

## Responses to ORR's January 2024 consultation on draft train protection systems guidance

[Consultation on draft train protection systems guidance | Office of Rail and Road \(orr.gov.uk\)](#)

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# Alstom

**From:** [redacted]

**Sent on:** Friday, March 1, 2024 11:42:43 AM

**To:** [redacted]

**CC:** [redacted]

**Subject:** [EXTERNAL] Consultation on draft train protection systems guidance

[No comments on the train protection system guidance]

# ASLEF

**From:** [redacted]  
**Sent:** Wednesday, February 28, 2024 4:49:07 PM  
**To:** [redacted]  
**CC:** [redacted]  
**Subject:** [EXTERNAL] ASLEF response to ORR Consultation on draft train protection systems guidance

Hello Laura,

I have been tasked with responding for ASLEF, to this consultation on behalf of the general secretary Mick Whelan.

We do not have any major concerns with the guidance as drafted, but do propose the following amendments for the purpose of clarity and ease of reading.

Paragraph 1.15 and 1.16 currently read as follows,

1.15 Regulation 3(3) also prescribes that trains that are operated by the following companies immediately prior to RSR99 coming into force are automatically compliant with the train protection requirements:

- London Underground Limited;
- Tyne and Wear Passenger Transport Executive;
- Strathclyde Passenger Transport Executive; and
- Serco Metrolink Limited.

1.16 However, the above companies will only be compliant through this provision where there is in service equipment which causes the brakes of the train to apply automatically if the train passes a stop signal without authority.

For clarity and ease, they might be better wrote as follows,

1.15 Regulation 3(3) also prescribes that trains that are operated by the following companies immediately prior to RSR99 coming into force are automatically compliant with the train protection requirements, but only if [new text]there is in service, equipment which causes the brakes of the train to apply automatically if the train passes a stop signal without authority. [text moved form 1.16].

- London Underground Limited;
- Tyne and Wear Passenger Transport Executive;
- Strathclyde Passenger Transport Executive; and
- Serco Metrolink Limited.

1.16 However, the above companies will only be compliant through this provision where [deleted text].

Also, amend the second bullet point of paragraph 1.20 from,

'speed traps' on the approach to certain signals and speed restrictions, and buffer stops.

to

'speed traps' on the approach to certain signals, and [deleted text] speed restrictions, and buffer stops.

Sent for and on behalf of the general secretary Mick Whelan.

Yours sincerely,

Vincent Borg  
ASLEF Health & Safety

## Chiltern Railways

**From:** [redacted]  
**Sent on:** Thursday, February 1, 2024 1:40:02 PM  
**To:** [redacted]  
**CC:** [redacted]  
**Subject:** [EXTERNAL] Comments on RSR99 Guidance Revision

Laura,

We have reviewed on behalf of Chiltern Railways the new draft guidance on RSR99 that you have circulated for comment.

We are generally happy with the new guidance and support its publication. It provides a useful update after 20 years and reflects modern train protection arrangements.

Our only comment is that in para 1.38 (and possibly other paragraphs) that the speed trap provision should include the train type, as there is a difference between the braking performance of passenger and freight trains and this is normally reflected in the line speed and TPWS set-up on the train.

I hope this comment is useful.

Best regards

Simon

Simon Jarrett  
Engineering Assurance & Development Manager  
**Chiltern Railways**  
[redacted]

# First Rail

**FirstRail's Consultation comments against ORR Consultation for "Train Protection Systems Guidance on Railway Safety Regulations 1999 and other railway safety regulations" dated 19<sup>th</sup> January 2024.**

Nick Wright & James Wilson - 29<sup>th</sup> February 2024

Please find attached our comments on the draft document detailed above:

## **1.9:**

The wording should take into consideration that :

- i) The onboard and infrastructure systems must be compatible with each other
- ii) The transitions between the national train control (TPWS) and the ATP system are compatible
- iii) To gain the safety benefit the ATP system must be assessed on the basis that they will be planned to be fitted to both the infrastructure and the vehicle and be declared interoperable.

Suggested rewording of the first sentence could be:

"It is for infrastructure controllers and train operators to decide whether it is reasonably practicable to install compatible ATP to the infrastructure and the train. "

## **1.11 & 1.30:**

In terms of upgrading existing TPWS equipment the cost in doing so should also consider if the safety benefit gained outweighs the costs involved.

## **1.18:**

Could the first sentence be amended to include 'stop signal or command' This would then include the stop command issued by the GSM-R voice system eg. a REC.

## **1.19:**

The definition of stop signal should include the end of, or shortening of, a movement authority.

## **1.21:**

Suggest to replace 'red signal' with 'Stop Signal'

**1.23:**

Propose to reword as follows:

ORR understands that there is unlikely to be a binary position across the whole mainline and non-mainline railway in which trains are driven either by fully-automated system or by humans without technological assistance. In modern railways, a human driver and automatic operations often coincide to varying degrees.

**1.26:**

The description of degraded modes of operation in an automated railway is also applicable to a manually driven train under supervision of a train protection system. Eg. understanding the risks of the mode used, and relevant authorisations from the Signaller are equally relevant.

**1.30**

Please see our comment against 1.11.

**2.5:**

In order to support the identification of new risks with a train protection system that naturally has components split between onboard and trackside, duty holders should engage in a DRACAS approach. Duty holders must have a means of recording, reporting and analysing defects covering the entire track and train system.

**3.1:**

Duty holders are unable to plan upgrades to their train protection arrangements in isolation, this would need to be linked with the IM rollout of ETCS.

**3.4 & 3.5:**

During the migration to ETCS L2 FS operation will still be required using the TPWS system for two reasons:

- i) A Driver untrained in ETCS will still need to use TPWS in the overlay area. As the Driver training programme proceeds a higher proportion of trains will use ETCS until such time that all Drivers are trained.
- ii) Degraded modes of operation. Experience from existing ETCS schemes is that a reliability growth period is required. During this phase it may be necessary to revert back to TPWS operation should the ETCS system not be available for use.

**3.14:**

This clause deals with entering an operating network. We believe there should be a similar clause added which covers the scenario of a degraded mode of operation whilst already in the operating area. For example entry into LO can potentially occur in the operating area at any time and results in a non-communicating train operating with no protection. The existing 3.15 clause would then also apply to this proposed new clause.

## Great Western Railway

**From:** [redacted]

**Sent on:** Wednesday, February 28, 2024 11:30:17 AM

**To:** [redacted]

**Subject:** [EXTERNAL] RE: Consultation now open on draft train protection systems guidance

Morning,

I can confirm that there are no comments to submit on behalf of GWR.

Regards,  
Sue

**Sue Perry | IMS Manager | Great Western Railway**

Safety & Environment, 3rd Floor Milford House, 1 Milford Street, Swindon, Wilts, SN1 1HL

E: [redacted] | M: [redacted]



## Heathrow Airport Limited

**From:** [redacted]

**Sent on:** Tuesday, February 6, 2024 1:41:54 PM

**To:** [redacted]

**CC:** [redacted]

**Subject:** [EXTERNAL] Re: Consultation now open on draft train protection systems guidance

Classification: Internal

Dear Laura,

Thank you for sharing the ORR consultation on draft train protection systems guidance with Heathrow Airport Limited.

We welcome the new guidance updated to reflect current technology and safety expectations around modern technologies that underpin train protection on Great Britain's railways and metro systems.

Heathrow has train protection systems installed on our infrastructure including the heavy rail branch to the airport in the form of NR signalling and ETCS. The Track Transit System at Terminal 5, and the PRT POD system from Terminal 5, are autonomous driverless systems and operate under a form of ATO which incorporates protection systems within the architecture.

Please continue to include Heathrow on ORR consultations.

Thanks,

Paul

**P Quilter**

Rail Regulation Manager

Tel: [redacted]

**Heathrow Rail – Ensuring the best rail service for Heathrow, its passengers and colleagues.**

# Heathrow

Heathrow Airport

w: [heathrow.com](https://www.heathrow.com) t: [twitter.com/heathrowairport](https://twitter.com/heathrowairport)

# London Underground Limited

**From:** [redacted]

**Sent on:** Monday, April 15, 2024 2:04:01 PM

**To:** [redacted]

**CC:** [redacted]

**Subject:** LU Comments on ORR Guidance on Railway Safety Regulations 1999

Laura,

Thanks again for your time and understanding as well as talking through our remarks.. This was very helpful and useful.. The discussion, as mentioned was so much better than the written response..

Lovely to meet you..

Here is a list of the things we discussed for your records

Geoff

## **London Underground Commentary on:**

ORR Guidance on Railway Safety Regulations 1999 and other railway safety regulations  
Train Protection Systems Draft 19 Jan 2024

1. Can you kindly clarify the purpose of the document. Specifically, we would appreciate clarification from the ORR regarding how London Underground and other stakeholders are expected to use the document.
2. There are several areas of ambiguity that we would believe would benefit from discussion with yourselves. This would help us to grasp the guidance better and ensure that both our requirements are accommodated. For example, one such area is agreed controlled processes.
3. Can you please clarify the difference between “operational railway” or “passenger hours” and a “possession” or “engineering hours”. London Underground maintains rigorous processes to manage all these modes of operation that may be affected by the guidance.
4. The document appears to be heavily focused on Network Rail, whereas London Underground would prefer a more principle-based approach. For example:
  - 1.26 – Hybrid modes
  - 1.37 – where the example is so detailed that it may not align with London Underground’s existing operational framework.
5. London Underground suggests that restructuring the guidance into groups of similar subjects together would enhance the readability and coherence. For example, grouping legislation, technical aspects, exemptions, and limitations separately.

Further elaboration on degraded modes would also be beneficial, as there are numerous ways a railway system can degrade beyond loss of communications. Additionally, guidance on disguising difference between planned and unplanned degraded modes would be welcome.

**Geoff Mitchell CEng FIRSE MIET MIAM** | Head of Profession Rail and Road Signalling Control Systems

Stratford | London | London | E20 1JN.

[redacted]

| Mob: [redacted]

## MTR Elizabeth Line

**From:** [redacted]  
**Sent on:** Thursday, February 29, 2024 1:50:11 PM  
**To:** [redacted]  
**Subject:** [EXTERNAL] MTREL response to

*Good afternoon Laura,  
Hope all is well*

*Firstly please excuse the delay in responding, am really sorry, have put a few words together below and have a couple of queries going forward...(really sorry...)*

We Have reviewed the Train Protection Systems, (Guidance on Railway Safety Regulations 1999 and other railway safety regulations) 19 January 2024 and in response:

MTREL welcome the updated guidance on the operational requirements for train protection systems, providing a level of consistent understanding across a variety of train protection systems The Elizabeth Line runs between Reading (Berkshire) and Shenfield (Essex) with two branch line serving Heathrow Airport terminals and Abbey Wood, Elizabeth Line train services are provided by a fleet of seventy "Alstom" class 345 Electric Multiple Units which are provided with an integrated signalling system allowing the trains to operate in three signalling levels

- Level NTC (AWS / TPWS)
- ETCS
- CBTC.

During a single journey an Elizabeth Line train will "transition" between signalling systems on four occasions, the new guidance will ensure that MTREL can effectively assess and manage any changes to the systems and resulting potential risks and to work in collaboration with the relevant Infrastructure Managers (Network Rail / Rail For London Infrastructure) with regard to proposed enhancements / changes

*That said did have a couple of queries*

- *Currently TPWS equipment and effectiveness remains calibrated on the performance capabilities of earlier rolling stock types (with less favourable performance characteristics than the new generation of passenger carrying train types), is any thought being given to the possibility of the system being enhanced to more accurately recognise the modern traction type performance characteristics on the routes....?*
- *Whilst both CBTC and ETCS are nationally recognised systems the operation of both systems on the network does appear significantly (locally) "nuanced" particularly with some ETCS schemes on the route being an "Overlay" system (The GW section covering 11 miles only of the route.) is there likely to be any further guidance regarding variable levels of train protection on a single section of route..*

*Once again really sorry about the delay..... hope that's ok*

Kind regards  
Ian

Ian Potter  
MTR Elizabeth line  
Head of Operations Standards.  
[redacted]  
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Mobile: [redacted]  
Address: 6<sup>th</sup> Floor St Mary Axe, London, EC3A 8NH

# Network Rail

**From:** [redacted]  
**Sent on:** Monday, March 4, 2024 8:52:24 AM  
**To:** [redacted]  
**Subject:** [EXTERNAL] RSR Regs Consultation

## Comments from Network Rail Technical Authority

### General Comments

- 1) The publication of the guidance note provides the opportunity to highlight that Train Protection is a joint risk between Railway Undertakings and Infrastructure Managers (as defined by ROGS). As elaborated below, we do not believe in its current form that the guidance note provides clarity on this issue and if anything Clause 1.12 could confuse further by stating that the Infrastructure Controller is solely accountable through the provisions of the Railway Safety (Miscellaneous Provisions) Regulations 1997?

There is a concern that in the draft guidance there is no definition of what brake performance should be considered in making SFAIRP decisions. NR have been clear to the ORR and RSSB on our view of brake performance that is used as design criterion through TI 022 and successor documents. As commented on 1.37 there remains a significant risk of retrospective challenge over this in the event of a serious incident. The RAIB report into the Syston near miss with a rail grinding train seemed to attribute risk to the IM. It could be argued that the RU could have addressed the issue with a more practical engineering solution. We would invite ORR to consider this issue in the drafting of the guidance.

Following ROGS principles, we would suggest that the accountabilities for train protection are:

- IM provides information to the RU the real time status of the network capability for train operations (signals and speed restrictions) in an agreed format (defined by Railway Group Standards or NTSNs)
- RU processes this information and manages the train speed accordingly.

The above works for all types of systems and degraded mode operations.

- 2) The guidance on degraded modes operations is confusing especially with reference to 'hybrid' working. Regulation 5 states that NTSNs must be followed whereas the NTSNs themselves may not comply with the Railway Safety Regulations. For instance the NTSNs allow Level 0 operation which although part of a train protection system has very little in the way of providing train protection.
- 3) The original Uff-Cullen recommendations (18-20) required the development of Regulations of fitting ETCS to TEN and conventional lines and not be dependent on the test of reasonable practicality. This was closed in 2004 by the HSC on the basis of low maturity of ETCS at that time. Since 2004 the development of ETCS has matured to an extent that it is being rolled out according to the ETCS Long-Term Delivery Plan. It could be argued that given the change of ETCS maturity the ORR need to consider whether regulations should now be 'absolute' and provide supporting industry funding. In doing so the ORR would be giving a strategic lead to the railway industry.

- 4) System Safety. It is feasible to deliver TPWS such that a train never exceeds a safe overrun distance at conflict points. This would almost certainly have an impact on the line capacity and/or system performance such that more trains would approach more red signals and increase the likelihood of SPAD on unfitted signals. This would reduce the competitiveness of rail with the potential of modal shift to other less safe forms of transport. There appears to be little guidance on practicality and impact service level and in many cases business cases for service levels which challenge the capabilities of TPWS and guidelines need to also apply to those making such business decisions.

#### Detailed Comments

- 5) 1.7 – uses term relevant approach, but high risk locations in the guidance is really covered by the signal protecting conflict requirement and not relevant approach definition. Relevant approach is about speed on approach to signal or speed restriction. So TPWS must be in place at high risk signals and high risk relevant approaches.
- 6) 1.8 This section reflects to some extent the situation currently applied by Network Rail since the issue of TI 022 on this subject. We have in various discussions considered wider application of TPWS. This is often based on high-risk scores obtained in the SORAT process. We are concerned that the example/suggested additional fitment in this paragraph (Tunnels, Viaducts, Long Bridges) is not readily justified on a risk-based analysis. The suggestion is that a (rear end) collision at one of these locations would have a greater consequence (reasonable assessment) but we think that this should be balanced against a SPAD likelihood assessment which would point to signals protecting stations and may be level crossings as more relevant. Again, the guidance mentions relevant approach but this is potentially misleading for signals.
- 7) 1.9 We think the wording in this section, particularly the last clause, which makes clear that the breach of regulations is a matter for the courts. This would by implication be a post incident situation and there is unlikely to be a challenge made on the basis of “a what if” scenario. Concern is that this guidance could leave NR both corporately and possibly individually exposed to a retrospective risk assessment should a serious incident have occurred. Peterborough could have been in this category if an overturning with probable multi-fatality consequences had occurred. As engineers we can provide expert guidance on options and their practicality, but ultimately the reasonable practicality test has to balance the funding available to advance this area, which is more an issue of availability rather than requirements driven. Thus the ORR itself is to some extent party to the process in establishing the periodic determination. Given the current state of technology we could be quite clear about reasonable practicality on a network wide basis without leaving a legal breach open to interpretation.
- 8) 1.9 – this clearly making the point that this is an IM/RU decision on what is reasonable to do but does not make clear this only relates to fitting of ATP(speed control of entire journey). So it would be for the courts to decide if NR and RU could have fitted speed control on the entire journey. This will open the need to assess when more trains are fitted with ETCS why it is not practical to fit more speed control.
- 9) 1.11 – this talks of opportunity to improve TPWS, this may be a general H&S regulation guidance point here not defined by RSR99. NR as part of SORAT do look at more signals but

we do not regularly look at increased TPWS system functionality. So can trains do more on relevant approaches. This maybe issue for the TPSG to determine if as an industry we are doing enough in this area.

- 10) 1.12. This would suggest that Network Rail as Infrastructure Controller shall ensure that other duty holders have appropriate equipment and procedures in their SMS. We would suggest that this is an intrusion into the operations of RUs and is not consistent with the framework created by ROGS.
- 11) 1.13 – We do not see how 3(4) only applies to TPWS, it applies to a ‘train protection system’ and also includes (3) that is ‘train stop’ protection on certain lines. So this allows for failure of the train stop to be also considered as a defence. 3(5) gives defence that if ATP fails then TPWS (train protection (a) & (b)) has to be in place. This cause issues with train failures on ATP only fitted line (ie balise reader fault), as train stop functions would not be in place. So we understand that 3(4) can apply to ATP, but that ‘suitable means’ i.e operational rule are in place when ATP faults.
- 12) 1.18 – ‘shunting’ is not always a universally understood term. ‘Shunting movement’ in the rule book is defined as ‘Any movement of a train or vehicle other than a train passing normally along a running line’. Also as the definition state shunting purpose ‘only’ if a shunt signal can be used for passing normally on a running line, then it should require train protection. NR has used this to excluded shunting signals that provide ‘proceed on sight’ authority only. Would be useful to clarify that this interpretation is acceptable.
- 13) 1.21 – could the term ‘red signals and braking feature’ not be Stop signals and Speed Restrictions? Also, ATP is only needed at Stop signals as defined by regulation so does not include Shunting, buffer etc. In practice this will be covered but does mean ATP is not needed for shunting. May be this could be clarified or guidance expanded.
- 14) 1.23 – assume this is giving some view on the term ‘driver’ and that this could be considered as human or automatic system. So links with 1.24. and 1.25. Suggest that 1.25 really covers this guidance more clearly.
- 15) Section 1.25. With reference to 1.26, the description of Hybrid mode is degraded mode operation. However, section 1.25 needs to make this clear as it is possible to have ATO and manual trains interspersed under normal operations (such as Thameslink)
- 16) Section 1.26. With reference to ROGS we would suggest that it is for the signaller to provide instructions to the driver in an agreed form to proceed to a given location based upon a balance of risk for that degraded movement. But it is the RU accountability to handle their train appropriately such that the train does not travel too fast or too far according to the equipment status on their train.
- 17) 1.30 This could be read to mean that the TPWS concept is already well past its original concept life or is the target more GW ATP and ETCS systems already in service? As we have seen with the Chiltern ATP there is a point where industry seems unable to support the system leading to loss of functionality. The consequence of this is probably one of driving up industry costs as the design life of modern digital systems seems to get shorter and with ETCS the continual version updates have already led to the need to upgrade Cambrian and Thameslink. At the moment the low population of active trains on these systems is not large

so parallel lineside and rolling stock upgrade is manageable, it will become more and more challenging as fleet fitment progresses.

- 18) 1.30 – This gives guidance that the minimum functionality require by the regulation is not really a defence as what is ‘reasonable’ can and will change. As TPWSs don’t have a single Duty holder responsible for the system it has be via a duty of cooperation to look at system update/upgrade. Maybe this falls into TPSG to make the recommendations on system improvement, but in the context that ETCS is being fitted to train then give a push for OTTO/RBLS etc.
- 19) 1.34 The definition of emergency crossover in this section is helpful and may be clearer than a previous definition. This does need to be balanced against a previous improvement notice which required the removal of unworked connections from the network. We think the new wording is OK in that it is clear the crossover is not available using normal signalling controls so local GF/GSP is implied which interlocks the connection in its normal position. There have been a number of sites where the control has been changed to be from the signal control point (without signalled routes) to avoid the need to get an operator to site in an emergency. In these cases the new definition could well require TPWS protection.
- 20) 1.35c we feel that the question of Speed restrictions remains unclarified, whilst the definition of relevant approach is quite clear (except for junction signalling) the degree of protection required is not addressed at all. As far as we can tell the cost benefit justification for these fitments is limited, (as was agreed in HMRI exeptions) and do not think has been subject to any meaningful analysis. If a new speed monitoring system delivers adequately we may even be able to roll back from the TPWS fitment requirement. We believe that further discussion on this paragraph would be beneficial.
- 21) (Second comment from different technical head) 1.35c – A number of other speed reductions covered by a regulation exemption. These exemption applications covered a CBA at the time, but have never been seen as needing review and now these types of relevant approach are covered by RIS-0775 as a Code of Practice.
- 22) 1.36 We get continual challenge at MSRP on the issue of (terminal/turnback) platform starting signals. In many cases the specific requirement of this clause is not achievable, as often physical constraints mean that the distance from signal to collision point is so small that system delay time in the on board fitment precludes any brake application being effective. There is a view that this risk is relatively small and that technical dispatch processes are much more effective (although often resisted by the RUs). Some challenge to this requirement is worth considering as it places the onus on the IM rather than the RU to manage the issue! Some guidance on this may be useful to cover that ‘relevant approaches’ can be risk based rather that a mandated fitment, as other controls can in in place rather than a TPS.
- 23) 1.37 We have discussed this issue at length following the Kirkby collision. The guidance does not set out what the objective of the fitment is required to be, simply stating to operate if the train is approaching higher than the maximum safe speed is not adding any value. The risk for us (going back to section 1.9) is that if a serious buffer stop collision were to occur there could be hypothesised scenario which would fit the specific circumstances of the incident but would that be representative of a range of approaches?
- 24) We believe there is cope for more guidance around the term ‘excessive speed’ for PSRs and Buffers. As this includes ‘..and such speed as may be approved by the Executive for..’. So this means for Kirby we should be able to hit a buffer at speed even if a ‘speed trap’ was in



place. All of this again is relevant to Permitted speed, so if we reduce permitted speeds on the approach we are complying with the regulation better even if the TPWS is no more technically effective. This does also maybe need to give consider how many speed traps are necessary on a relevant approach. This has always really been risk based for signals. It we take the terms to literally once you have gone past one speed trap and do not slow down you are then on another relevant approach and at a speed that you cannot stop at the signal for! 1.38 makes this clear that we need an OSS but essentially it is risk based, but with limited guidance.

- 25) Section 1.37. Speed traps need to be positioned such that a train does not reach the conflict point. Different types of trains have different braking capabilities and therefore it is not possible to cater for all trains unless the worst-case braking is used which introduces overall greater system risk.
- 26) Section 1.38. What does practicality mean in this instance? The physical fitment of equipment. We would have expected guidelines on train protection would at least provide the list of considerations associated with the word 'practicality'.
- 27) 1.40 – this suggests that we need an exemption to agree speed over permitted speed that a TPS should consider. We have historic info that this is 10mph for OSS settings but no exemption. A number of other exemptions also make certain types of restriction not need TPWS, ie. Track condition or cant deficiency. So these are locations with low derailment risk and also covers certain level crossing restrictions. Does ORR accept our 'code of practice approach' as being reasonable and appropriate to cover the regulations.
- 28) 2.12 - Whilst we have no problem with the use of CSM-REA, has this EU regulation been translated into UK law following Brexit? It would be useful for a statement on that point to be added for clarity for all readers.
- 29) 3.5 - This statement seems to be obvious but we are intrigued to understand why it is felt necessary to be specific?
- 30) 3.13(and others) - Are these sections not potentially overlapping (and maybe conflicting) with the NTSN which could be a problem?
- 31) The impact assessment must consider whether the change imports risk to the railway system including other duty holders.
- 32) It is not only communications that might not be able to be established, but also the position of the train (within the technical system).
- 33) Glossary – Infrastructure Controller. I believe that there needs to be far greater guidance of the expectations from ROGS on the IM accountability and the expectations of RSR and Railway Safety (Miscellaneous Provisions) Regulations 1997 on IC accountability (see comment 1). If this cannot be resolved within this guidance note by ORR then it would suggest legislative change is needed. Is there scope for further debate here?

#### Executive summary:

It is noted that the new document replaces a previous version published in 2000, There is no clarity about where the new document is simply a restatement of that version or is entirely new guidance (which may be considered requirements in some circumstances). It would be helpful to have an indication about where changes have been made. Some comments therefore may reflect issues that were in the 2000 version not just new issue.

It also states that this guidance 'does not place additional burdens'. It could be assumed therefore, that NR is not in breach of the current regulation by following current industry CoP.

## Nexus

**From:** [redacted]

**Sent on:** Friday, March 1, 2024 10:15:11 AM

**To:** [redacted]

**Subject:** [EXTERNAL] Re: Consultation now open on draft train protection systems guidance

Hi Laura

No feedback from Nexus on the document.

## Northern

**From:** [redacted]

**Sent on:** Thursday, February 29, 2024 11:10:17 AM

**To:** [redacted]

**Subject:** [EXTERNAL] Consultation now open on draft train protection systems guidance feedback

Hi Laura,

Unfortunately I missed the deadline for the single response from Northern, however please find below feedback:

Train Protection Systems - Guidance on Railway Safety Regulations 1999 and other railway safety regulations

Issue - 19 January 2024

Review carried out by Barry Thomas (Head of ETCS) on the 29th February 2024

- Clause 1.3 – would be helpful to clarify that this applies to normal operation, as there is a possibility of degraded operation that would require the removal of a train from the mainline without a safety system in service. This is however covered in clause 1.13.
- Clause 1.6 – paragraph could be clearer as follows: where it is reasonably practicable a higher level of train protection system, known as Automatic Train Protection (ATP), which also controls speed throughout the journey should be installed.
- Clause 1.21 – to ensure consistency with clause 1.18 & 1.19 , red signal should be stop signals.
- Clause 1.22 – signal at danger relates more to conventional signalling, to be inclusive of digital signalling the use of stop signal would cover both.
- Clause 1.23 – should also include that not all automatic train operation (ATO) systems are train protection systems and require ATP to provide the train protection.
- Clause 1.26 - signal at danger relates more to conventional signalling, to be inclusive of digital signalling the use of stop signal would cover both.
- Section/Title: Location of train stops and speed traps for TPWS systems Title/section Is currently written towards conventional TPWS, however would be helpful to have the equivalent section that defines ATP/ETCS
- Section/Title: What do duty holders need to do to manage change – additional guidance regarding ATP/ETCS Migration around authorisation to enter service as once a unit is authorised, due to numbers of drivers from some rail undertakings attaining competence are the ORR happy with ETCS isolated until competence is achieved in LNTC (however current rule book does not allow a safety system to be isolated prior to entering service)?
- Clause 3.15 – TPS I think should read TPWS
- More defined ownership of above overall between Rail undertakings and infrastructure owner would be helpful to make clearer.

Any questions please do not hesitate in contacting me.

Many Thanks  
Barry

**Barry Thomas**

Head of ETCS

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[redacted]



[northernrailway.co.uk](http://northernrailway.co.uk)

## Pam Warren

**From:** [redacted]

**Sent on:** Tuesday, February 13, 2024 3:48:42 PM

**To:** [redacted]

**Subject:** [EXTERNAL] RE: Consultation now open on draft train protection systems guidance

Hi Laura, thank you for including me in your consultation on the ORR's new guidance. Having read the draft in detail I would state, as an outsider, that it appears well thought out and balanced with enough checks to reflect the technology changes as they are at the present time. I assume that further renditions will be made in the future as technology continues to evolve and grow and the system becomes more reliant on it?

From what you have sent my curiosity is piqued as to how the direct stakeholders will respond and view the proposed adaptations. Views, I am sure, that will make themselves known in due course.  
Kind regards, Pam Warren



Take the **E'zy** Path to  
Change

Inspirational Speaker, 'Lady in the Mask'  
Paddington Train Crash Survivor



**T:** [redacted]

**E:** [redacted]

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Press to connect:



Laura O'Neill  
Senior Policy Adviser  
Railway Safety and Corporate Support, Railway Safety Directorate  
Office of Rail and Road  
Piccadilly Gate, Manchester, M1 2WD

29 February 2024

Dear Laura,

New draft train protection systems guidance

Rail Partners welcomes the opportunity to respond on behalf of our passenger train operator members to your consultation on your draft train protection systems guidance intended to help interpret the Railway Safety Regulations 1999 and other legal requirements relevant to train protection systems. .

In summary, the document is helpful in providing guidance on the Railway Safety Regulations 1999 and how Train Protection systems should be applied. However, it would be worth considering if extracts from the legislation could be better spread appropriately throughout the document rather than as an appendix to the guidance.

The following are suggested items to improve the quality of the draft document:

P4 – definition 1.4 implies that Train Protection should be on every signal, which is not the case as set out in section 1.7 and should 1.4 refer to the later paragraph?

On P5 – item 1.9 the guidance on reasonably practicable to install ATP is welcomed, however the caveat that it would be up to the courts to test this is a concern as operators would use the ORR guidance to help form a decision. Could ORR give further guidance (or examples) so that duty holders have more confidence in their control measures and importantly, before it ever got to a court determination?

On P7 the section titled "*Required features of a train protection system*" could have guidance for managing transitions between new ATP fitment and ATP legacy signalling systems as these will continue to be with us for an extended time and will be part of a continuously moving picture during major ATP system rollouts.

P9 item 1.30 includes the sentence "*Duty holders must also be aware that what is reasonably practicable to do changes with innovation and as technology improves as may enable costs associated with upgrades to be reduced and a changed risk profile*" This could be more clearly written e.g.: *Duty holders should also be aware that what is reasonably practicable to make changes with the use of innovation and as technology improves. Such developments may enable costs associated with [train protection and signalling] upgrades to be reduced and deliver a changed risk profile.*

P9 item 1.30 includes the sentence "*Duty holders must ensure they have appropriate processes in place to ensure systems are maintained and updated as they reach the end of their design life.*" From experience with some legacy ATP systems, this may not be possible as is dependent of the supplier and old technology so could some guidance be provided if this is not the case

P9 item 1.32 starts with the sentence "*With certain exceptions, train stops must be fitted at those signals which are capable of conveying an instruction to the driver to stop the train, including fixed red*

*signals and stop boards*". The wording should be reconsidered as all signals/marker boards can convey an instruction to a driver to stop a train.

P9 has a section titled "*Location of train stops and speed traps for TPWS systems*" which focuses on the safety aspect of how a speed trap is set. Further advice could usefully be provided on how this should be balanced against the drivability of trains where TPWS can intervene when the driver is driving normally.

P13 - 2.9 Changes to the Network.....*normally* constitutes a substantial change..."

P19 -4.4 Consider adding (e) evidence of consultation with potentially impacted railway (and other) stakeholders. This is because this step would be required we believe as part of a duty to collaborate with other industry parties.

I would be happy to discuss any of the points raised in this letter in more detail with you if that would be helpful.

Yours sincerely,



Phil Barrett  
Head of Safety and Operations  
Rail Partners

# RMT

**From:** [redacted]

**Sent on:** Wednesday, March 6, 2024 11:11:20 AM

**To:** [redacted]

**Subject:** RE: [EXTERNAL] FW: Consultation now open on draft train protection systems guidance

Apologies for not getting back to you yesterday, Laura.

RMT has no substantive comments on the draft guidance at this time.

Kind regards

Jonathan

**Jonathan Havard**

*Health and Safety Officer*

National Union of Rail, Maritime and Transport Workers

Unity House

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Somers Town

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[redacted]





# RSSB

## Response from RSSB to the ORR consultation on the draft Train protection systems guidance

Submitted: 1 March 2024

**Note:** The text in bold is to emphasis a point. The text in red is a proposed change.

Reviewer Comments:		
No.	Sect Ref	Review Comment
1	1.4	The guidance on the defintion of train protection may potentially be confusing as currently worded. It reverses the presentation of logic of the defintion of what is stated in the RSR99, which may not be helpful in further understanding and comprehansion for some readers.
2	1.4 (and 1.17)	<p>The phrase "automatically controls the speed of the train" implies that the train protection system equipment is doing this, that is, it is referring to automatic train operation. ETCS (without ATO) does not achieve this - the driver is responsible for controlling the speed of the train; the ETCS monitors the speed of the train against permitted limits and reacts such that a safe limit is not passed without authority and the permitted speed is not exceeded.</p> <p>You might argue that the driver is part of the train protection system, but the guidance explicitly refers to equipment doing this. Clause 1.21 describes this correctly.</p> <p>Note - You could also argue that <i>ETCS</i> does not prevent the permitted speed being exceeded at any time throughout a journey - in 'ceiling and target' speed monitoring, the limits and associated reactions applied by ETCS only kick in after the <b>permitted</b> speed has been exceeded.</p>
3	1.5	<p>The wording of the guidance in 1.5 says that '...the definition of train protection system creates an absolute requirement to install equipment which:</p> <p>a) causes the brakes of the train to apply automatically if the train either passes without authority a stop signal of which passing could cause the train to collide with another train, or travel at excessive speed on a relevant approach;</p> <p>b) is installed so as to operate at every stop signal referred to in sub-paragraph (a), except a stop signal on the approach to an emergency crossover, and at an appropriate place on every relevant approach...'</p> <p>The query is about whether a definition can itself create an <b>absolute requirement</b> to install.</p> <p>In addition, there is a lack of clarity in the regulations and the guidance; RSR1999 <b>Interpretation 2</b>-(1), defines the terms 'relevant approach' and 'train protection system' (amongst others) and the text in 1.4 and 1.5 and 1.6 as written may lead to uncertainty and misunderstanding. The guidance should be an opportunity to make it absolutely clear.</p>
4	1.5	<p>Are there any exemptions for degraded operation where the absolute requirements are instead met by other means, including operational procedure? For example, for emergency special working (ESW) the TPWS onboard is temporarily isolated and the risk of overrun is managed by the provision of a sign, or double blocking, at the end of the ESW area. If these exemptions do exist, where are they, and have any similar exemptions covering ETCS degraded operation been identified or considered? Is this covered by clause 1.25, 1.26 and 1.27?</p> <p>See comment number 26.</p>
5	1.7	Would the phrase 'signals protecting junctions' rather than 'junctions' be more appropriate? Might also want to consider the use of this throughout the rest of the document. In practice TPWS is not fitted at junctions, it's fitted at the signal protecting the junction (or on approach to the signal protecting the junction).
6	1.7 (and 1.20)	Are there similar prescriptions for duty holders which operate ETCS, for example, can 'Stop if in Staff Responsible mode' balises only be provided at locations determined to pose the most significant risk?

No.	Sect Ref	Review Comment
7	1.9	Does the assessment of the "cost of implementing risk control measures" include the impact on performance, reputation etc. of implementing those measures, or is it purely the cost of providing them? For example, whole life-cycle costs.
8	1.11	...still consider <i>and assess...</i> '. The wording could be a bit stonger here - I think there is an element of assessment here in addition to consideration.
9	1.15	Suggest 'were' instead of 'are'.  It would only be at the time RSR99 came into force - things might have changed since then.
10	1.19	Do ETCS stop markers and location markers, to which a movement can be made under signaller authorisation and with no movement authority information on the in-cab display, also count as stop signals?
11	1.20	Second bullet - delete 'and' then replace with a comma.
12	1.24	The formatting (indentation) on (b) is different to (a).
13	1.24	Remove 'despite the absence of stop signals'.
14	1.25,1.26,1.27	The term hybrid modes is used several times in the document - this is not a recognised term and there is no definition included.  Section 1.25 uses hybrid mode in terms of train operating systems; sections 1.26 and 1.27 uses hybrid modes in terms of train protection systems; section 1.27 also uses hybrid modes in terms of ATP.  A definition of hybrid modes needs to be provided, including what it means in the context of train operating systems, train protection systems, and ATP, as well as how it fits into the regulations.
15	1.26, 1,27 (General)	Is there any guidance available on the use of Level 0 within the context of RSR99? Would operating a train in Level 0 be considered in the same way as described in 1.26 and 1.27 subject to any pre-planned operational or technical arrangements required for operating in Level 0 being in place?
16	1.30	Duty holders must also be aware that what is reasonably practicable to do changes with innovation and as technology improves, may enable costs associated with upgrades to be reduced and provide a changed risk profile.  This sentence doesn't quite read right - suggest rewording to make clearer.
17	1.32, 1.33	There should be similar prescription for provision of ETCS functionality, for example 'Stop if in Staff Responsible', 'Danger for Shunting' etc.?
18	1.33	Consider placing 'only' in between 'collision' and 'between' to improve meaning.
19	1.34	consider replacing 'pilotman' with 'pilot' - gender neutral language.
20	1.36	The guidance has this statement - <i>The maximum attainable speed will have to be low enough and the safety margin beyond the signal large enough, to bring the train to a halt before it can reach the point of danger.</i>  In practice a risk based approach will be taken to determine this. Account will be taken of the mix of the types of trains and their braking capability that approach the signal to determine if a speed trap is required, and if so, where it is placed?  Does the guidance need to be clearer as to what is meant by 'the train' in this context and how a risk based approach is taken to set speed traps?

No.	Sect Ref	Review Comment
21	1.37 and 1.38	<p>As worded, this is incorrect: TPWS speed traps (OSS) on approach to signals need to be set such that they maximise the effectiveness of stopping the trains that approach a signal from reaching the conflict point. They are not set to stop the trains from passing the signal at danger (though for relatively minor overspeeds they may achieve this function). Similarly with buffer stops, they are set to minimise the potential collision speed with the buffer stop, not to stop the train from striking them.</p> <p>Following on from the comment above (in 1.38) - the maximum safe speed (for a signal) is dependent on the distance from the speed trap (OSS) to the first conflict point, not the signal.</p> <p>It needs to be noted that speed traps on approach to signals, buffer stops and speed restrictions are set differently. It is suggest that these are considered and discussed separately to avoid confusion.</p>
22	1.40	The phrase ' <i>margin of tolerance</i> ' is used. Is this a well understood term? What does this mean in practice?
23	2.14	What does fixed marker mean?
24	2.15	Formatting - additional space at the start of the text.
25	Glossary	<p>Excessive speed - The guidance needs to be more clear on how this is defined and what is meant by the term; excessive to what the question is?</p> <p>Speed traps for TPWS (OSS) are not set to trigger in terms of the speed that would result in the train passing the signal.</p> <p>Excessive speed is considered to be a speed that would result in the train exceeding the conflict point.</p> <p>Need to be clear that there is a difference between the speed to stop at a signal and the speed to stop before the conflict point. Also - trains can (and they do) pass over an OSS and stop before the signal resulting in no SPAD - but the train has still exceeded what is deemed acceptable.</p>
26	Glossary	Should other forms of train protection on the GB network be mentioned?
27	Glossary	Definition for ETCS, CBTC and TPWS should be included.
28	Glossary	Last Sentence: Why include explanations in the glossary that don't replace the legal definition? It's liable to cause confusion.
29	Glossary	Does 'A person operating a train' mean an organisation or body, or the driver of a train or both?
30	General	<p>Guidance on operating under the protection of Class B ATP systems rather than under Class A ATP systems on lines that are fitted with both would be useful.</p> <p>The guidance should consider covering the protection available from the Class A and Class B systems, driver authorisation to operate under the Class A ATP system, performance impact etc. This would be useful for determining policy and operational rules for reversion to Level NTC when operating on Level 2 with signals lines.</p>
31	General	Does the guidance permit an ETCS unfitted train to enter an 'ETCS with no signals railway' if suitable arrangements (operational or technical) are provided?
32	General	Is there any guidance available on the use of Level 0 within the context of RSR99? Would operating a train in Level 0 be considered in the same way as described in 1.26 and 1.27 subject to any pre-planned operational or technical arrangements required for operating in Level 0 being in place?
33	General	There is a lot of helpful guidance on legacy train protection systems. A similar level of guidance should be provided for ETCS functionality since ETCS is already in use and is the intended target system for long term deployment.