of the signalling system design, and the restrictive aspects protecting Pitsea Hall level crossing ahead of Pitsea station.

Upminster Junction

The junction at Upminster station with the Ockenden branch line presents some risks in this area but is effectively controlled by a series of incremental speed restrictions on approach to the junction, which drops the line speed from 70mph to 40mph at the signal protecting the junction, before dropping again to 20mph to transition over the points onto the Up Main line.

Professional Driving Policy

The c2c Professional Driving Policy, associated training, assessment and competence management puts significant focus onto the techniques to be used when driving to restrictive signalling, avoiding TPWS incidents at permanent speed restrictions, and driving styles for incremental acceleration & maintenance of line speed. We actively promote the understanding and application use of non-technical skills. We train and assess our Drivers on hazard perception and anticipation of risk when managing potential loss of attention and concentration, and cognitive loading.

In addition to the application of our professional driving policy, and recognising the risks that Driver fatigue can present, we are currently supporting an RSSB trial (T1193 Driver attention and alertness monitoring system project) of in cab monitoring technology. This project, if proved to be successful will be transformational in addressing Driver alertness and attention risks, which are often identified as factors in operational safety incidents, including those involving excessive speed. The project is now in the procurement phase and we are hoping to being fitment and testing to 20 train cabs on our fleet in Q1 2024.

I trust this information meets with your expectations and demonstrates that whilst the c2c network does not have a significant level of risk, exposed by the RAIB report, we are actively mitigating the risks that do exist effectively and are working on innovative approaches to reducing the risk further. Should you require any further information, or clarification of any points please do not hesitate to get in touch.

4) On 4 September 2023 Chiltern Railways provided the following initial response:

Our existing route risk assessments already cover any diverging route with potential of derailment due to line speed changes.

We carried out a comprehensive review of our route risk assessments in May this year as part of the Automatic Train Protection (ATP) removal project. Consequently, all major diverging junctions between Aynho Junction and London Marylebone (50% of one the core routes operated by us) with a significant speed reduction, are further enhanced with TPWS protection. Train Drivers were briefed on the change including the risk of over speeding.

The remaining routes risk assessments have been reviewed following the Spital Junction incident in April this year, and we have concluded they are suitable and sufficient. However, we have identified that Train Drivers' professional knowledge could be improved by updating our current route maps to include the over speeding risk at diverging junctions as hazards (a similar concept used for multi-SPAD signals, low adhesion locations, etc). This action will be concluded by December 2023 as we plan to add suitable icons to the maps for the locations impacted.

We will be communicating the above to all drivers as part of the next safety briefing.
5) On 12 December 2023 Colas Rail provided the following initial response:

Colas Rail procedure T02-203 Driver Basic Training and Competence Assessment details the various stages that each trainee driver must complete over a two year training period including the depth of knowledge and competence required to drive locomotives and on track machines on the mainline railway. The training comprises of seven key stages including route knowledge competence and practical driving skills with each stage having to be successfully passed before the trainee driver can undertake the next stage. Once a newly qualified driver achieves competence in train driving activities they are provided with additional support comprising of post qualifying monitoring and assessment of their train driver skills.

Stage 4 of procedure T02-2O3 Principles of Route Learning is wholly concerned with route learning and includes the use of route maps, route diagrams, use of the Sectional Appendix, gradients, risk assessment and specific route learning material as examples. A driver's route knowledge competence is demonstrated by assessment that includes oral and written questioning, production of route diagrams, demonstration of knowledge of multi-SPAD and high risk signals and specific route features and risks.

Assessment of Driver Route Knowledge Competence

Colas Rail form TO2-9014 Driver Route Knowledge Competency Assessment Form applies to all Colas rail drivers of freight trains, Infrastructure Monitoring Trains and on track machines. Once the form has been completed it requires a final assessment report by the assessor. All completed route knowledge competence assessment forms are signed by an assessor and the completed forms verified that the correct process has been followed.

Train Driver Formal Assessment

Colas Rail form TO2-9019 Train Driver Formal Assessment again applies to all Colas rail drivers of freight trains, infrastructure monitoring trains and on track machines. The assessment follows the same process as T02-9014 with all completed forms being signed by an assessor and the completed forms requiring verification that the correct process has been followed.

Colas Rail form T02-9019 was reviewed and updated in 2023 to include RSSB guidance on Non Technical Skills (NTS) and includes an NTS category with a skills descriptor for reference purposes. NTS skills such as situational awareness, diligence, decision making and action and self-management are examples used by an assessor as part of the formal assessment. All completed train driver formal assessments are signed by an assessor and the completed forms verified that the correct process has been followed.

All train drivers receive four assessments over a two-year period including a full driver assessment to retain their competence, this includes questions on signals and positons of signals. Colas Rail Services has a full time post holder of Route Risk Manager who produces route risk assessments with relevant route features. Drivers can contact this post holder at any time should there be any change or discrepancy with the route assessments or to bring attention to a particular identified risk.

Update on actions taken as a result of the Spital Junction Urgent Safety Advice 02/2023

The Colas Rail Services Driver Standards Manager issued operating notice RS-ON-428 Over speeding Through Spital Junction on 25 May 2023 which was sent to all drivers that have signed for the East Coast Main Line through Peterborough Station. This operating notice was issued in accordance with procedure TO2- 401 Distribution of Operating Notices and company SMS. In addition to the drivers operating notice already issued, the Operations and Standards Department are ensuring that Microsoft Teams briefings (including the use of a power point presentation) on the Spital Junction incident is being delivered to all relevant drivers, this initiative is continuing with a number of drivers to date having received the brief.

6) On 10 November 2023 CrossCountry provided the following initial response:

At CrossCountry, our route risk assessments were fully reviewed and updated following an incident at Bletchley involving a class 90 locomotive that was derailed following the misreading of a signal indication and proceeding at a high speed through a slow speed crossover. This incident closely reflects the error made recently at Peterborough.

An extract of the route risk assessment template is shown below:

- *Locations where it is considered braking distances are inconsistent, (either short or extended distances, and where gradients can have a factor in braking technique)*
- *Locations where it is considered there may be distractions on approach to signals normally displaying a red aspect e.g. approaching major stations.*

- *Stations where the next signal is not in view or there is potential to start away on a yellow (SOYSPAD), or the last signal, before arrival at the station was yellow. (highlight locations of any signal ahead reminder signage)*
- *Stations which have had "fail to call" or station "overrun" incidents (3 or more incidents in 2 years) - Identify the platform and incident factors for each location*
- *Stations where the normal stopping point is adjacent to a signal and there is potential to start against a signal at danger (SASSPAD) in particular self-dispatch stations.*
- *Terminus platforms less than 200 yards / metres in length*
- *Stations with short platforms or unusual position of stop boards*
- *Stop signals where a change of linespeed occurs within 200m on approach or 50m in advance of the signal, (enter signal numbers).*
- *Sites where reduction in speed is greater than 50% of approach speed. Includes junctions controlled by flashing yellow signals. Excludes junctions controlled by approach control*
- *Misread of signal route indication and speeding risk. Locations where a signalling indication misread could lead to overspeed at a junction*
- *Signals at junctions where there is a high potential to be wrongly routed or accept a wrong route. (Emphasis to be placed on prohibited routes).*
- *Stations that have a risk of wrong side door release or door opening when not fully platformed.*

In addition, the current safety brief which runs from November 1st to 29th February (2024) a full refresh of the above elements are being discussed to support an explanation of the events at Peterborough. Ongoing assessment will also be looking out for any identified locations within the risk assessments.

7) On 10 November 2023 DB Cargo provided the following initial response:

In relation to recommendation 1, The intent of this recommendation is to reduce the risk of Lumo drivers overspeeding at diverging junctions where there is a significant reduction in maximum permitted speeds. DB Cargo have considered the implications on our business and how this could be mitigated.

As a result, we have made an amendment to our route risk assessment process, an extract can be seen below. You will see we have added item 26 which covers the risk where a train travelling through a diverging route at a speed in excess of the permitted speed because the controlling signal can be cleared to a proceed aspect on approach. This extract is taken from a guidance example for the risk assessment template which is why there are Risk Y/N boxes also.

Route Risk Identification Check List

Element No.	Risk Element Question Is there a risk from any of the following?	RISK Y/N
1	Signal which has been passed at danger more than 2 times?	Y
2	Signals that are positioned on the r/h side of running line in direction of travel?	Y
3	Is there any risk of misread signals (reading across or reading through)?	Y
4	Areas of known poor adhesion?	Y
5	Inconsistent signal spacing along the route?	Y
6	Potential lineside distractions?	Y
7	Known signals which could be affected by sunlight?	N
8	The change from 4 aspect to 3 aspect signalling?	Y
9	Bi-directional working, reversible working or multi-track lines where the lines do not run parallel to each other?	Y
10	Starting against a signal at danger?	Y
11	Influences such as lighting (tunnel, platform, street) which may affect braking judgement?	Y
12	Other high-risk signals identified during the assessment? (elevated position lights, unusual positioning, style etc..)	Y
13	Mishandling of a train due to the presence of gradients?	Y
14	Individual signals not fitted with AWS on Loops/Goods lines in AWS fitted area?	Y
15	Level crossings, which have PSRs applicable?	Y
16	Severe reductions in line speeds?	Y

17	*Unmarked PSRs?*	***Y***
18	*Route not fitted with AWS?*	***Y***
19	*"DBC" specific PSRs? (Differential PSRs)*	***Y***
20	*Other: - (e.g. known climatic conditions, GSMR blackspots etc.)*	***Y***
21	*PSRs lower than 15 mph?*	***N***
22	*Unsignalled movements?*	***N***
23	*Permissive working?*	***Y***
24	*Complex* Safe System of Work (SSOW)?*	***Y***
25	*Complex signalling layouts?*	***Y***
26	*Is there a risk of a train travelling through a diverging route at a speed in excess of the permitted speed because the controlling signal can be cleared to a proceed aspect on approach?*	***Y***

***Complex Safe Systems of Work** When defining a complex method of working the assessor must take into account the activities that take place, that there maybe two or more trains potentially present at one time, that there is a Person in Charge appointed rather than just a safe system of work a specific task (i.e. DOO run round) where the risk is also controlled by the application of rules.*

8) On 30 November 2023 DC Rail provided the following initial response:

As part of our response to the RAIB report into the above incident, we were asked to consider the following:

- *Locations at which we operate whereby there is a significant reduction in linespeed across a diverging route.*
- *Methods by which we will work to mitigate the inherent risk in terms of our Route Risk Assessments, Operational Assessments and Route Learning Materials.*

We have initially identified a number of areas across the routes over which we operate, whereby members of my team believe there is a similar risk to the one identified at Spital Junction, and given the existing provision of lineside warning

board and AWS for reductions in speed of 1/3 or greater, I have advised my team to focus on reductions in linespeed of 50% or more, or locations where there is an excessive distance between indication and commencement of reduction in speed (Peterborough and Reading station approaches are two examples)

We are still working through the entirety of the routes we operate over but believe we have identified a significant portion of affected locations and are now concentrating our efforts on our route risk analysis (RRA) procedures, and our route assessment literature used to assess competence.

We have found that our RRA procedure does catch some of these locations organically, but it is not systematic in any way, and I am currently looking at the RRA procedures to ensure such locations are explicitly and deliberately included within the process and documentation.

As part of wider work to improve the methods by which we assess and teach routes to our Train Drivers, I am looking at making changes to the route briefing system currently in place within DC Rail, to bring uniformity of format, briefing procedures, and document management.

With specific regard to the requirements of the RAIB report, I am proposing that locations identified under the terms of this learning point are classified as "blue locations". This will apply to these locations, in addition to other locations present along a route that presents an enhanced operational risk because of specific or unusual characteristics or circumstances. The proposal includes the highlighting of such locations in blue within the documentation to draw particular attention to them, and to the associated instructions or requirements. This will then also allow us to refine the assessment questions and protocols with direct questions aimed at assessing the candidate's knowledge of these inherent risks identified by the RAIB report.

This work is currently ongoing, and forms part of wider works to improve the processes and procedures of the Operational Management team within DC Rail, and I would estimate that this work will be completed by 31st January 2024.

9) On 16 October 2023 DRS Ltd provided the following initial response:

At Direct Rail Services, route risk assessments are issued and briefed to all drivers. Within Section U of the route risk assessment there is a list of all locations where there is a significant reduction in line speed (please find attached a copy of one of our route risk assessments).

Route Risk Assessment York-Pete

As part of the route learning, drivers are issued a blank route risk assessment form to complete which allows them to find the appropriate risks of the route including locations where there is a significant reduction in line speed.

Drivers undergo a stringent assessment programme with part of the performance criteria being based on drivers route knowledge. Assessments are a mixture of practical and downloads. Within the assessment cycle, we cover conducting another driver over a route within the performance criteria which allows the assessor to ensure the driver has maintained the required route knowledge. At DRS, we do a minimum of five random downloads a month as part of the safety audit programme.

Going forward, we have introduced the requirement to complete a route story to drivers route learning. The Trainee drivers have already undertaken completion of a route story which allows the Assessors, evidence that the driver has located all the relevant route characteristics and risks.

We have now introduced a new rostering package at DRS which will allow us to have a more stringent procedure for managing route learning and route refreshments.

10) On 17 October 2023 East Midlands Railway provided the following initial response:

The overspeeding incidents at Peterborough have been included as a case study in the 23/03 Train Driver Safety Brief which is scheduled to run between October 2023-January 2024. This session will highlight the risks and learning points from the two overspeeding incidents whilst considering similar high risk locations that exist on our Network.

A review of our Route Risk Assessment process is planned to be delivered by 31/03/2024. This update aims to implement the route risk story principle as outlined in RIS-3702-TOM which shall identify high risk junctions where the driver can view the controlling signal from a significant distance and/or where there is a significant permissible speed reduction between the main and diverging routes.

The above risk mitigation methods and controls shall be documented in an updated Safety Management System procedure covering Driver Route Knowledge to ensure EMR Drivers receive appropriate training and assessment to gain and maintain the necessary competence to mitigate the risk of overspeeding at diverging junctions.

11) On 6 November 2023 Eurostar provided the following initial response:

Eurostar International Limited operates its commercial train services, in the United Kingdom, on the High Speed One infrastructure, from London St. Pancras International to the boundary point of the Channel Tunnel at Folkestone.

All Eurostar International Limited trains are fitted with TVM 430 in cab signalling and KVB —'Controle de Vitesse par balise' these systems allow the High Speed 1 infrastructure to communicate directly with the train.

This communication occurs through the use of ground-based loops in the track, located every 1500, at block markers for TVM and on approach to, and at signals for

KVB. Both systems monitor the train speed and any speed restriction which is required to negotiate a diverging junction will be monitored and supervised by the on board signalling systems which will initiate an emergency brake application should the required speed be exceeded.

I am satisfied that no further action is required to implement the recommendation.

12) On 29 September 2023 Freightliner provided the following initial response:

Freightliner's risk assessment process (Driver Route Knowledge & Route Risk Assessment) includes a scoring matrix that determines the level of risk associated with the route (Low, Medium, High and Very High) based on characteristics of the route such as significant falling gradients, right hand signals and significant changes in line speed. The scoring matrix determines the content of the risk assessment and the amount of trips / method of learning required based on the matrix score before a driver can be considered competent.

Freightliner will review the current scoring matrix and include 'locations where there is a large distance between the point where a driver is given a clear aspect and the junction and/or where there is a large speed differential between the main and diverging routes'.

To support this action Freightliner has written to Lumo as the original recommendation owner and the chair of the RSSB Rail Freight Industry Group (RFOG) for clarity on the definitions of large distance and large speed differential so that a consistent approach is applied across the industry. The question has also been proposed for discussion at the next Overspeed Task & Finish Group industry meeting that will be held on the 25th October 2023.

We intend to have clear definitions and an updated written process by 30th November 2023. Risk assessments last for two years so our plan to update all risk assessments using the updated criteria has a target date of December 2025 as exiting risk assessments are updated as they expire.

13) On 2 November 2023 GB Railfreight provided the following initial response:

Full details of any measures taken to implement the recommendation:

Measure	*Owner(s)*	*Timescale*	*Status*
GBRf issued a MON (Miscellaneous) notice for all TM's that sign the route or that are currently learning it	*Professional Head of Ops*	*August 31st*	*Closed*

Updating the route risk assessment	*Standards Manager*	*30th November 2023*	*Open*
Route learning updated to reflect this incident and the above review	*Standards Manager / IT Department*	*31st March 2024*	*Open*

This response has been compiled in consultation with the GBRf Operations Standards team and Professional Head of Operations.

14) On 17 October 2023 Govia Thameslink Railway provided the following initial response:

Our response to the Urgent Safety Advice (02/2023) we said that with Peterborough being the furthest point North that GTR services operate, our trains only approach P468 signal when coming from Spital siding towards Peterborough station, so the approach is low speed and that our Route School were identifying other junctions that present a similar risk.

In considering our response to recommendation 1 of the RAIB report, I can confirm that our response has been to review and list all junctions where there is a significant reduction in speed meeting the following criteria:

- *Reduction in speed (from line-speed to crossover speed) of, or over 40%*
- *Distance of more than 100 metres from the junction signal to the first set of points on the crossover.*

Other criteria considered were, the distance at which the junction signal is seen to be clear; if the signal has approach controls and forward route setting, but these were seen to introduce too many permutations, so we have limited our criteria to the bullet points above to ensure a consistency.

This information will be used to update our Route Risk assessments and Driver Route briefings, which are used by drivers learning the route and remain a resource available to existing drivers.

To raise awareness of these risks to drivers we have produced a multimedia notice/briefing which outlines the background of the LUMO incident at Spital Junction and how its learning points relate to our operation. The notice includes a hyperlink to the list of junctions that meet the criteria above and CCTV footage of the actual incident. It is intended that this will also feature in our next round safety update / driver development days.

We remain ready to work [REC 3] collaboratively with Network Rail to consider risk mitigation measures at the junctions identified where the risk from over speeding

could lead to derailment, overturning or damage, as identified by Network Rail in [REC 2].

15) On 13 October 2023 Grand Central provided the following initial response:

Thank you for your email concerning the above incident and I am sorry that I haven't been able to get back to you sooner.

Upon becoming aware of the incident at Spittal Junction, GC Drafted an initial Bulletin on what we had learned at that time, for all our drivers highlighting the potential risks of sun blinds restricting view of signals This was of course, well before the RAIB investigation and report were issued.

Since this incident, we have discussed all aspects of P468 / Spital Jn when carrying out a formal driving assessments with our Drivers that include :

- *the anticipated approach when not on green signals*
- *the route options which can & cannot be accepted*
- *the line speeds for the diverging junctions*
- *the need to check and double check whether there is an associated junction indicator illuminated having approached P468 at caution.*

This was of course, well before the RAIB investigation and report were issued. On 4th May this year, a further incident occurred at this location with one of our own GC services. This is now subject of a further RAIB investigation, as you will no doubt be aware. In line with our internal incident investigation process, a 72 Hour review was undertaken following this incident and the outputs from this were that a further Bulletin was issued to our drivers highlighting this route risk, along with reminding drivers of this risk in a wider context (ie – can apply in other locations too) and so to remain vigilant at all times.

GC have held a special workshop involving all managers involved with train drivers (training, assessing, line management, etc), along with our professional safety and operational heads. An action to review all existing Route Risk Assessments was agreed, with a focus on location. This will review will be completed by year end 2023 and will additionally form part of the review we are undertaking as part of the East Coast Digital Programme workstreams.

It is worth also highlighting that this workshop considered a wide range of driver safety performance factors and expert speakers from several external bodies provided support to this event. There are follow up sessions planned to monitor and ensure progress with the actions agreed through this exercise.

Whilst not specifically a reaction to the incident on 17th April 2022, we have implemented a process where our planning teams will help inform our Driver Leadership team on any significant timetable changes that may trigger a further review of route risk assessments.

16) On 17 October 2023 Greater Anglia provided the following initial response:

GA has reviewed the report and in relation to recommendation 1 provides the following response.

a) *Our standard for route learning has included a reference within the route risk assessment to identify and list route characteristics that may be like that at Spital junction, see section b for details of existing routes. Should new routes be opened for GA trains this is something that will now be considered.*
b) *We have engaged with Network Rail to check and confirm whether the routes our trains use have any similar characteristics to that of Spital junction. From our own internal review we have not identified any, although for further assurance we felt it useful to have a second opinion (in line with recommendation 2 and 3) with an aspiration to complete the review by 31/10/2023.*
c) *Currently in place within our driver training program:*

We use Route Risks, Route questionnaires and Driver Instructor route knowledge to make sure all our drivers are aware of speeds approaching diverging junctions where there is a significant reduction in maximum permitted speeds, in fact we highlight all diverging junctions irrespective of speeds. This is covered within the driver training material, Module 3 signalling sessions 5-6 which is diverging junctions. There is a simulator session 14-16 which is the practical session on the simulator covering diverging junctions. Finally, diverging junctions are covered in the Module 3 question paper.

17) On 6 October 2023 Great Western Railway provided the following initial response:

As a result of the incident GWR reviewed it's process for assessing the risk of overspeeding on to a diverging route at junctions.

We added "criteria 36" to our route risk assessment process to ensure this is covered for all routes:

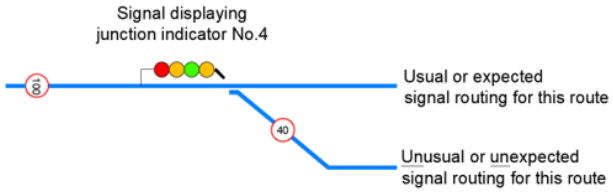
36	Junction/crossover signal where there is a higher risk of the driver disregarding the route indication and exceeding the permitted speed over points (**must** meet requirements in appendix A below). (CMS 21.01 – 21.07)

Appendix A set out the criteria for a signal to be included:

Appendix A

To meet criteria 36 the following must be true:

- A signal capable of crossing onto a different line, AND
- A subsequent reduction in speed of more than 30%, AND
- It is very unusual for the diverging route to be set, which could lead to the driver disregarding the route indication when the signal clears to a less restrictive aspect, and consequently accelerating to the speed for the faster route (e.g. signal normally clears onto the faster route but clears onto the slower route, example below)



We have found this to be a simple and effective means to point us towards junctions that offer a similar risk to that of Spital.

Based on the report we identified three criteria to be looked at for signals, each treated separately:

*1. A junction signal where the crossing onto another line involves a greater than 30% reduction in speed**

2. It is very unusual for the diverging route to be set

*3. There is potential for any signalling mitigations (approach control/flashing sequence) for the reduction in speed to be negated by the acceleration potential of the train being driven***.*

** We chose 30% as there is precedent with the threshold for an AWS warning to be provided for the advanced warning indicator.*

*** This is the parameter that we we're unsure how to approach and we have to accept that it comes with limitations. It's difficult to measure without precise calculations, which the people who complete the route risk analysis (driver managers, essentially) don't have the tools or know how to do. Even if we just specified a distance from signal to points (which is not straightforward to find out), the acceleration characteristics of different trains means that a set distance would be moot. The same uncertainty exists for how fast a train could theoretically be travelling when the signal clears to a less restrictive aspect on approach, when the route is available. This in itself is tricky because the train might not be going at that maximum speed; it could be going a bit slower further back, but still in the section which needs to be occupied for a certain amount of time for the signal to clear to a less restrictive aspect. In this situation, the acceleration potential of the modern trains combined with the extra distance from the signal means that the train could exceed the speed that could be achieved by the points of a train starting from the maximum speed of the approach control speed distance time calculation at the time the signal clears. The only way to guarantee a consistent application of this route risk criterion would be to only clear the route manually once the driver has stopped and told the signaller they're at a stand at the signal. The maximum possible acceleration*

of the train could then be used to calculate its potential speed at the points, should the route indication be ignored (though even this relies on each driver stopping a precise distance from the signal!). Of course, this is a non-starter from a performance perspective. However, something more palatable might be for Network Rail to increase the time value of that speed distance time calculation for the approach control, to at least reduce the maximum speed a train could approach without SPADing the signal (though this wouldn't necessarily work for flashing sequences, as it would depend on how fast the driver approached the single yellow – this could be mitigated by use of TPWS+ OSS sensors, but this is a pretty blunt tool).

That said, we consider that the report has highlighted a risk that was hitherto not directly address in our route risk analyses and the approach we have adopted have provided the opportunity for us to improve our own processes.

This approach has been shared with other FirstGroup TOCs through our internal forums.

18) On 12 October 2023 Hull Trains provided the following initial response:

I can confirm that Hull Trains, following on from the incident and also working in conjunction with
it's sister operator at Lumo:

- *Carried out a full review and revision into all of its route risk assessments, training, briefing, and assessment documentation given to Train Drivers relating not just to this junction but to all other junctions on the route where the potential for overspeeding could occur.*
- *Produced regular bulletins around the risks of this junction signal, incorporating the content into safety briefing cycles. This was completed in July 2022 and has been further repeated since following on from similar incidents.*
- *The review and update of the core route risk assessment documentation was completed and implemented on the 31/05/23 (Bev to KGX our Core route) with a plan to fully complete and sign off route risk documentation for all of our diversionary routes by the 31/12/2023*

And in addition to this:

- *Completed a full review of the driver management team with the aim of strengthening resilience, improving assessment, operational knowledge, and training capacity within the driver management team. We have introduced new driver managers, simulator managers and driver instructors into the business with a clear focus on improving training and assessment within the business. This was completed on 04/09/2023.*
- *The Driver Management team will also be further strengthened with the addition of a Driver Training manager intended to be in post by the*

31/12/2023

- *Carried out a further review of the content of its driver training and associated procedures including the professional driving policy, this is currently an ongoing piece of work and is expected to be completed by April 2024 in readiness for future intakes of Apprentice Drivers*

- *Have recently introduced an on-site full cab simulator into the business to strengthen scenario-based training including the risk from junction signals / overspeeding to its customer drivers and apprentice customer drivers, this is expected to be fully operational in time for the next driver intake in 2024 and is also intended to be used by current drivers as part of their assessment cycle*

- *Hull Trains also intends to introduce route risk workshops to the business which incorporate junction risk to upskill all Train Drivers at Hull Trains by the 31/12/2023*

Hull Trains has also fully engaged with its sister organisations, Network Rail and others involved on the East Coast Main line through

- *Sharing learnings and the sharing of updated route risk assessments at industry meetings such as Train Operators Sub Group, Operations Standards Expert Group and National Operations Standards Forums*

- *Engaged with Network Rail at a number of both local and national level bow tie risk assessment events to look at both operational and technical mitigations that would prevent a future incident from occurring, making suggestions to Network Rail on technical solutions to mitigate the risks from this event occurring at high-risk locations such as OTTO and re- introducing technical signalling mitigations such as approach release to yellow. It is also anticipated that the introduction of ECTS to the Southern Section of the East Coast Main line in 2026 will also reduce this risk further*

- *Worked with Hitachi to provide an overarching speed limiter to prevent overspeed above 125mph running. Work is also ongoing to develop the ETCS software required for the introduction on the ECML (Expected in 2025/2026). We are also assisting Hitachi in the development of the train Driver Advisory System (DAS) that will provide dynamic train speed advice to our drivers.*

Hull Trains will continue to work with its industry partners, internally and externally, our operations and fleet partners, with Network Rail the infrastructure manager and the RSSB to ensure risks from overspeeding presented at this and other locations are controlled to a level that is as low as reasonably practicable with the full involvement of our union appointed health and safety representatives.

19) On 17 October 2023 LNER provided the following initial response dated 11 October 2023:

The risk of overspeeding at this location exists because the protecting signal for Spital Junction is located a considerable distance (approximately 750m) from the actual junction itself. The approach linespeed to P468 is 125mph, with the first crossover (from Up Fast to Up Slow 1 (30mph) or Up Slow 2 (25mph)). P468 is fitted with TPWS OSS+, TPWS OSS and TPWS TSS, this however only mitigates the risk of a train approaching the protecting signal too fast, not the speed restricted junction after the signal.

This creates a situation where a train that is going to be routed towards the Up Slow lines will be brought almost to a stand at P468 due to the conditional approach controls, the signal will then step up to a green aspect - it should be noted that this is the signalling design, a temporary restriction on P468 has been installed following these incidents which only allows P468 to display a single yellow aspect when any junction route indicator is illuminated for a diverging route ahead. If the driver does not see or react to the junction route indication, they can be misled into thinking that the green aspect (see note above) applies to the mainline which has a maximum speed of 125mph and accelerating the train accordingly.

Modern traction can attain significant speeds in the distance between P468 and Spital Junction as these two incidents clearly illustrate.

Following the overspeed at Fletton Jn on the 11th September 2015 (RAIB report published in August 2016) involving a Virgin Trains East Coast service – a predecessor company to LNER – a comprehensive review of the route risk assessments was undertaken to identify locations where a speed reduced junction was located a significant distance beyond a station where the train had called or a protecting signal.

This resulted in a few locations being identified that were subsequently incorporated into the route risk assessments and the associated driver briefing documents. This particular risk at P468 was identified through this review in 2016. (See below).

98	New England Jn Signal P486 (UF)		✓	Risk of severe overspeed by trains routed through 15mph crossover onto Up Slow (crossover unmarked at time of writing)	Driver awareness assured through training, briefing and assessment. Professional driving techniques	
99	Signal P468 (UF) Peterborough		✓	Risk of Wrong Routing. Pos 4,5 and 6 not to be taken by trains proceeding on ECML beyond Peterborough.	Driver awareness assured through training, briefing and assessment.	
100	Signal P468 (UF) Peterborough		✓	Risk of dewirement if routed into platform 6 with a Class800/801in electric mode. Platform 6 is an unwired platform and will not normally be used by LNER services	Driver awareness assured through training, briefing and assessment.	

It should be noted that a similar risk exists on the Up Slow line for trains routed towards the west side of Peterborough station via the 15mph crossovers. The approach speed to the controlling signal on the Up Slow (P466) is 70mph and whilst lower than that of the Up Fast still presents a significant risk if the driver did not see or react to the junction route indications.

This risk is similarly documented in our route risk assessments. (See below).

101	Signal P466 (US) Peterborough		✓	Risk of severe overspeed by trains routed through 15mph US to UF crossover (when routed using Route Indicator 1,2 or 3). Cut out speed sign used to mark crossover.	Driver awareness assured through training, briefing and assessment. Professional driving techniques	
102	Signal P466 (US) Peterborough		✓	Risk of severe overspeed. There are 2 routes available into Platform 1. Route 1 - Aspect only is the straight and preferred route. Route 2 - Aspect with '1' in the Route Indicator. This routes you into Plt 1 via the Up Fast. (As in Ref 97) Cut out speed sign used to mark crossover.	Driver awareness assured through training, briefing and assessment. Professional driving techniques	

Immediate actions

Following the publication of the RAIB Urgent Safety Advice, we issued a briefing to our Newcastle, Leeds, Doncaster and London King's Cross drivers the following day on the 26th May 2023 to remind them of the risks at this location.

After the publication of the final report in July we have included a session on our face-to-face safety update day on the incident, the causes and what can be done to prevent a similar incident occurring.

We have also previously published a poster – and it is included in our annual Summer Weather Guides – entitled 'Driving Blind?' to highlight the risks from having the sunblind lowered so much that it obscures routing indications displayed above the main aspect.

Safety Management System updates

We are in the process of updating our SMS standard (SMS8.16) to include this as a particular type of generic risk that must be considered when undertaking any new or period route risk assessment reviews.

It is also being added to our competence management system (SMS8.11) as a performance-criteria that drivers will be routinely assessed on going forward.

Both standards will be live within the LNER SMS by the end of November 2023 following approval through our standards review group governance process.

Engineering solution

We are firmly of the view that an engineering control is required at this location – and any other locations nationwide that fit the same infrastructure profile - for this risk, as simple inclusion in a route risk assessment or in a briefing has a very time-limited impact and serves only to highlight, rather than control, the risk.

We fully participated in a workshop with Network Rail and other east coast train operators on the 14th June 2023 to discuss potential solutions to this risk and, it was universally agreed that we are operating at the limits of human performance in respect of driver competence being the sole control measure for this type of risk.

We, of course, will work collaboratively with Network Rail in respect of recommendations 2 and 3 from the same report.

20) On 13 October 2023 LUMO provided the following initial response:

Lumo, following on from the incident carried out:

- *A full review and revision into all Lumo's route risk assessments, training, briefing, and assessment documentation given to customer drivers relating not just to this junction but to all other junctions on the route where the potential for overspeeding could occur. This review and update was completed on 27/05/2023 and has been subject to further ongoing update and review since.*

- *Produced regular bulletins around the risks of this particular junction signal, incorporating the content into safety briefing cycles. This was completed in July 2022 and has been further repeated since following on from a similar incident at the same location.*

And in addition to this Lumo has also:

- *Carried out a further review of the content of its driver training and associated procedures, this is an ongoing piece of work, expected to be completed in December 2023 and expected to be implemented in time for the new driver intake in January 2024.*

- *Recently introduced an on-site full cab simulator into the business to strengthen scenario- based training to its customer drivers and apprentice customer drivers, this is expected to be fully operational in time for the next driver intake in January 2024.*

- *Recently introduced a new layer of Driver Managers into Lumo with the aim of strengthening resilience, improving assessment, operational knowledge, and training capacity within the Customer Driver team.*

As a result of this review, Lumo has also fully engaged with its sister organisations, Network Rail and others involved on the East Coast Main line through

- *Sharing learnings and the sharing of updated route risk assessments at industry meetings such as Train Operators Sub Group, Operations Standards Expert Group and National Operations Standards Forums*

- *Engaged with Network Rail at a number of both local and national level bow tie risk assessment events to look at both operational and technical mitigations that would prevent a future incident from occurring, making*

suggestions to Network Rail on technical solutions to mitigate the risks from this event occurring at high-risk locations such as OTTO and re- introducing technical signalling mitigations such as approach release to yellow. It is also anticipated that the introduction of ECTS to the Southern Section of the East Coast Main line in 2026 will also reduce this risk further

- *Worked with Hitachi to provide an overarching speed limiter to prevent overspeed above 125mph running. Work is also ongoing to develop the ETCS software required for the introduction on the ECML (Expected in 2025/2026). We are also assisting Hitachi in the development of the train Driver Advisory System (DAS) that will provide dynamic train speed advice to our drivers.*

Lumo will continue to work with industry partners both internally with our operations and fleet partners and externally with the infrastructure manager and the RSSB to ensure risks from overspeeding presented at this and other locations are controlled to a level that is as low as reasonably practicable with the full involvement of our employee appointed safety advocates.

21) On 21September 2023 Merseyrail provided the following initial response:

Merseyrail's current Route Risk Assessment is suitable and sufficient, and provides Drivers with correct information relating to line speed (particularly at junctions) for the Merseyrail network. Due to the nature of our operations (frequency and intensity), there isn't great variance for speeds, further reducing the risk of overspeeding.

Merseyrail also undertake the following: -

- *Drivers can only accelerate up to 50mph on approach to areas where there is a Permanent Speed Restriction (PSR) and associated TPWS.*
- *All Drivers are required to complete route knowledge and are passed competent.*
- *Drivers are then subject to ongoing competence and monitoring arrangements, such as OTDR downloads and direct observations.*
- *In the unlikely event that OTDR identifies a non-compliant speed, this is addressed with the relevant Driver, with further monitoring carried out if necessary and may lead to an Individual Development Plan (IDP) being implemented. Furthermore, any incident would be communicated to all Drivers via the Late Notice Case and internal communications, to ensure that any learnings are shared.*
- *Additionally, Driver Managers undertake line speed checks using a radar-gun.*
- *The route risk contains all the associated speeds for junctions and is issued on a personal-issue basis to all Drivers.*

In the event of developments / enhancement to the Merseyrail network (i.e., introduction of new station and extension of line) a working group is established, involving representatives from Safety and Operations to consider the impact on Merseyrail operations and any required updates to the Route Risk Assessment. Additionally, consideration is given to communication of any changes to Drivers, including updates to route knowledge as required.

22) On 2 October 2023 MTR Elizabeth Line provided the following initial response:

RAIB Peterborough response 2...pdf

They state in conclusion the following:

Following the publication of the RAIB report into the incident at Spital junction MTREL are currently:

- *Updating the existing line of route risk assessments with the table data (shown in tables A&B) to highlight locations where a similar incident may occur, this information will in turn become part of the initial operational learning modules.*

- *Developing and including a tutorial session within the next Driver Skills Workshop (DSW) programme (beginning October 2023) on recognising and managing potentially similar "over speeding" risks on the Elizabeth line route, this will include a discussion regarding the incident itself and a review of locations across the Elizabeth Line route where a similar incident may occur. Train drivers will be encouraged to consider additional risk mitigation strategies which will help them reduce the likelihood of confusion / error and will be provided with the opportunity to read / review the report. MTREL are also in the process of reviewing and enhancing the existing train driver competence management system (CMS) with particular attention being made to the development and enhancement of the non-technical (NTS) aspects of the train driving / operating task.*

This will include pro-actively controlling the train speed in compliance with the signalling / infrastructure and prioritising the management of situational awareness (SA).

Whilst improvements to the level of signalling protection across the Elizabeth Line route (e.g. ETCS) will further mitigate the risk of over speeding, by enhancing an individual drivers understanding and perception of operational risks we believe that we can both maintain and improve the safety performance of our drivers.

23) On 19 October 2023 Northern Trains provided the following initial response:

The network over which Northern operates its passenger services is geographically extensive and operationally diverse. Our response is therefore reflective of that as we seek to determine the extent of the risk of overspeeding at diverging junctions across the Northern network and how we mitigate that across a large driver community based across twenty drivers' depots.

Our actions to address recommendation 1 are as follows:

i) Our next revision to each driver depot safety plan includes an action for local Driver Team Managers to identify locations in their area where there are signals controlling diverging junctions where there is a potential for a greater risk of overspeeding. This includes the particular scenarios identified by the RAIB, i.e. where there is a large distance between the point where a driver is given a clear aspect and the junction and/or where there is a large speed differential between the main and diverging routes. This will be completed by 30 April 2024.

ii) Working from the feedback from our local operations teams, a list of high-risk locations will be compiled. This is expected to be complete by 31 May 2024.

iii) The relevant line-of-route risk assessments (LORRAs) will be revised to reflect the risks at the identified locations, including any changes or additions to risk control measures. This information will also be added to route briefing material, enabling a more localised and specific brief to be used for drivers who sign the signals and junctions that are identified. This work will be prioritised on a risk basis, with all route material anticipated to be updated by 30 September 2024.

iv) In the meantime, the Peterborough overspeeding incident and RAIB report will form part of our next cycle of drivers' safety briefings, to be delivered from January to June 2024.

24) Rail Operations Group have not provided an initial response:

25) On 26 October 2023 ScotRail provided the following initial response:

Regarding recommendation 1. The ScotRail team have reviewed the recommendation and are taking the following actions.

1. *All Traincrew depots have been asked to review their route risk assessments and update their training packs to ensure they include any locations where there is a risk of overspeeding at diverging junctions. This should be completed by 31st December 2023.*
2. *The risk of drivers overspeeding at diverging junctions at the locations identified during the above review will be included in new driver training and verification as well as become part of the ongoing assessment process for drivers. This will be captured through both practical handling assessments*

and OTDR reviews. The update to the driver assessment process will commence once the route risk assessments have been reviewed and updated in January 2024.

3. *If any additional sites are identified by Network Rail having completed recommendation 2 from the RAIB report, those additional locations will be added to the risk assessments and form part of the training pack and assessments.*

26) On 22 November 2023 Serco Caledonian Sleeper provided the following initial response:

Caledonian Sleeper Limited has received the following response from our traction and driver supplier (GBRf) and we are satisfied that our supplier is addressing the recommendations raised in the report, CSL will consider this recommendation fully closed following the review of GBRfs competence management system(CMS) which is scheduled to take place prior to 31st March 2024.

Measure	Owner(s)	Timescale	Status
GBRf issued a MON (Miscellaneous) notice for all TM's that sign the route or that are currently learning it. the notice and any associated route risk assessments were aimed at GBRf's entire business and not just specific to the drivers who operate around the Peterborough area. GBRf are also updating the route risk assessment.	Professional Head of Ops GBRf	August 31st	Closed
GBRf does consider that the professional knowledge, training, and assessment of its train drivers is satisfactory. A review of the CMS is scheduled for early 2024 at which time any changes relating to recommendations raised in any RAIB report will be considered for inclusion.	Standards Manager / IT Department GBRf	31st March 2024	Open

27) On 4 October 2023 Southeastern Railways provided the following initial response:

Southeastern reviewed the RAIB report at its Tactical Safety Group (TSG) to understand the recommendations as they apply to the routes operated over by Southeastern services. The review concluded that in respect of Recommendation 1, the following actions would take place:

a) Conduct a specific review to identify if there are any locations on the network where there is a large speed differential between the main and diverging routes and a higher risk of the driver regarding the route indication and exceeding the permitted speed over points.

Progress: The initial review of locations was completed on 18th September 2023. The review used the following criteria to determine junction crossovers where there is a higher risk of the driver regarding the route indication and exceeding the permitted speed over points:

- *A signal capable of crossing onto a different line AND*
- *A subsequent reduction of more than 30% AND*
- *It is very unusual for the diverging route to be set, which could lead the driver to disregarding the route indication when the signal clears to a less restrictive aspect and consequently accelerating to the speed for the faster route (e.g. signal normally clears onto the faster route but clears onto the slower route).*

Southeastern have identified nine locations (detailed in attachment)

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where the criteria can be met and as such have potential for a similar incident to that which occurred at Spital Junction. In all cases the frequency likelihood of such movements is low. Southeastern engaged with Network Rail Kent Route on 21st September Public 2023 to request a joint review of each of these locations to understand what existing signalling or other controls are in place that may mitigate the initial risk identified (e.g. the signalled route is approach controlled to reduce the speed attainable) or whether any additional technical controls can be implemented to reduce the risk of overspeeding events (e.g. fitment of TPWS). We await a formal response from Network Rail Kent Route on this matter.

b) Include a requirement in the Route Risk Identification process, as part of company Work Instruction SE/WI/OPS/023 (Train Driver Route and Traction Knowledge), to consider overspeeding at diverging junctions when reviewing route hazards as part of the route knowledge risk assessment process.

Progress: The updating of the Route Risk Identification process was completed on 18th September 2023 with the requirement to assess overspeeding at diverging junctions included in the question set for the route knowledge risk assessment process used by Southeastern.

c) Document in the route risk assessment any junctions identified with an overspeeding risk and provide information on these locations in route learning briefing materials provided to drivers.

Progress: An initial briefing will be provided to all drivers once we can confirm with Network Rail Kent Route the finalised list of locations after confirming what existing controls are in place at the locations identified as part of the initial review. Work will be carried out progressively to update existing route learning briefing materials already in place for individual routes with location identified at risk.

Progress on actions a) and c) shall remain subject to ongoing monitoring and review at the Southeastern Operations Learning Review forums and Network Rail Level 2 Safety meetings to ensure they are progressed to conclusion.

28) On 12 October 2023 South Western Railway provided the following initial response:

South Western Railway, following on from the incident have taken the following actions:

a) Measures taken to implement the recommendation:

- *Attendance at industry meetings such as First Group Operations Standards Expert Group and National Operations Standards Forums where Lumo Operations Standards Managers outlined the causes of the incident. Thus, enabling us to fully understand the activities needed to be done for recommendation 1.*
- *Review of the RAIB report at our Recommendations Review Group to ascertain the relevance of the four recommendations from a SWR perspective. All were accepted including recommendations 2 and 3 as SWR are the Infrastructure Manager for the Island Line.*
- *Collaborated with other First Group TOCs to develop a checklist to identify junctions that can be approached at high speed.*
- *Used the checklist to review routes operated by SWR and identify signals and junctions that pose an over speeding risk. We have identified four locations and have passed these on to Network Rail so that we can undertake a joint review.*
- *Carried out a review of the route risk assessment template to confirm that over speeding risk at junctions was already included.*
- *Three of the signals had already been identified in the route risk assessments. The fourth signal is being added and is currently in draft format. Furthermore, route assessment questions have also been updated.*
- *Included the RAIB report summary and findings within our trainee driver training as a case study.*

b) *Details of proposed actions to complete the recommendation with proposed timelines:*
   - *Inclusion within our next Driver Development Day (January 2024 – June 2024) of the summary of the incident to understand the lessons drivers can learn and listing the four signals identified.*
   - *Work collaboratively with Network Rail on the four signals we have identified and any they have identified to establish the level of risk and identify any additional control measures. This is planned to take place in November 2023. If this meeting identifies any additional locations these will be incorporated into our route risk assessments and the Driver Development Day.*

c) *Explanation of why we think this recommendation is not applicable:*
   - *This is not applicable as the recommendation has been accepted.*

We will continue to work with Network Rail on existing and new signalling to ensure risks from over speeding presented at locations are controlled to a level that is as low as reasonably practicable with the full involvement of our union appointed health and safety representatives.

29) On 13 October 2023 Transpennine Express provided the following initial response:

As a result of this incident TPE reviewed the Basic Driver Training course to ensure the subject raised is covered within the training. The review established that the subject of being wrong routed at a junction signal and the risks that it poses, are covered within Module 2, sessions 16 to 19 of the training course.

A review of the route risk assessments also established that wrong routing risks are highlighted within them. Drivers are fully briefed on the contents of the route risk assessments and the specific risks on the route. After learning the routes, they then undertake a written and practical assessment of their knowledge of the route before being deemed competent.

Ongoing competence assessments are used to continually assess the Diver's knowledge of the routes and the risks.

Our safety briefing system regularly refers the wrong routing risks and the actions that can be taken to mitigate them.

30) On 11 October 2023 Transport for Wales Rail Limited provided the following initial response:

We can confirm that we now intend to undertake additional measures to implement this recommendation.

Our route risk assessment process was already under review, and the recommendation from the RAIB report, will now be incorporated into that workstream.

The workstream is expected, in turn, to deliver some revisions to our control measures regarding mitigating the risk from drivers exceeding permissible speeds, at diverging junctions. Any changes to these control measure will be briefed fully and added to training and competency/assessment requirements for train drivers, in line with our current SMS.

31) On 18 December 2023 Varamis Rail provided the following initial response:

We currently have 3 operational drivers. All drivers have read the report. Our Driver Manager and myself have identified our current mitigations and additional proactive measures to reduce, as far as is reasonably practicable, the chances of occurrence.

1. *Drivers are part time with between 2 and 3 shifts maximum in order to reduce fatigue and monotonous work.*
2. *drivers are very experienced with over 30 years of driving, both Passenger and freight services.*
3. *The majority of our workings are at night and so reduces the chances of misreading signals due to sun glare.*
4. *Our drivers have direct contact with their Managing Director and Health and Safety Director should they have any welfare concerns that may impede on their ability to drive safely and diligently.*
5. *We currently utilise ACMS as our competency management system and our assessors will be responsible for ensuring that all junctions en-route will be scrutinised with our drivers that they have the requisite knowledge of each potential routing that they may receive, and the speed limits associated with that route.*

32) On 5 December 2023 Victa Railfreight provided the following initial response:

Victa Railfreight Ltd can be considered a 'micro' freight operating company that supplies mainline driver resource to the wider FOC community. When agreeing service requirements and activity with our customer, driven by our Safety Management System, it is an expectation that suitable, effective and current route risk assessments are made available to VRL prior to commencing delivery. Upon receipt of operators route risk assessments, the Operations and Safety team within VRL will review risks identified and expect overspeeding risk and route familiarity are addressed.

In the event route risk assessments are not available, VRL have developed their own procedure whereby, assessments can be completed internally, again, driven by internal safety management systems, The associated risk of overspeeding is addressed through the completion of a route risk assessment, this will include

permissible speed restrictions reduced by 30% or more, irregular signals, falling gradients, areas of low adhesion, approach's to converging junctions and stations and unprotected signals. All route risk assessments are made available to our mainline drivers which includes access to internal database's, briefing materials, route learning and retention 'packs'.

Victa Railfreight also deliver periodic safety tool box talks and briefings to all our safety critical workforce, the most recent of which commenced on 10th October 2023. Contained within the safety brief is a specific item that makes reference to the train overspeed event at Spital Junction and emphasis concerning the non-technical skill of maintaining situational awareness when travelling over familiar routes, complacency, managing distractions and anticipating risk. All our mainline drivers received and completed this periodic brief, delivered personally by their Line Manager during November.

33) On 6 October 2023 West Midlands Trains provided the following initial response:

West Midlands Trains operates approximately 1200 services daily across multiple routes, with a geographic footprint that covers over 150 stations and 10 traincrew depots. Each route is assigned a 'Route Champion' from our Driver Manager population who are responsible for conducting route risk assessments, maintaining route learning material and driver route competence assessments.

To deliver the requirements of the recommendation the following activities are being undertaken: -

1) The route risk template has been updated to include junctions where there is a potential for a greater risk of overspeeding.

2) Locations where there is a large distance between the point where a driver is given a clear aspect and the junction and/or where there is a large speed differential between the main and diverging routes, are being identified by Route Champions. This work is on-going and expected to be complete by 30th November 2023.

3) Identified locations will be added to the Driver route learning material and route competence assessments. This is planned to be complete by 5th January 2024.

4) Details of identified locations and associated risk will be briefed to existing Drivers along with the RAIB report into the overspeed at Spital Junction, via the Driver Safety Briefing cycle which runs until 31st May 2024.

5) The core Driver training programme module encompassing the principles of route learning and route risk awareness will be updated to include the updated route risk template and the risk of overspeed at diverging junctions. This is planned to be complete by 29th February 2024.