TRANSPORT AND WORKS ACT 1992

TRANSPORT AND WORKS (INQUIRIES PROCEDURES) RULES 2004

NETWORK RAIL (LEEDS TO MICKLEFIELD ENHANCEMENTS) ORDER

APPENDICES TO LEVEL CROSSING POLICY & STRATEGY

PROOF OF EVIDENCE

OF

JERRY GREENWOOD

Document Reference	CD 7.21
Author	Jerry Greenwood
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Appendix to Proof of Evidence of Jerry Greenwood, Head of Infrastructure Liability

On behalf of Network Rail Infrastructure Limited

Darkies PFP Section 118A Order Decision December 2019

Date 06 February 2024

The Planning Inspectorate

Order Decision

Inquiry opened on 16 October 2019

Site visits made on 16, 22, 24 October 2019

by Martin Elliott BSc FIPROW

an Inspector appointed by the Secretary of State for Environment, Food and Rural Affairs

Decision date: 27 December 2019

Order Ref: ROW/3217265

- This Order is made under Section 118A of the Highways Act 1980 (the 1980 Act) and Section 53A(2) of the Wildlife and Countryside Act 1981 and is known as the The Dorset County Council (Footpath 14, Wool at East Burton) Rail Crossing Extinguishment Order 2018.
- The Order is dated 16 March 2018 and proposes to extinguish public footpath 14 in the Parish of Wool as shown on the Order plan and described in the Order Schedule. If confirmed, the Order will also modify the definitive map and statement for the area, in accordance with Section 53(3)(a)(i) of the Wildlife and Countryside Act 1981, once the provisions relating to the extinguishment come into force.
- There were four objections outstanding at the commencement of the inquiry.

Summary of Decision: The Order is confirmed subject to modifications.

Procedural Matters

1. I opened a public local inquiry at East Burton Village Hall on 16 October 2019. The inquiry sat for six days. I did not carry out an accompanied site inspection as no parties required me to do so. However, I carried out a number of unaccompanied site inspections of the Order route and surrounding area.

2. Dorset Council took a neutral stance with respect to the confirmation of the Order and the case for confirmation was made by Network Rail (NR). Although the Parish Council indicated that they wished to speak at the inquiry, in opposition to the Order, they did not do so. In reaching my decision I have regard to all submissions made in respect of the Order.

3. Complaints were made prior to the inquiry[1] in relation to the conduct of NR. It was asserted that NR, given Dorset Council were taking a neutral stance, failed to comply with the timetable for the submission of Statements of Case (SoC). This despite being advised by the Planning Inspectorate that NR should submit their SoC as if they were the Order Making Authority (OMA). It was contended that objectors were put at a disadvantage as they only saw the primary case for NR after the submission of their own SoC.

4. In cases where the OMA is taking a neutral stance the supporter of the Order (in this case NR, the applicant) is encouraged to submit a SoC by the deadline set out in the Notice of Order for the OMA. In this case NR submitted their SoC in accordance with the deadline for those who have made objections, representations or wish to speak at the inquiry.

[1] Open Spaces Society (OSS), Ramblers' Association (RA) and Professor Divall

5. Although it would have been helpful for NR to have submitted their SoC at the time when the OMA were required to submit their SoC there is no mandatory requirement to do so. In this case the parties concerned were able to submit rebuttal proofs having had sight of NR's SoC. The issue to be considered is whether there has been any prejudice and whilst I note the concerns there is nothing to suggest that anyone has been prejudiced. The parties concerned were able to make further submissions in response to NR's SoC. It is also noted that NR only submitted summary Proofs of Evidence shortly before the inquiry. Again there is nothing to indicate that anyone has been prejudiced by their late submission.

6. The Order route has no recorded width. In the absence of a width and to ensure, in the event of confirmation, the whole width of the Order route is extinguished it is appropriate to include the words 'the whole width'. The Order, if confirmed, will be modified accordingly.

The Main Issues

7. The Order has been made under Section 118A of the Highways Act 1980 because it appeared to Dorset Council expedient in the interests of the safety of members of the public using it or likely to use it that the footpath should be stopped up.

8. Before confirming the Order I must be satisfied that it is expedient to do so having regard to all the circumstances, and in particular to—

   (a) whether it is reasonably practicable to make the crossing safe for use by the public, and

   (b) what arrangements have been made for ensuring that, if the order is confirmed, any appropriate barriers and signs are erected and maintained.

9. Defra[2] Circular 1/09 (the Circular) (at paragraph 5.49) advises that all the relevant factors should be taken in to consideration, which may include the use currently made of the existing path, the risk to the public of continuing such use, the effect that the loss of the path would have on users of the public rights of way network as a whole, the opportunity for taking alternative measures to deal with the problem, such as a diversion order or a bridge or tunnel and the relative cost of such alternative measures.

10. Paragraph 5.48 of the Circular informs that care should be taken to avoid the creation of a cul-de-sac that would encourage trespass on to the railway. Section 118A(2) provides that the order may extinguish the right of way on the crossing itself and for so much of its length as the authority deems expedient from the crossing to its intersection with another highway over which there subsists a like right of way.

Reasons

Background

11. The railway line (the Bournemouth main line/Wessex route) on which the crossing is located was authorised by the Southampton and Dorchester Railway Act 1845. The crossing falls within enclosure 41 in the Parish of Newburgh and the Book of Reference describes the enclosure as an Occupation Road. The

[2] Department for Environment Food and Rural Affairs

crossing was therefore originally provided as a private access. A public footpath was subsequently recorded over the crossing under the National Parks and Access to the Countryside Act 1949. All private access rights were released in 1965.

12. The line, runs between London Waterloo and Weymouth. Footpath 14 (A-D[3]), which links East Burton Road to footpath 13 uses the crossing (B-C) known as 'Darkies' (the crossing). The 'Up' line carries trains from Weymouth towards Poole and London and is the northernmost pair of rails. The 'Down' line taking trains from London and Poole is the southernmost pair of rails. The line speed at the crossing is 85 mph on the up line and 80 mph on the down line. The lines running over the crossing are in 24 hour use with 68 passenger services, Monday to Saturday, 06:17 to 23:59 hours, with 31 passenger services on a Sunday between 08:10 and 23:20 hours. There are three pathways for freight trains between 21:35 and 00:20 hours, Monday to Friday, although currently there are no freight trains running over the crossing. Other services run on an unscheduled basis such as heritage trains, empty stock and engineering trains.

Safety at the crossing

Sight lines

13. Darkies is a 'passive' crossing meaning that there is no direct method of warning people who use the crossing. Stop, Look and Listen (SLL) signs are the only warning at the crossing. These are regarded as being at the decision points for the crossing; the point at which a user determines whether it is safe to cross. At an anticipated walking speed of 1.2 m/s the crossing time between safe locations (9.6 metres) is 8.07 seconds for an able-bodied pedestrian (neither encumbered or vulnerable (non-vulnerable user)). For an encumbered or vulnerable user (vulnerable user) the traverse time is increased by 50% (the 50% safeguard) at 12.11 seconds.

14. NR have calculated the minimum sighting distance, using the NR sighting requirements calculation tool. On the basis of those measurements, line speeds and the time required to traverse the crossing NR have concluded that in respect of non-vulnerable users using the crossing from B to C the sighting distance of a downline train (sight line B (SLB)) is deficient. The sighting distance being only 210 metres with a minimum sighting distance required being 289 metres and therefore deficient by 79 metres; the sighting distance provides a warning time of 5.87 seconds. In respect of the other sight lines NR have concluded that these are sufficient to allow time to cross the crossing. Professor Divall agreed with NR that with the exception of SLB the warning times provided are compliant for non-vulnerable users. It should be noted that irrespective of whether use is by vulnerable or non-vulnerable users SLB is deficient in terms of affording a safe crossing.

15. Professor Divall queried the accuracy of the measurement for SLB being based on a measurement using lineside vegetation. He said that it could not be certain that the feature used equated to a train coming around the corner. Whilst I note the concerns, the measurement has been taken in accordance with industry practice. Although there has been some variance in the previous measurements taken by NR I do not consider that this means that the 210 metres is inaccurate. In any event Professor Divall accepted in cross-

[3] Letters A to D relate to points shown on the Order map

examination that SLB was about 210 metres, did not question the methodology and as noted above agreed that SLB was deficient.

16. Professor Divall contended that in terms of SLB this is restricted by trackside vegetation on the inside curve on the up side. It is suggested that if vegetation was cleared in accordance with the industry standards it was possible to make SLB compliant. He fairly accepted that he could not say if NR were not meeting the required standard for vegetation clearance. He nevertheless questioned if NR were doing all that is reasonably practicable to improve SLB. However, Mr Pead was clear that even if the vegetation could be cut back on 365 days of the year the limitation on the sight line was in consequence of a permanent structure (an embankment) and the curvature of the track. There is nothing before me to suggest that NR are not complying with their responsibilities in respect of vegetation clearance or that SLB would be any different in the absence of any vegetation.

17. Professor Divall referred to early findings of T984[4] that showed that pedestrians using crossings do not behave typically in the way assumed. It was stated that pedestrians decide for themselves when and where to check for trains. The concept of decision points should be replaced with decision paths as the decision to cross is not taken at a specific point.

18. Whilst I note the findings, the decision point is taken as 2 metres from the rail and is identified by the SLL sign. I would acknowledge that those using the crossing will continue to check for trains as they cross. However, the evidence from Mr Pead is that the decision path does not apply at the crossing as the decision to cross is from a position of safety. Any decision taken beyond that point falls within the 'Danger Zone' where crossing users are less likely to step back. It was in his view necessary to apply objective procedures.

Train speeds

19. It is suggested that NRs evidence on warning times relies heavily on theoretical assumptions on matters such as train performance. In respect of the crossing times this is based on the track line speeds set out at paragraph 12 above.

20. In terms of actual train speeds on the down line at the crossing the evidence of NR is that for those trains stopping at Wool Station[5] a speed of 67 mph could be attained by the time the crossing is reached. A speed of 67 mph gives a user a warning time of 7.01 seconds and this is still lower than the required minimum time of 8.07 seconds for a non-vulnerable user. For a vulnerable user the warning time will be 12.11 seconds and again is deficient by 5.1 seconds.

21. For trains which do not stop at Wool Station[6], all of which have to adhere to the Permanent Speed Restriction of 60 mph through the station, a train will have attained the speed of 74 mph by the sighting point, and will still be accelerating, with the capacity to reach a speed of 76 mph by the time the crossing is reached. Based on the speed of 74 mph the sighting time will be 6.35 seconds and is therefore deficient by 1.72 seconds for the non-vulnerable user. In terms of a vulnerable user the deficiency will be 5.76 seconds. Given

[4] Research into the causes of pedestrian accidents at level crossings and potential solutions (Rail Safety and Standards Board (RSSB))
[5] 22 trains each weekday, 22 on Saturday and 15 on Sunday
[6] 7 trains each weekday, 12 on Saturdays and 1 on Sundays

that a train will still be accelerating the sighting time will be reduced further and is estimated to be 6.18 seconds. This is only a very small reduction in the sighting time but in any event is deficient both for the non-vulnerable user and the vulnerable user.

22. Given the above whilst trains on the down line may not be travelling at line speed their speed will still mean that the crossing from B to C is non-compliant for both stopping and non-stopping trains.

23. Professor Divall questioned whether the warning times estimated by NR corresponded to actual warning times at the crossing. His 'rough and ready' lineside observations suggested that warning times from the upside decision point are significantly longer than the theory suggests. His estimate was that no train took less than 9 seconds. Mr Pead acknowledged Professor Divall's estimates but he explained that in assessing the crossing it was necessary to produce an objective repeatable process and the timing was a result of a calculation. He pointed out that even at 9 seconds the crossing remained non-compliant; this will be the case for vulnerable users. In my view some weight should be given to the assessment carried out by NR carried out in accordance with an objective and repeatable process as opposed to a 'rough and ready' calculation.

Passing trains

24. NR contend that passing trains import a further risk and the evidence to the inquiry demonstrated the potential risks arising from such a scenario. Indeed it does not seem to be disputed that passing trains are potentially a hazard. Mrs Thorpe gave evidence of an incident arising from passing trains at the crossing.

25. Whilst passing trains pose a risk to users the evidence as to passing trains at the crossing is limited and it does not appear that NR place any great reliance on this risk. Although it is possible that trains do pass in the vicinity of the crossing NR provide no qualitative or quantitative assessment and it is difficult to put any significant weight on this potential risk. Nevertheless passing trains will pose a risk to crossing users.

Variation in train speeds

26. NR say that a person's judgement of speed is intuitive and often based on their daily experience of road vehicles. It is suggested that this can give a highly inaccurate perception of the speed of an approaching train in an environment where there are not the usual markers. Whilst the evidence indicates that train speeds will vary over the crossing NR do not specifically state whether this has significant implications in respect of the crossing. However, given the variation in train speeds this may have some safety implications.

Whistle Boards

27. As the sighting at the crossing is not sufficient to provide a suitable warning of an approaching train whistle boards are located on the approach to the crossing. In respect of the downside line the whistle board is placed at 400m from the crossing. NR Guidance in respect of the location of whistle boards indicates that the maximum distance for a whistle board to remain effective is 400m(+/-10%). The distance of the whistle board is calculated on the basis of

the speed at which sound travels versus the speed of the train and is not related to the sighting of trains.

28. NR advise that the whistle boards mitigate the risk from deficient sighting. Nevertheless it is said that their effectiveness can be questioned as this is reliant on the driver to sound the horn and the users ability to hear the horn which can be reduced by ambient noise or even a passing train.

29. It is acknowledged that drivers do sometimes fail to sound horns at all or in the correct place[7] accepting that train drivers will be qualified to work on any particular route and should reasonably be expected to apply the horn at appropriate points. In terms of ambient noise, whilst this may present a problem, I have no evidence that this is an occurrence at the crossing although it is not disputed that on occasions the ambient noise may reduce the effectiveness of whistle boards.

30. Bearing in mind the above, whilst the whistle board on the downline mitigates the deficiency in SLB there are some limitations as to its effectiveness.

31. In the Night Time Quiet Period (NTQP) between midnight and 06:00 hours trains do not sound their horns unless they see a person at an unlit crossing. As such there will be no additional protection from whistle boards. I note the comment of NR that the users sighting of a train will be impaired by darkness but trains have high intensity headlights which will identify the presence of an oncoming train. Nevertheless I would acknowledge that whistle boards do not provide the same levels of protection in the NTQP. I note the suggestion that use of the crossing will be lower during the NTQP. However, the risk to the individual using the crossing will remain.

32. In respect of vulnerable users any whistle board would need to be positioned at 484 metres. This is clearly further away from the crossing than guidelines allow and any whistle board at this distance would not provide mitigation.

Vulnerable users

33. It is NRs case that the definition of vulnerable use is not conclusive in respect of the Order as the crossing is non-compliant for non-vulnerable users; it follows that the crossing is also non-compliant for vulnerable users. NR acknowledge that no users of the crossing have been recorded who have difficulty in walking because of stiles which restrict such use; use is also restricted for wheelchair users and those with prams. However, the term vulnerable user is not restricted to those with impaired mobility and may include children or older children in groups, those using headphones and wearing clothing which might obstruct vision (e.g. hoodies). Users may also be those who are 'encumbered' who may be classed as vulnerable because they may be carrying bags or may be walkers with dogs on or off the lead.

34. The Census Good Practice Guide (inquiry document 5) identifies those with vulnerabilities and provides an illustration as to whether the 50% safeguard should be applied. However, the guidance makes it clear that it is for the assessor to decide whether the 50% safeguard should be applied to protect any minority user group or single person. Even where the vulnerable use falls below the majority of users it is open to the assessor to have regard to such use. Professor Divall acknowledged in cross-examination that it was open to

[7] Office of Road and Rail (ORR), Health and Safety Report 2016-17 (July 2017) para 37

Mr Pead to conclude that the majority of use of the crossing is by vulnerable users.

35. NR carried out a census at the crossing (July 2019) when it was observed that the crossing was used by both the young and elderly as individuals or in groups. Such users are categorised as being vulnerable. No evidence is before me that the crossing is used by vulnerable users such as those wearing headphones or hoodies. It is also acknowledged that the 2018 Narrative Risk Assessment (NRA) makes no reference to vulnerable users other than dog walkers and the recent census (July 2019) identifies this use as 54% of total users. A census carried out as part of the 2018 NRA showed that at that time some 40% of dogs were off the lead when using the crossing. Although there are no figures as to the percentage of dogs off leads in the July 2019 census there is nothing before me to suggest that this percentage will have changed. It is more likely than not that the percentage has not changed significantly. Whilst there is no data as to the number of vulnerable users, other than those with dogs, the 54% figure relating to users with dogs clearly shows use by vulnerable users and it is appropriate to apply the 50% safeguard.

36. The table in the Good Practice Guide identifies circumstances where dog walkers are not normally considered vulnerable, namely when they are observed using the crossing correctly and safely whilst keeping dogs on leads and under control. I do not accept that the circumstances where dog walkers are not normally considered vulnerable could only apply when all users are to be observed to be using the crossing in the identified manner. I recognise that a further survey as part of the 2018 NRA showed that dog walkers were using the crossing safely and correctly. Nevertheless the 2018 NRA identifies 40% of dog walkers had dogs off their leads and therefore vulnerable. Applying the guidance it is open to the assessor to apply the 50% safeguard.

37. Bearing in mind the above and noting the crossing times identified at paragraphs 13 and 21 above, notwithstanding the fact that the crossing is non-compliant (SLB) in respect of non-vulnerable users, the crossing is also non-compliant in respect of vulnerable users. Although there is some criticism as to the assessment by NR it was carried out in accordance with the Census Good Practice Guide. Some weight should be given to the conclusions reached in accordance with such guidance.

Pedestrian behaviours

38. In opposition it was contended that whilst there were many patterns of behaviour which can increase the risks to pedestrians NR had failed to show that there was any pattern of deliberate misuse or misjudgements by pedestrians at the crossing. However, whilst NR outline that young people in groups exhibit more risky behaviour this was not a consideration at the crossing at present. The NRA 2018 indicates that those using the crossing did so safely and correctly and that there were no recorded incidents of misuse. Nevertheless NR anticipated that with further residential development in the area such behaviour was likely to increase. There is nothing to indicate that NR have relied on elements of risky behaviour in assessing the safety at the crossing in the 2018 NRA or subsequent assessment (paragraph 47).

Supplementary Aids

39. It is suggested by objectors that the position of the barriers at the Burton Road crossing and a signal on the down line (PW5627) can assist those using the

crossing. It may be the case that some who use the crossing use these two features to assist in determining whether it is safe to cross. However, as Mr Pead stated these features are unreliable and outside any regulatory guidance. Observation of the Burton Road crossing might be hindered by poor visibility. In respect of the signal the use of this may distract the crossing user from observing SLB and it is possible that a train could still be proceeding towards the crossing even if the signal were showing red. The use of this feature also relies on the crossing user understanding the operation of the signal. Professor Divall acknowledged that the signal could not be relied upon but thought that the signal was a useful aid.

Quantitative Risk Assessment - All Level Crossing Risk Model (ALCRM)

40. NR have undertaken a quantitative assessment of risk using ALCRM. The purpose of ALCRM is to provide a consistent method for assessing safety risks to crossing users, train passengers and train staff at level crossings on NR controlled infrastructure. The model has recently been reviewed by RSSB with respect to pedestrian risk and found to be robust. NR recognise that it provides a quantifiable risk score which allows comparison with other crossings and a ranking of risk. Professor Divall acknowledged that ALCRM is a sophisticated and powerful algorithm for modelling the dangers associated with any crossing. He also did not dispute the professional integrity and the expertise of those carrying out the assessments although noted some inconsistencies in the assessments.

41. To calculate risk ALCRM requires specific information about each asset. Information is gathered from existing records, stakeholder engagement and from a site visit. Features observed on site include aspects such as crossing orientation, census, users and the visibility of the crossing when approaching. The outputs of ALCRM enable NR to better identify hazards and risks at each crossing and to enable Level Crossing Managers to better select appropriate risk controls.

42. ALCRM reports two measures of risk. Collective risk is a measure of total harm, or safety loss, and is expressed in terms of Fatalities and Weighted Injuries (FWI) per year. Collective risk is reported in a simplified numeric form (1 to 13) where 1 represents the highest risk and 13 representing nil risk. The score is independent of crossing type. Crossings which are relatively busy with lower degrees of protection will receive the highest rankings. Conversely lightly used crossings with high levels of protection will receive lower rankings.

43. The second measure of risk is to the individual crossing user presented as an individual risk of fatality per year. ALCRM calculates this risk as the 'probability of fatality' and is expressed as a letter (A to M) with A representing the highest risk and M nil risk. Crossings with higher degrees of protection, such as manually controlled barriers will be grouped at the lower end (towards M) with less well protected crossings, such as footpath crossings, around the higher end (towards A).

Qualitative Risk Assessment

44. A qualitative risk assessment is applied by the Level Crossing Manager throughout the risk assessment process. Information to support the judgement is derived from a collation of evidence from a site visit, application

of local knowledge, smart intelligent sources, stakeholder engagement and analysis of previous assessments and accident/incident data.

Narrative Risk Assessment

45. The NRA is the means of presenting the output of routine level crossing risk assessments. The NRA adopts the quantitative risk and the qualitative commentary/observations recorded by the Level Crossing Manager in ALCRM.

46. The most recent NRA is January 2018 which provides a score of C6 (0.000278125 FWI). This is based on use by an average of 9 people a day (July 2018 census), no deficient sighting or vulnerable use and a line speed of 85 mph in both directions. The 2018 NRA ranked the crossing as the 58th riskiest crossing out of 151 on the Wessex route. However, NR recognised that the inadequacies of the 2018 NRA did not reflect the actual risk at the crossing. The NRA did not recognise that the crossing had deficient sighting or that the line speed varied.

47. NR have carried out an over-check risk assessment on the basis of a new census (July 2019) showing an average of 13 users a day, the actual sighting distance (SLB of down line trains being deficient) and a line speed of 80 mph on the down line and 85 mph on the up line. The assessment was based on there being no vulnerable users. The newly calculated score is C6 (0.000483334 FWI). A rating of C6 places the crossing at a medium to high risk. Although this updated rating does not form Part of an NRA it clearly provides an update to the 2018 NRA which, in part, no longer represents all circumstances relevant to the crossing.

48. I acknowledge the criticisms of NR in respect of the assessment of the crossing safety which I have considered above. However, some significant weight should be given to the assessment using a well-developed methodology carried out by those with the professional knowledge to carry out such assessments. Whilst there are some criticisms, there is nothing before me which fundamentally challenges the assessment carried out by NR. It should be noted that the risk score contained in the NRA 2018 has been subject to further scrutiny as a result of the inquiry and the risk score has been updated.

Relative risk

49. Professor Divall contended that the breakdown of the ALCRM score suggests that the risk to an individual falls within a range which the Health and Safety Executive and ORR regard as 'tolerable'. It is asserted that NR have not produced any evidence to show that using the crossing is intolerably dangerous when compared to similar activities allowed by British society.

50. I would acknowledge, as suggested by the OSS, that in everyday life we take risks and in using the crossing there is an element of risk. It may also be the case that the risk in using the crossing falls within what might be seen by some as tolerable within society with regard to certain common forms of transport. However, NR is under a duty (ultimately regulated and enforceable by the ORR and the Secretary of State for Transport) to operate the rail network efficiently and safely in accordance with its licence. Further, the ORR is responsible for the regulation of the railway industry in Great Britain and is the health and safety regulator for the rail industry. The ORR endorses the closure of level crossings where there is a risk to public safety and where there is no other viable option to sufficiently mitigate or reduce that risk. Mr Greenwood

informed the inquiry that whilst NR developed policies and practices the ORR maintained an oversight over NR. ALCRM itself had been developed between the Rail Safety and Standards Board (RSSB), NR and Arthur D Little since the 1990s with further extensive upgrading completed in 2018. The ORR are aware of the application by NR in respect of the crossing and support the proposal.

51. Whilst I note the comparative risks, in respect of the assessment of rail crossing safety, such an approach is at odds with approved and regulated industry practices. Some weight should be given to risk assessments carried out in accordance with objective standards, measurements and assessment tools which have been developed by the industry and are under scrutiny from the ORR. It is not a requirement that any crossing is intolerably dangerous for an Order to be made or confirmed under section 118A of the 1980 Act. The Order has been made because it is expedient in the interests of the safety of members of the public using or likely to use the crossing that the footpath should be stopped up. Circular 1/09 advises that consideration should be given to the risk to the public of continuing use. The safety interests need to be balanced against other factors as set out above.

Conclusions on safety at the crossing

52. Having regard to all of the above and the various submissions the ALCRM score indicates that the crossing poses a medium to high risk to pedestrians. It is of note that SLB is insufficient to provide a safe crossing time between points B and C for non-vulnerable users and vulnerable users. The updated risk score does not take into account the use of the crossing by vulnerable users, in this case dog walkers. If vulnerable users were taken into account then the risk score would increase. On the evidence before I conclude that the crossing poses a risk to the safety of members of the public using it or likely to use it such that the crossing is unsafe.

Whether it is reasonably practicable to make the crossing safe for use by the public

53. NR's overall funding is authorised for 5 year periods (Control Period – CP). For the current CP (2019 to 2024 CP6) NR has been authorised £34 billion from its regulator the ORR granted pursuant to a robust business plan. NR as a Government funded organisation is required to adhere to guidance in the Government Handbook 'Managing Public Money'. NR would need to justify any additional expenditure where other safer and more cost effective alternatives exist. In terms of the crossing it is likely that the ORR would refuse to allocate additional funding to provide an alternative to the crossing. If any alternative solution for the crossing were to be achievable then this would be at the expense of other committed projects. On the Wessex route there are currently a number of funded crossings to be provided with engineering solutions such as bridges and MSLs. These are crossings within the top 10% highest risk crossings with significant irremovable safety features where no viable alternatives have been identified.

Footbridge

54. A ramped footbridge would cost in the region of £2.5 million although a stepped bridge would cost less at £1.2 million. However, there is insufficient room to provide a ramped or stepped footbridge due to there being insufficient land within the operational corridor and the close proximity of neighbouring

residential properties. NR outlined the engineering difficulties in the construction of a bridge including the need for reinforced foundations due to the area being susceptible to flooding; the underground conditions were largely unknown and could result in delays and additional costs. There are also accessibility issues for crane access and the need for a compound. It was also unknown as to whether planning permission would be granted.

55. It is suggested in opposition that the Order should not be confirmed and that, in the light of the proposed development of the area, funding could be provided by a developer through a section 106 agreement[8]. However, although the adjacent area is likely to be developed there can be no certainty as to the funding of a bridge at its existing location, or at a point further west suggested by Mr Hook, through any Section 106 agreement or from any other funding source. Further, there is no evidence that the local planning authority would seek the construction of a bridge funded by a developer or that a developer would be prepared to fund such a project. In any event there are other constraints which would need to be overcome as outlined at paragraph 54 above as well as the implications for funding other projects in CP6.

56. Looking at the evidence as a whole, notwithstanding the potential costs, whilst a bridge would remove the risk at the crossing, it is not reasonably practicable to construct a footbridge.

Miniature Stop Lights (MSLs)

57. MSLs could be provided at the crossing at a cost in the region of £170,000 (NRA 2018) (although evidence from Mr Greenwood is that such a system would cost £250,000). However, such systems only mitigate a proportion of risk. The ALCRM rating being reduced from C6 to D6 with a reduction in the FWI from 4.83334E-04 to 1.85801E-04. Such a system still relies on pedestrians observing lights and signage. NR advise that there is still a high rate of fatalities occurring at crossings with MSLs. In terms of the cost benefit analysis carried out by NR, taking into account the costs (£170,000) and the fact that MSLs do not fully control the risk, this option has been rejected.

58. It is noted that MSLs have been installed at Bailey's Drove and a number of individuals suggested that such a system should be installed at Darkies. However, in respect of Bailey's Drove MSLs have been installed on the basis that the cost of a footbridge could not be justified and that there was insufficient land for its construction. Additionally after public consultation NR concluded that closure of the crossing could not be achieved due to the absence of a suitable alternative route. I also note that the Bailey's Drove crossing is comparatively well used when compared with Darkies. Furthermore, in respect of Darkies there are alternative routes which could be used.

59. Whilst MSLs at the crossing are possible, given the cost of their implementation and the level of risk reduction, I do not consider their provision to be reasonably practicable.

Whistle Boards

60. As noted above, whistle boards are in situ and provide some mitigation in respect of using the crossing from B to C. However, in respect of vulnerable

[8] Section 106 of the Town and Country Planning Act 1990

users the positioning of a whistle board at 484 metres would be outside the guideline limits for effectiveness and therefore would not provide adequate mitigation.

Tunnel

61. NR advise that it would not be possible to construct a pedestrian tunnel under the railway line due to the need to construct ramps down to a lower level. There is also insufficient land within the operational railway to construct an underpass. The area surrounding the crossing is on a flood plain and is not ideal for building on. Any tunnel is likely to be subject to flooding. The estimated cost is between £4M and £6M. Given the practical difficulties and the estimated costs it is not reasonably practicable to make the crossing safe through the provision of a tunnel.

Supplementary Audible Warning Devices (SAWD)

62. SAWD is a radar based solution which detects an approaching train and then activates an audible warning system at the crossing. The system does not rely on integration with the existing signalling system. However, the system has limitations and the radar equipment is fallible. SAWD is only therefore approved as a secondary support to whistle boards and viewed as a temporary measure which is still under consideration and development. However, given that the whistle boards are non-compliant for vulnerable users and SAWD is a supplementary device this system is considered unfeasible.

Physical improvements at the crossing

63. The RA make the point that the stiles adjacent to the railway crossing are not compliant with the British Standard BS5709. Whilst this is likely to be the case the stile is said to be compliant with NR standards. Nevertheless the stiles are set back from the decision point and whilst some may find difficulty in using them they will not have any bearing on the crossing of the railway lines.

64. Reference is also made to a step onto the crossing which constitutes a trip hazard. Evidence of Mr Pead is that slips and trips are a recurrent theme reported as a cause of users being struck by trains. He acknowledged that the removal of the step would make a small change to the safety of the crossing. However, there is nothing before me to suggest that there would be any significant change to the crossing risk if the step were to be removed.

Restrictions relating to dogs

65. The RA, recognising that the Order route is used by dog walkers, suggest that an inexpensive measure to improve safety at the crossing would be to make an Order, either under section 27 of the Road Traffic Act 1988 or by way of a Public Space Protection Order under the Anti-social Behaviour, Crime and Policing Act 2014, requiring dogs to be kept on the lead. The OSS thought that a bylaw could be made to keep dogs on a lead and that this would enhance safety. However, walkers with dogs on leads will remain vulnerable users and the crossing is non-compliant for such users. Furthermore this will not remediate the vulnerability of other vulnerable users or indeed walkers. The crossing remains non-compliant.

66. It is noted that NR have erected notices at the crossing advising that dogs should be kept on leads. Whilst this may improve safety, noting that not all

users comply with signage, I revert to my previous comments which are equally applicable.

Conclusions on making the crossing safe

67. Bearing in mind the above I do not consider that any of the potential mitigation measures are reasonably practicable to make the crossing safe. I note the suggestion of Professor Divall that the ORR and NR expect new, and possibly lower cost, mitigations to be introduced in the near future. Mr Pead advised that whilst there are new technologies which are anticipated NR had considered all reasonable options currently available. In the absence of those new technologies and costs I am unable to give this suggestion any weight.

Whether it is expedient to confirm the Order having regard to all the circumstances

68. Before confirming the Order I must be satisfied that it is expedient to do so having regard to all the circumstances. Whilst the primary focus is the safety of the public it is clear that other factors can be taken into consideration. These other factors need to be put in the balance when considering whether it is expedient to confirm the Order.

Safety of alternative routes

69. Concerns are raised as to the safety of the East Burton Road and Burton Road which would need to be used as alternative routes in the event footpath 14 is closed. In respect of East Burton Road this has a 30 mph speed limit and is essentially a residential road although semi-rural in character. A narrow footway runs along the road for part of the length. The road appears to be lightly trafficked although the RA indicate that the road is used by motorists seeking to avoid waiting whilst the level crossing on the A352 at Wool is closed. Mr Hook also pointed out that with a shift change at the Police Headquarters at 7.00 in the mornings, access to the Technology Centre at 8.00 and the school run at the same time there was an increase in traffic in the area at these times.

70. Noting the above Mr Hajnus outlined that NR had had extensive consultations with the relevant highway authority, Dorset Council, who have raised no concerns as to the safety of East Burton Road. Neither has the Highway Authority seen it necessary to consider any additional safety measures on the road. It is accepted that Dorset Council now take a neutral stance in respect of the Order; that being due to a balance between the safety of the crossing and the safety of the alternative route which members felt difficult to determine. Nevertheless Dorset Council raise no concerns that use of the road by pedestrians is unsafe and they do not oppose confirmation of the Order. There is no evidence before me, even taking into consideration certain busy times and the use of the road when the crossing at Wool is closed, that East Burton Road is unsafe for pedestrians. Closure of the footpath will not result in any significant increase in pedestrian traffic and it should be noted that users of footpath 14 may well at present use part of East Burton Road as part of a circular walk.

71. The OSS provided information from 'Crashmap' which records 5 accidents on East Burton Road in a twenty year period, one of those being to the west of Burton Road. One incident involved a slight injury to a pedestrian who was in the carriageway but not crossing; this was at a location where there is a footway. In the absence of more details it is difficult to reach any conclusions

in respect of the incident. Nevertheless the 'Crashmap' figures do not suggest that East Burton Road is subject to a high level of incidents.

72. In respect of Burton Road, this has a 30 mph speed limit for much of its length with a short section at the southern end being 60 mph. There are very short sections of footway and the road is similar in character to East Burton Road although sections are too narrow to enable two vehicles to pass. Census data for the Burton Road level crossing indicates that the road is used by some 675 vehicles, 54 pedestrians and 54 cyclists in a 24 hour period. However, this is an extrapolated figure using a standard multiplier of 27 based on a 30 minute count. Nevertheless the count does not suggest that the road is heavily used by vehicles and no evidence has been put before me of any accidents taking place on this road. I revert to my comments at paragraph 70 which are equally relevant here. I note Mr Holmes and his wife found the road hazardous when the level crossing gates created a surge in traffic flow but there is no evidence that the road is unsafe for use by pedestrians.

73. The OSS referred to the Memorandum of Understanding[9] (MoU) and stated that in future a full road safety audit will usually be undertaken. The MoU states that where the public are displaced onto the local highway network then the alternative routes should be assessed by a full road safety audit. However, the MoU was not in place when the Order was made. In any event NR has undertaken consultation with the highway authority and there is nothing to indicate that the alternative routes are unsafe such that it is not expedient for the Order to be confirmed.

Effect on the rights of way network

74. Although it is contended that some members of the public use footpath 14 to gain access to the facilities in Wool neither the OSS or the RA suggest that any facilities or destination point would require walking a greater distance. Mr Hajnus provided a comprehensive assessment of the accessibility of amenities and facilities in Wool. The closure of footpath 14 would not result in any additional inconvenience in accessing amenities and facilities. It is accepted that there might be some amenity value in being able to use footpath 14 to gain access to Wool but this must be seen in the context that the footpath is unsurfaced and prone to becoming wet and muddy. In contrast the alternative routes are surfaced.

75. In terms of other amenity attractions in the area, and in particular those to the north of East Burton Road, I acknowledge that footpath 14 could be used to access these attractions. However, the closure of footpath 14 will not increase the walking distance to these attractions, albeit other routes will have to be used. There is nothing to indicate that there will be any significant loss of convenience when accessing these attractions.

76. The OSS contend that most of the users of footpath 14 are local, or very local leisure walkers, usually with dogs. The evidence from the crossing census suggests that 54% of users are dog walkers. The OSS assert that footpath 14 forms an essential part of the rights of way network and the closure will seriously inconvenience such users.

[9] Public Rights of Way, Level Crossings on the Rail Network, Memorandum of Understanding between Network Rail, ADEPT, LGA & IPROW

77. I would accept that footpath 14 forms a short circular walk although in the context of such a walk it will be necessary to use East Burton Road and possibly Burton Road. A number of individuals gave evidence to the inquiry to this effect. It is also noted that the footpath forms part of a through route to the north along an unclassified road (D53110).

78. NR contended that the comparative amenity value/enjoyment of the circular walk was doubtful and must be viewed in the context of the existence of other nearby circular walks, the existence of other pleasant walking routes and the existence of large open spaces accessible on foot or by a short car journey.

79. I acknowledge that there are other potential circular walks in walking distance of footpath 14, some of these, for example the permissive path across The Moors, are already well used which suggests that they are suitable for leisure walking with or without dogs. However, the use of these routes will mean that any replacement circular walk is likely to be longer. It is accepted that use of these routes are for leisure including dog walking and that in many cases the additional distance will not amount to any inconvenience. However, there is some merit in footpath 14 providing a short circular walk for some path users.

80. It is also acknowledged that there are areas of open space which are accessible by a short car journey. However, access to these areas relies on the availability of suitable vehicular transport and these areas are not immediately accessible to those who use footpath 14 for leisure walks. As such this amounts to some inconvenience.

81. Footpath 14 also links directly with the D53110 which can be used to access the permissive path to Wool Bridge, Water Meadow Lane and Footpath 17. If the Order were to be confirmed then direct access over East Burton Road to the D53110 would not be possible. Nevertheless access would still be possible from East Burton Road and access to the permissive path, Water Meadow Lane and footpath 17 will not be prevented.

82. I note concerns of the OSS that the permissive path could be withdrawn at any moment. Whilst this might be the case there is no indication that such permission will be withdrawn. It is therefore appropriate to consider the permissive route in relation to alternative routes. It may also be the case that the permissive footpath becomes impassable due to flooding; Mr Hook said that the path was often flooded in winter. However, whilst at times the path may become inaccessible, there is nothing to suggest that other routes are not available or that the permissive path is inaccessible outside the winter months. It is noted that footpath 14 is also prone to flooding particularly towards the railway line at point C.

83. In relation to the amenity value of the path, whilst at present the section of footpath 14 C to D passes through an open field the adjoining land is essentially a built environment. Although there is some amenity value to the path any loss should be seen in this context. Additionally the land is identified in the Local Plan for development albeit partly as recreational space. Consequently the amenity of the area will be changed considerably when the land is developed.

84. The OSS states that dog walkers will be further inconvenienced as, along the alternative roads, walkers will not be able to let their dogs off the leads. Others mentioned the fact that their dogs were able to be let off the lead when

using footpath 14 and one individual mentioned using the land over which the footpath passes for dog training. However, whilst dogs are a usual accompaniment on a public right of way, this does not mean that dogs are free to roam over the land; use is effectively confined to the right of way[10]. Additionally when livestock are present it is an offence to allow dogs to be at large which is defined as not on a lead or under close control; it is known that livestock is on occasions kept in the field crossed by footpath 14 C to D. Whilst dogs may need to be kept on a lead when using the vehicular highway as part of any alternative route any loss of convenience for dog walkers should be seen in the above context. I do not consider any loss to be significant.

85. In respect of tourism and access to the coast, footpath 14 is at a significant distance from the coast and there is no evidence that the footpath provides a coastal link. I would acknowledge that it is possible to use footpath 14 as part of a route to the coast but its closure would not prevent such access. There is also no evidence that footpath 14 is promoted as a link to the coast, that with expanding tourism the route will be promoted as such or that closure of the footpath will have an adverse effect on promoting tourism.

Operational efficiency/Statutory duties

86. NR is a regulated statutory undertaker bound by a statutory framework including the Railways Act 1993 (as amended)(the 1993 Act). The 1993 Act established the Rail Regulator under the Strategic Rail Authority (now the ORR). NR has a legally prescribed duty and responsibility to promote safety, improve railway efficiency and to enhance and improve the network in operational terms. NR is required to comply with the licence issued under Section 8 of the 1993 Act which is enforceable by the ORR by way of enforcement orders.

87. NR also have legal duties and responsibilities in terms of public safety and level crossings (section 117 of the 1993 Act) and the Health and Safety at Work Act 1974 (the 1974 Act). Under the 1974 Act NR is responsible for the health and safety and welfare of persons from risks to health and safety in connection with its undertaking. This responsibility extends to those using level crossings in addition to those who may misuse those crossings or trespass onto the line. Section 55 of the British Transport Commission Act 1949 provides for prosecutions in respect of trespass on the line.

88. I was referred to the case of *The Ramblers Association v Secretary of State for Environment Food and Rural Affairs [2017] EWHC 716 (Admin)* where Dove J found a clear public interest in excluding trespassers from the railway line who may not only come to harm themselves but also give rise to health and safety risks to those working on the railway. Bearing this in mind the requirement, under the terms of a licence, to provide for public safety is also in the interest of the public.

89. It is acknowledged that there have been no known fatalities at the crossing and the NRA 2018 records that no safety events had been known to occur in the previous 12 months. However, the crossing is non-compliant in respect of SLB for both non-vulnerable and vulnerable users and is ranked as high to medium risk. Ongoing use of the crossing, the potential for a change in the user profile from adjacent residential development, the increased scope for misuse,

[10] Although footpath 14 has no defined width it is likely that rights extend beyond the worn surface of the path

trespass and accidental human error raises the possibility that continued use of the crossing will fail to promote operational efficiency and safety. Should an incident occur at the crossing then any temporary speed restrictions or line closure would result in delays to train services and the potential for timetable disruption. Mr Greenwood explained that where a train runs late due to incident or temporary speed restriction it can cause a knock-on effect across the network. Each delayed train can further compound the situation causing delays across the network. The closure of the crossing would reduce the risk of any incident or need for a temporary speed restriction thereby reducing any potential impacts on the rail network and any compensation to the train operating companies.

90. Mr Greenwood said that any compensation (Schedule 8 payments) needs to be paid out of the 5 year allocation meaning there will be less money for other schemes including mitigation. I note the observations of Professor Divall in respect of Schedule 8 payments and it may be the case that the recipient of the payment might spend the money on other safety related improvements. However, Mr Greenwood was clear that in respect of Schedule 8 payments there was a net loss to NR which detracted from other schemes and meant that there was less money for mitigation.

91. In addition to compensation to train operating companies any unnecessary disruption to train services could amount to a breach of the operating licence with the potential for enforcement orders from the ORR. This again would have adverse impacts on NR. In the event of an accident at the crossing there would also be the potential for prosecutions/penalties under the 1974 Act.

92. Bearing in mind the above, whilst the crossing remains open there is the potential that an incident might occur which impacts on the operational efficiency of the line and result in additional costs for NR. NR also may be subject to enforcement action from the ORR. The closure of the crossing will reduce the potential for such impacts and therefore is a factor which needs to be put into the balance of expediency.

93. NR make the point that level crossings are a long term restriction to promote the effective and efficient use and development of train capacity on the network by restricting line speed enhancements and the number of trains which can run. This, it is stated, is contrary to NRs objectives under its operating licence and restricts wider government policy to improve the rail network.

94. In terms of proposed enhancement of the network Mr Pead explained that there was currently a bid to increase the number of services on Sundays with an aspiration to increase services on a Saturday as well; there was also a possibility of additional freight trains. Professor Divall contended that NRs strategic plan showed no improvements in services are likely before 2043.

95. Whilst level crossings have the potential to inhibit improvements to services it seems unlikely that any proposed increase in services will be hampered to any significant level by the existence of the crossing. As Mr Pead pointed out, whilst in some instances requests to increase services cannot be accommodated, in respect of the increased services on the Wessex line these could be slotted into the timetable. Further, whilst I note NRs objectives and wider government policy I have no evidence to indicate any future proposals which might be hindered by the crossing. Nevertheless the crossing will have

the potential to inhibit improvements and although I give this element very little weight in terms of the expediency test it is a matter which should be put in the overall balance.

Noise Amenity

96. NR contend that the whistle board sounding is an arguable harm caused to the residential amenity of many. Mr Greenwood stated that the noise generated when horns are sounded had lifestyle and health implications for residents in the proximity of whistle boards and this had been identified in reports by the RSSB. It was the source of numerous complaints.

97. Mr Payne supported the closure of the crossing as this would remove the need for horns to be sounded by passing trains. In his view the horns regularly disturbed East Burton residents early morning and late at night; he was certainly disturbed by the noise. Mrs Thorpe said that the sounding of horns was intrusive and had become the source of broken sleep since the shortening of the NTQP. Inquiry document 4, correspondence from a local resident, also refers to the noise pollution generated by the blowing of horns and that their children had been woken by some of the louder horns. Another local resident, Mr Munro, also expressed concerns as to the impact of the horns on his enjoyment of his property.

98. Although few residents gave evidence to the inquiry as to the disruption caused by the sounding of horns in response to the whistle boards it is clear that residents suffer a degree of disturbance which has an adverse effect on the amenity of their property and lifestyle. The closure of the crossing will remove the need to sound horns and will therefore be of benefit to residents living in East Burton.

Retention of crossing

99. Professor Divall suggested that the annual costs of maintaining the crossing as is might be a reasonable sum to pay to retain the crossing. I note Professor Divall's submissions on the annual costs and Mr Greenwood acknowledged that costs in the region of £2000 were not high. However, to leave the crossing open would not mitigate against the risk of using the crossing. The closure of the crossing is not without cost but removes the risk to the public altogether.

Alternative proposals

100. NR have considered four options for a new path from the crossing to Bailey's Drove level crossing. However, NR have been unable to secure agreement with the affected landowners and there is insufficient land within the operational corridor to accommodate a link between the crossing and Bailey's Drove. In the circumstances such a diversion is not a viable option.

101. The OSS, whilst totally opposed to any extinguishment, asked that if it is considered that the level crossing should be closed then the section C to D should be retained. Whilst it is open to me to modify the Order accordingly the Circular cautions against the creation of a cul-de-sac. A cul-de-sac may well encourage trespass onto the closed crossing, and other land, and there is no place of popular resort in this instance that the public might wish to visit. Although the retention of the footpath will allow continued enjoyment of the footpath C to D and the surrounding land I do not think that the advantages outweigh the disadvantages.

102. It was also suggested by the OSS that if the crossing is closed then a diversion of the path from point C to Giddy Green Lane would be valuable in avoiding this section becoming a cul-de-sac. However, there is nothing before me to indicate that such a proposal could be taken forward and is therefore not a matter which I can take into consideration.

103. The RA contend that the footpath could be retained and taken into account when the land over which the footpath passes is developed. There is no certainty as to whether any developer would be prepared to make provision for the existing route, or any alternative route, in any development. As such I do not consider this to be a viable option. In any event, as accepted by the RA, this course of action is unsatisfactory as any safety risk would remain.

Health benefits/alternative transport

104. The RA, and others, argue that there is a need for a path network which encourages walking and connects communities. It is also suggested that walking should be encouraged so as to promote sustainable transport and reduce carbon emissions. I would acknowledge that there are health benefits in walking and that the Government is encouraging more sustainable forms of transport which will include walking. Whilst there will be a net loss to the network if the Order is confirmed there will remain opportunities to walk and the extinguishment of footpath 14 will not prevent access to local amenities on foot or render such access less convenient.

Heritage value

105. It is stated that public rights of way are part of our heritage and many are centuries old, the crossing has a history which deserves to be acknowledged. Whilst I note the observation there is nothing before me to indicate that the footpath is of historic origins such that this should add weight against confirmation of the Order. The crossing was established, in consequence of the construction of the railway line, as an occupation road. I do however note the name 'Darkies' Crossing/Lane/Corner refers to the name of a dray horse which hauled ale to the Seven Stars public house.

Future development of Wool

106. It is the secondary case of NR that if it is considered that the expediency test in respect of public safety terms is not made out then the overall case for expediency is well demonstrated when taking into account the increased public safety risk from the increased use of the crossing in consequence of a large housing development adjacent to the crossing.

107. The Purbeck Local Plan is currently under review and requires formal adoption; formal adoption is not expected before early 2020. However, there are no proposed modifications to policy H5 which provides for an allocation of up to 470 houses and a 65 bed care home in the vicinity of the crossing. The areas immediately adjacent to the railway line have been identified for housing and public open space. No planning applications have yet been submitted in respect of the land parcels making up the Wool H5 housing allocation although an EIA[11] Screening Option Request has been submitted to Dorset Council.

[11] Environmental Impact Assessment

108. Whilst I note the observations that development is unlikely for many years, given the inclusion in the Local Plan as an area for development it is more likely than not that development will take place in the near future. Such development may not be imminent but it is appropriate to consider the future development of the area in terms of expediency.

109. In the event of development taking place there is likely to be a marked increase in the use of the crossing. It is also likely that the user profile will change, particularly bearing in mind the potential increase in family homes in the area. There will be a consequential increase in the potential for use by vulnerable users, particularly children and younger users and a likely increase in use by dog walkers. Although I recognise that NR have made assumptions as to the change of use the risk has been calculated by NR as increasing from the current risk level of C6 (4.83E-04) (C5 (5.25E-04) (based on the census data of July 2019) to C4 (0.00297) which equates to a five fold increase on the original risk. Professor Divall acknowledged that in the event of the area being developed mitigation would be required as the crossing would be unsafe and the ALCRM score would increase.

110. I recognise that with development of the area footpath 14 could play a more important part in the rights of way network but, noting my comments in respect of the provision of a bridge, it cannot be assumed that external resources will be made available to upgrade or replace the crossing. It may also be the case that any development may increase traffic along East Burton Road and Burton Road. However, if any safety implications arise from any proposed development then measures will need to be taken to remedy the situation. I note the observation that the closure of the crossing will facilitate the development but given the Local Plan it is likely that development will take place regardless of whether or not the crossing is closed. Nevertheless as noted above any development is likely to increase the risk at the crossing.

Arrangements for ensuring that, if the Order is confirmed, any appropriate barriers and signs are erected and maintained

111. Should the Order be confirmed NR will extend the existing boundary to fully close out the crossing with palisade fencing at point B with the existing post and wire fence at point C being extended. A 'No Trespass' sign will be erected at point B and all existing signage will be removed. Upon carrying out the above works NR will remove all crossing furniture, including decking and anti-trespass boards. NR will also, subject to any direction from Dorset Council, display all appropriate signs. Accordingly the necessary arrangements have been made.

Conclusions on main issues

112. The crossing has been assessed as being high to medium risk and some considerable weight should be given to the safety of those who use or are likely to use the crossing. NR clearly has an obligation towards the safety of the public and those who work on the railway. NR have considered a number of options to make the crossing safe but none of these are reasonably practicable. Other options have been put before me but none of these will make the crossing safe or are reasonably practicable. If the Order is confirmed NR will maintain and erect suitable barriers and signs.

113. I recognise that the closure of the crossing will have an adverse effect on the rights of way network. However, the closure of the crossing will not prevent anyone from accessing the wider rights of way network or any local facilities or amenities in the area. The closure of the crossing will mean the removal of the need for trains to sound their horns when approaching the crossing. This will be of benefit to local residents who are disturbed by the noise of the horns. There will be some benefits in respect of operational efficiency.

114. Whilst other factors, as considered above, can be taken into account in determining the Order the primary considerations are those specified in section 118A of the 1980 Act set out above at paragraph 8 above. Taking all matters into consideration, although very finely balanced, I conclude that it is expedient to confirm the Order. In reaching this decision I have not had regard to the implications arising from the development of land in the vicinity of the crossing (NRs secondary case). If I were to have regard to these element then this would add further weight to the confirmation of the Order.

Other Matters

115. Concerns were raised in respect of the maintenance of ditches alongside the section of Footpath 14 A to B and the registration of the land. Representations were made in relation to the design and visual issues in respect of the footbridge near to the Ship Inn and the design of the Bailey's Drove crossing. Opposition was also raised to the development of the land over which footpath 14 passes. Whilst I note these concerns they are not matters for my consideration. The relevant issues are set out at paragraph 8 above.

116. The RA questioned why, if the crossing was deemed to be unsafe, had there not been a temporary traffic regulation order imposed on the crossing. This would appear to have been an option. However, NR explained that the temporary closure of the crossing would have hindered consultation with the local community and NR noted that there was some discernible local sentiment against closure.

117. Representations have been made in respect of comments made by the Council relating to improvements in accessibility. Whilst I note these concerns they do not have any bearing on my decision.

Conclusions

118. Having regard to these and all other matters raised at the inquiry and in the written representations I conclude that the Order should be confirmed subject to modifications.

Formal Decision

119. I confirm the Order subject to the following modifications.

- At paragraph 7 of the Order after the words '**THIS ORDER EXTINGUISHES**' insert the words '*the full width of*'.
- At Part 1 of the Schedule to the Order at line 1 delete '*From*' and insert '*The full width of the footpath from*'.

Martin Elliott

Inspector

APPEARANCES

For Dorset Council

Mr P Crowther	Solicitor

For Network Rail (The applicant)

Mr J Lopez	Of Counsel
who called	
Mr J Greenwood	
Mr S Pead	
Mr D Hajnus	

Also in support of the Order:

Mr P Payne
Ms S Thorpe
Mr V Osmond

In opposition to the Order:

Mr A Wickett	
Mrs V Palmer	
Mr D Blackmore	Statutory objector
Mr B Shepard	
Mrs D Parry	
Mr R Caudell	
Mr S Hook	
Professor C Divall	
Dr J Davis	Ramblers' Association
Mr R Holmes	Open Spaces Society

Inquiry Documents

1 Correspondence from Wool Parish Council to Planning Inspectorate (2 October 2019)
2 Correspondence from Open Spaces Society to Planning Inspectorate (10 October 2019)
3 Correspondence from Ramblers, Dorset Area Footpath Secretary (4 October 2019)
4 Email to Planning Inspectorate (8 October 2019) (redacted)
5 Census Good Practice, National Level Crossing Team July 2017 (NR1)
6 Rail Accident Report - Fatal accident at Grimston Lane footpath 23 February 2016, Report 23/2016, November 2016 (NR2)
7 Location Plan (NR3)
8 Wool Amenity Plan (NR4)
9 Photograph of Darkies Crossing (NR5)
10 Correspondence from East Burton resident to Dorset County

Council 2018 (redacted) (28 November 2018) (NR6)
11 Rail Accident Report – Fatal accident at Tibberton No. 8 footpath crossing 6 February 2019, Report 13/2019, October 2019
12 Email correspondence between Savills and Dorset Council regarding Purbeck Local Plan (15 October 2019) (NR7)
13 Statement of Mr A Wickett (16 October 2019)
14 Correspondence from Ms S Thorpe to Dorset County Council (1 December 2018)
15 Statement of Mr D Blackmore
16 Correspondence from Prof. Divall to Planning Inspectorate (3 October 2019)
17 Statement of Mr P Payne
18 Statement of Mr B Shepard
19 Statement of Mr R Caudell
20 Statement of Mrs D Parry
21 Statement of Ms S Thorpe
22 Extract of RSSB T984, Factors associated with crossing users (NR9)
23 Note of Network Rail on census dates (NR10)
24 Note of Network Rail on S118A(4)(b) 'Arrangements' (NR11)
25 Summary of Consultation Responses
26 Extract of RSSB T984 table of critical errors/violations and influencing factors against user type (NR12)
27 Correspondence of Dr R S Farr to Planning Inspectorate (9 October 2019)
28 Extracts from Crashmap (traffic accidents along East Burton Road)
29 Note of Network Rail on distances to local dog walking/recreation areas (NR13)
30 Plan of local dog walking/recreation area (NR14
31 Note of Network Rail on train speeds approaching Darkies crossing on the down line (NR15)
31 Note of Network Rail on whistle boards at Darkies crossing on the down line (NR16)
32 Purbeck Local Plan Review, extract from Dorset Council website (NR17)
33 Schedule of main modifications to Purbeck Local Plan 2 August 2019 (NR18)
34 Dorset Council Response to: Actions arising August 2019 hearings held as part of the Examination of the Purbeck Local Plan (2 October 2019) (NR19)
35 Note of Network Rail on census results at East Burton Level Crossing (NR20)
36 RSSB Operations and Management Research into the causes of pedestrian accidents at level crossings and potential solutions Appendices – Revision 1 (CD1)
37 Note by Prof. Divall on timetabled passing trains (CD2)
38 Correspondence from Open Spaces Society to Dorset Highways (April 27 2018)
39 ORR's Annual Health and Safety Report of Performance on Britain's Railways: 2015-16, July 2016 (CD3)
40 Plan of permissive path towards Police HQ at Winfrith (Ramblers 1)
41 Additional Statement of Mr R Caudell

42 Statement of Mr V Osmond
43 Closing Statement of Prof. Divall
44 Closing Statement of the Ramblers
45 Closing Statement of the Open Spaces Society
46 Closing Submissions on behalf of Network Rail including *The Ramblers Association v Secretary of State for Environment Food and Rural Affairs [2017] EWHC 716 (Admin)*

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (LEEDS TO MICKLEFIELD ENHANCEMENTS) ORDER

DOCUMENT CD.01.21.02

Appendix to Proof of Evidence of Jerry Greenwood, Head of Infrastructure Liability

On behalf of Network Rail Infrastructure Limited

Leading Health and Safety on Britain's Railway Issue 3

Date 06 February 2024

RSSB | A Better, Safer Railway

Leading Health and Safety on Britain's Railway

A strategy for working together Issue 3: April 2020

Foreword

Passenger journeys on Britain's rail network have doubled over the last 20 years. While that rise has been interrupted by the outbreak of COVID-19, a worldwide pandemic, the opportunity remains in the future to demonstrate how vital the railway is to the nation as we continue to transport vital workers and distribute essential freight.
The challenge that this brings is made more acute by the current restrictions on daily life, as well as by our usual challenges: complex timetables and limited maintenance windows, compounded by limited resources and public pressure to deliver. To overcome these challenges, and maintain our value to the nation, our industry must work collaboratively.

Britain's railway is one of the safest in the world and has continued to improve over the past 10 years. This bears testament to the great efforts made across the industry—2018/19 saw the fewest ever fatalities at level crossings and a significant fall in public fatalities, from 42 in 2017/18 to 25.

However, in some risk areas performance has deteriorated. Thirteen passengers died in 2018/19 compared to six the previous year. Seven of the 13 were fatalities at the platform-train interface. Of the public fatalities, 22 of the 25 were a result of trespassing. These remain areas of concern in which individual organisations need to collaborate to improve their, and the industry's, maturity and performance in health and safety management.

Two railway workers were killed in 2018/19 and two more in 2019/20. So, there is still much work to do in the area of workforce safety. The number of signals passed at danger without authority has also increased, with the number of incidents ranked 'potentially severe' rising from 10 to 16, and the overall severity of events rising by some 30 percentage points in the year to September 2018 against the 2006 baseline.

The rail industry has a long history of reporting and sharing information about safety events and has benefitted from the risk and evidence-based approach to safety management that this enables. There is now a need now to take a similar approach focusing on the management of health.

Resources like the Safety Risk Model, which provides an objective understanding of residual safety risk across the network, help to set strategic priorities and make sure resources are focused on the right things. System-wide safety monitoring draws attention to potential issues and provides assurance that improvement initiatives are working. This includes measures like the Precursor Indicator Model (PIM), which tracks the underlying risk from train accidents. Some of these measures—including the PIM—show that the rate of safety improvement has started to slow and, in some cases, gone into reverse in recent years. This strengthens the case for re focusing collaborative effort on those areas.

When Leading Health and Safety on Britain's Railway (LHSBR) was first produced, in 2016, it identified 12 specific risk areas. These were areas where collaboration between duty holders, and others, would be essential to deliver continued improvements in our health and safety management maturity and performance. That challenge remains. Organisations from across the industry, suppliers and buyers, must work together to design out hazards in the planning stages of all projects, from component design to infrastructure

maintenance and rebuild. Each risk group needs to create and implement its own plans to address the strategic risk areas that it can control. Working together to meet challenges not only improves health and safety, but also enhances the industry's reputation as a trusted, respected, and essential service provider to the nation.

Leadership is at the heart of all this and is vital to develop the capabilities needed to meet the challenges outlined herein. Employees at all levels need to be empowered to collaborate and deliver results more effectively and efficiently.
The purpose of this strategy is to encourage leaders to make a commitment to collaborate and align their organisations' business plans to support achieving the vision in LHSBR. As leaders and suppliers of the rail industry, we're committed to improve health and safety performance.

We know there are challenges ahead-with more change coming to our climate and demands on the system. Yet while there are increasing expectations to demonstrate value for money, our awareness of the importance of the health and wellbeing of rail colleagues must grow.

Lastly, for rail to be the mode of choice for passengers and an efficient way of moving freight, industry needs to have a common focus on collaboration. It is a key enabler for rail to have an essential positive impact on the environment and for the industry to thrive. However, although collaboration is vital, the underpinning requirements for collaboration must be explicit, the commitments articulated clearly, and benefits expressed in measurable terms.

With this in mind I welcome the endorsement of leading members of our industry and their commitment to collaboration, and providing leadership that will make its vision a reality.

Mark Phillips,
Chief Executive Officer

> I welcome this strategy and the industry doing what it does best: coming together to innovate and improve, and drive health and safety management and risk control, particularly in these challenging times.

Steve Murphy MD MTREL and Chair of SSRG

"

As Chair of the System Safety Risk Group (SSRG), I am privileged to see the hugely impressive work carried out by teams of volunteers from right across the wider industry, to lead groups focused on the key industry risks with the sole objective of making our railway healthier and safer for everyone.

However, we need to remain attentive to the risks, especially those that are increasing, and ensure we continue to tackle them diligently, and contribute to the railway's performance and long-term achievements.

I want to see new dedicated, full time teams in place to support all the excellent volunteers in the risk management groups and working groups across the railway. This will ensure their excellent work can move at the pace the industry needs, allowing us to keep up with the evolving, changing nature of our key risks.

Steve Murphy, MD MTREL and Chair of SSRG

“

I am looking to industry to go further in its understanding and management of health and safety, by understanding the risk, committing to probing investigations of health and safety incidents, and adopting and applying RM3 within businesses and the supply chain.

ORR’s challenge to duty holders aligns well with this Strategy: to support our people, manage increasing pressure on the system, and harness the opportunities of new technology and its safe design, change management and introduction.

Ian Prosser, Chief Inspector of Railways and Director, Railway Safety, ORR

“

Every one of us who work in Britain’s rail industry should be rightly proud of our safety record. This is in part because we are free to collaborate effectively despite the complexity of our structure and its commercial and competitive pressures.

By working together we can marshal data, research and expertise to understand the changes in the profile of the risk we’re facing. This means tackling risks to health such as fatigue, physical and mental health as much as traditional safety risks on the operational railway.

This refreshed strategy highlights areas where we can get the industry to make a significant step forward in both health and safety management, and it’s a step we are actively choosing to take together.

John Halsall, Managing Director Southern Region and chair of HWPG

Contents

Achieving results by working together

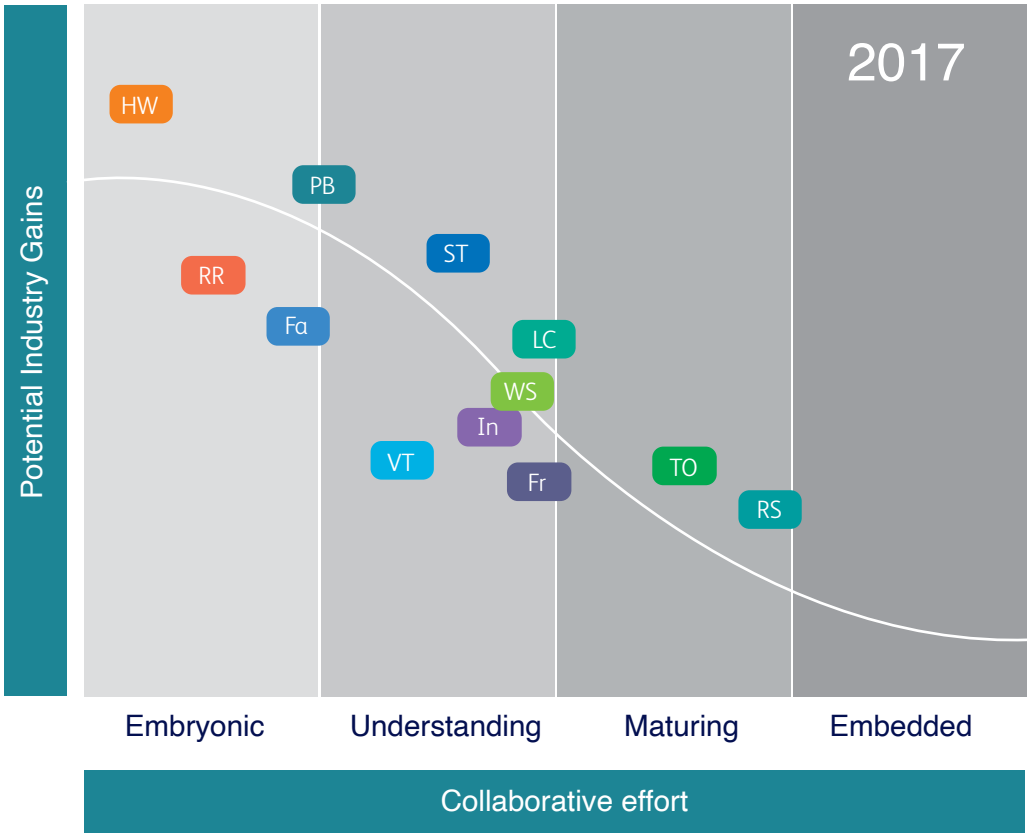
Leading Health and Safety on Britain's Railway (LHSBR) is about cross-industry collaboration. It is about how working better together can deliver continual improvement in health and safety risk management and achieve the vision set out in this strategy. When LHSBR was first issued in 2016 it focused on leadership and how health and safety issues were managed at the time. Having consulted the industry during 2019, this issue includes a succinct industry vision for each strategic risk area. It sets out the current state, and the challenges that must be addressed to achieve that vision.

RSSB has delivered this third issue of Leading Health and Safety on Britain's Railway to give a high-level view of the next steps the industry can take to make progress. Not necessarily to achieve the ultimate objective, but to take significant steps towards medium-term, measurable and achievable goals. Significant steps that will increase the maturity of how both health and safety cultures are embedded, how decisions are taken, and how safety management systems operate. The recording, analysis and use of health data lag behind that of safety data. The current pandemic, and its effects on both physical and mental health, reinforce the need for this to be addressed urgently.

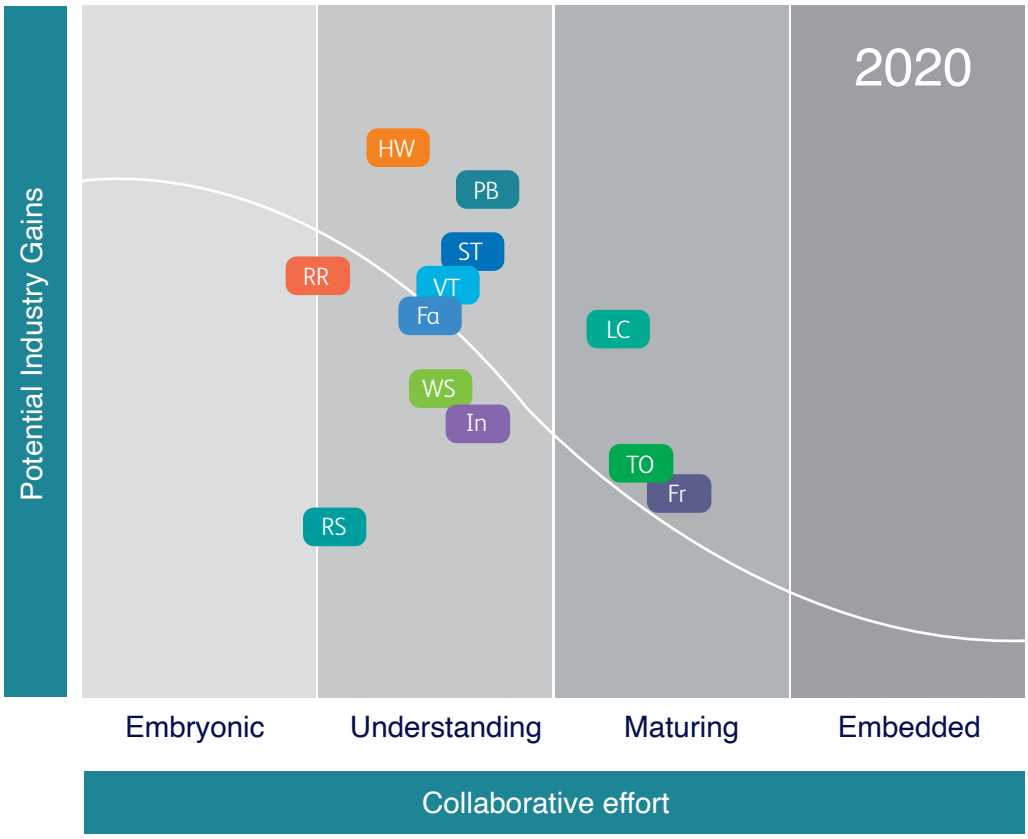
Collaboration is essential to reap the greatest benefit from this strategy. For example, while road risk may seem to be an area on its own, it is not. There are crossovers with the workforce health and wellbeing, fatigue, workforce safety, and freight areas. The industry has established national, sector and regional arrangements as part of a collaboration framework to facilitate the understanding and improvement of health and safety risk across the 12 risk and 5 capability areas identified in this strategy. At the national level there are a number of industry risk groups established to support collaboration. Details of the collaboration arrangements and the governance of this structure are detailed in the LHSBR Implementation Document.

The maturity of collaboration varies across the 12 risk areas. Figures 1 and 2 demonstrate the perceived maturity in 2017 and an update for 2020, against the potential industry gains in performance through collaboration. This assessment takes a system-wide view of maturity and, as such does not consider local variations in the extent of collaborative working. In some of the less mature areas the focus is still on establishing an improved understanding of the risk.

1: Maturity of collaboration and potential gains



2: Maturity of collaboration and potential gains



HW Health and Wellbeing

PB Public Behaviour

ST Station Operations

RR Occupational Road Risk Management

LC Level Crossings

Fa Fatigue Risk Management

WS Workforce Safety

In Infrastructure asset integrity

VT Work-related violence and trauma

TO Train Operations

Fr Freight Derailment

RS Rolling stock asset integrity

This updated strategy:

- identifies specific areas where cross-industry collaboration and action will deliver improved health and safety performance benefits
- provides a clear vision to improve health and safety in these risk areas
- sets out strategic activities to reduce harm and improve performance in each identified risk area
- provides a common view of priorities for improving capability in the industry
- gives guidance on where to find out more and how to get involved.

The strategy is primarily aimed at leaders and senior managers of railway duty holders, safety professionals, and those who participate in the collaborative group framework. Leaders and senior managers from all organisations in GB Rail should:

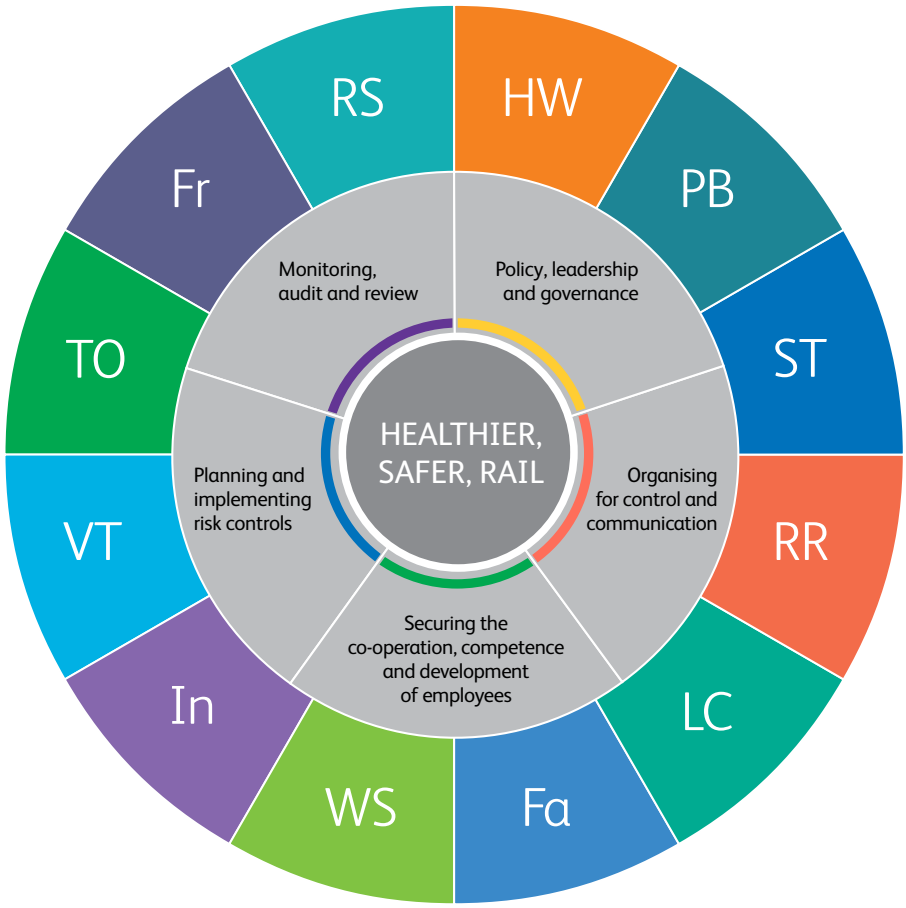
- understand, endorse, champion and communicate the strategy within their companies and the wider industry
- use the strategy to inform business, joint and sector-level strategic plans
- actively support the establishment of cross-industry arrangements to facilitate delivery of the strategy
- empower their teams to engage with and support cross-industry collaboration arrangements to address risk and improvement opportunities
- explain the purpose of the strategy to their teams, and how their work impacts on it.

Our priority risk areas

LHSBR sets out 12 priority risk areas to manage, and 5 capability areas for development. The industry has agreed that each will deliver a railway that is healthier and safer, and provides a best-in-class service to customers.

Some of the priority areas cover risk that is wholly generated by rail activity and is the responsibility of the relevant rail duty holder(s). Others cover risk that is subject to societal or individual behaviours (for example, at level crossings). While we cannot control all risks, we can try to influence and manage them.

The 12 priority risk areas are:



HW	Health and Wellbeing	WS	Workforce Safety
PB	Public Behaviour	In	Infrastructure asset integrity
ST	Station Operations	VT	Work-related violence and trauma
RR	Occupational Road Risk Management	TO	Train Operations
LC	Level Crossings	Fr	Freight Derailment
Fa	Fatigue Risk Management	RS	Rolling stock asset integrity

1 Health and Wellbeing

Vision

The railway will become an industry in which 'everybody takes responsibility for Health and Wellbeing and benefits from it'.

Where are we now?

In the three years since the LHSBR health and wellbeing section was published, the rail industry has seen these developments:

- RSSB has established an operating model and centre of excellence to deliver a roadmap of industry agreed H&W projects.
- Awareness of the social and financial impacts of wellbeing has been raised using conferences, policy and good practice information, and a cost-benefit tool.
- Support has been provided to manage health and wellbeing risks, including creation of a Health by Design knowledge hub, research into the effects of work-related violence and trauma, and risk assessments of work associated with ballast dust.
- A greater focus has been placed on the understanding and management of mental health. Research has provided an evidence base for mental health training for line managers, guidance is available for managing those affected by trauma, and the 'Time to Change' campaign has started to change attitudes towards mental health.

To achieve the vision, industry now needs to focus effort on these strategic challenges:

Strategic Challenge 1: There is inconsistent health and wellbeing engagement from railway leadership which impacts the industry's ability to implement the H&W roadmap at pace.

Strategic Activity: Provide a forum to support industry to come together to share good practice.

Strategic Activity: Industry leaders shall introduce sustainable health and wellbeing initiatives, frameworks, guidance and tools to their companies and to their supply chain.

Measures of success: Rail industry companies can demonstrate sharing of practices and embedding findings from initiatives.

Strategic Challenge 2: H&W initiatives are not consistently aligned to business needs or seamlessly integrated into the company activities.

Strategic Activity: Identify the business case criteria needed by industry leaders to make greater investment in workforce health and wellbeing.

Measures of success: Industry-wide investment in health and wellbeing management increases, and individual company management maturity levels rise.

Strategic Challenge 3: The rail industry lacks an occupational health (OH) capability that is fit for the future.

Strategic Activity: Re-design the industry's OH assurance Framework so that it delivers better assurance of employee health for rail companies.

Measures of success: The OH assurance Framework is enhanced and embedded within operators' and their OH providers' practices.

Strategic Challenge 4: We do not fully understand the occupational hygiene risk within the rail industry, which is particularly problematic considering increasingly stringent legal exposure requirements.

Strategic Activity: Collaborate to provide a clearer picture of the industry's occupational hygiene risk profile and develop strategies to tackle the key risks.

Measures of success: A clear industry profile of occupational hygiene risk is developed, and companies put management systems in place to manage the key risks.

Strategic Challenge 5: Companies do not have good quality data, or consistent evidence-based, approaches to support employee mental wellbeing.

Strategic Activity: Collect data on the prevalence of mental health conditions to inform company strategies and prioritise resources.

Strategic Activity: Provide and help embed consistent, evidence-based approaches to support the mental health priorities of industry.

Measures of success: Good quality data on mental wellbeing is available, interventions are evaluated, and good practice is embedded.

Strategic Challenge 6: Unhealthy railway environments and practices make it difficult for individuals to make healthy lifestyle choices.

Strategic Activity: Introduce a health behaviour change programme to support individuals to make healthier choices.

Strategic Activity: Communicate health behaviour change techniques to support organisations to create healthier environments for employees.

Measures of success: Companies sign up to a healthy lifestyle programme.

Strategic Challenge 7: MSDs are one of the biggest contributors to absence in the rail industry.

Strategic Activity: Design out musculoskeletal disorder (MSD) hazards in the workplace.

Strategic Activity: Develop understanding of the links between mental health and MSDs and consider the levers to reduce the incidence of these within rail.

Measures of success: Reduce work related MSD absence within rail companies.

Where to get support

To find out more about the HWPG and get involved: **https://www.rssb.co.uk/Insights-and-News/Industry-Topics/Health-and-Wellbeing/Rail-industry-collaboration-on-health-and-wellbeing**

2 Public Behaviour

Vision

To achieve a continuous, sustainable reduction in suicide and trespass incidents on Britain's railway.

Where are we now?

In the three years since the LHSBR public behaviour section was published, the rail industry has seen the introduction of the following improvements in suicide and trespass risk management:

Suicide

- Relationships with partners such as Samaritans have matured
- Training of staff in managing suicidal contacts has resulted in an increase in staff interventions
- Launch of Small Talk Saves Lives and Brew Monday campaigns to promote interventions in suicide attempts by the public
- Launch of a rail suicide prevention website
- Innovative academic research extending our understanding of suicide and the societal complexity of suicides
- Consolidation of the process to address suicide clusters
- Introduction of resources to support suicide prevention and trauma management

Trespass

- Over four million children reached through the online learning platform Learn Live
- You Vs Train Campaign, community outreach partnerships with the English Football league and Street Games
- Formation of the Trespass Risk Group and the Trespass Improvement Programme
- Launch of the industry trespass website to facilitate the sharing of good practice
- The industry Trespass risk conference has been established

To achieve the vision, industry will now need to focus effort on addressing the following strategic challenges:

Suicide

Strategic Challenge 1: Suicide is a societal problem that cannot be fully addressed by any one organisation within or outside the rail industry.

Strategic Activity: Collaboration between railway and non-railway organisations to harmonise prevention activities and develop common suicide prevention plans.

Strategic Activity: Identify locations that are particularly vulnerable to suicide and implement targeted actions to mitigate against those risks.

Measures of success: Duty holders' prevention plans are shared, that identify and include local third parties, and coherent plans are developed at a Network Rail route level.

Strategic Challenge 2: Suicide can happen anywhere on the network and few people who take their lives are known to us.

Strategic Activity: Increase the capability of front line staff and members of the public to recognise people in crisis and intervene across the network.

Strategic Activity: Progress methodologies that allow a picture of real time pre-suicidal activity on the rail network to be assessed.

Measures of success: Increasing numbers of employees trained in intervention techniques and using data captured through analysis of pre-suicidal data to influence prevention activities.

Strategic Challenge 3: Lack of awareness of support communities and the mechanisms that can help those in crisis.

Strategic Activity: Building on the success of previous campaigns such as Small Talk Saves Lives, the industry will come together to promote messages that address mental health and suicide and encourage help-seeking behaviour, among men in particular.

Measures of success: Successful campaign penetration within the key populations.

Strategic Challenge 4: Trauma after witnessing or being involved in a suicide event can be long lasting and debilitating.

Strategic Activity: Actively promote support to help individuals become psychologically resilient to these events before they occur, awareness of support mechanisms for those affected, and consideration of the impact of such events on customers is necessary.[1]

Measures of success: Front line staff awareness and take up of support increases.

Strategic Challenge 5: Approaches to reducing the appeal of the railway as a means of suicide are not fully understood.

Strategic Activity: Identify ways to reduce the appeal of the railway as a means of suicide.

Measures of success: Greater understanding of the appeal of the railway as a means of suicide allows more targeted mitigation measures to be devised and implemented at high-incidence and high-likelihood locations.

Strategic Challenge 6: Achieve a better understanding of the factors that drive individuals to take their lives on the rail network.

Strategic Activity: Undertake research that allows the profiles of those taking their lives on the rail network to be established.

Measures of success: A greater understanding of the characteristics that lead individuals to take their lives on the railway and consider how the findings may influence prevention activities.

Strategic Challenge 7: The funding structure for suicide prevention activities impacts delivery.

Strategic Activity: If suicide numbers are to reduce further on the network it is imperative that appropriate funding mechanisms are put in place to allow this to be achieved.

Measures of success: Adequate funding is agreed to support the implementation of the action plan.

[1] The Work-Related Violence and Trauma Chapter identifies key strategic activities for managing the impact of traumatic events.

Trespass

Strategic Challenge 1: There is no single, easily accessible source of trespass data, which makes it difficult to predict where trespass is most likely.

Strategic Activity: There is a need to draw together various trespass data sources into one easily accessible location, to support informed decision making around measures and action plans to mitigate trespass risks.

Measures of success: Trespass data recording is standardised and is recorded in one database that is easily accessible to those who need it. Training materials, standards and guidance are updated based on this improved understanding.

Strategic Challenge 2: Public awareness raising of the dangers of trespassing has, to date, mainly targeted youth trespassers who account for 20% of the events.

Strategic Activity: Increase awareness of the dangers of trespass to the general public, ensuring the widest possible reach through thematic campaigns to alter attitudes and behaviours, with a particular focus on hotspots.

Measures of success: Innovative methods of engaging with the general public are identified and messages are focused at and communicated to the relevant target audiences leading to behavioural and attitudinal change.

Strategic Challenge 3: There is lack of consistency in the approaches used to understand, mitigate, and respond to trespass.

Strategic Activity: Enhanced risk assessment and data analysis processes and tools to improve decision making and support the creation of more informed interventions around trespass.

Strategic Activity: Having implemented trespass mitigations, continually assess their effectiveness; and review risk assessment after later trespass events.

Measures of success: Trespass interventions are identified and prioritised using a common framework.

Strategic Challenge 4: There has been little or no major investment in innovation or technology to manage the challenge of trespass over recent years.

Strategic Activity: New technologies and processes should be investigated to predict, prevent, or deter trespass.

Measures of success: New technologies and processes that predict, prevent, or deter trespass are implemented, that do not add risk to the live operational environment.

Strategic Challenge 5: There is inconsistent co-ordination between industry and stakeholders in response to the challenges posed by trespass.

Strategic Activity: Co-operation and alignment between the rail industry and external stakeholders are increased to maximise the impact of responses to the national challenges presented by trespass.

Measures of success: A culture of co-operation is created, which has the buy-in and sustained engagement of industry and external stakeholders at all levels.

Strategic Challenge 6: Trespass is a problem that can occur anywhere on the network, or in sidings and depots.

Strategic Activity: Increase the capability of front line staff to recognise the potential for trespass and engage them in preventing trespass, including by changing societal attitudes.

Measures of success: Increase in reporting of trespass, fewer trespass related deaths, injuries and delay minutes.

Where to get support

Suicide

The industry has a number of approaches to address suicides on the network. More information can be found here:

https://railsuicideprevention.co.uk/

https://www.rssb.co.uk/Standards-and-Safety/Improving-Safety-Health--Wellbeing/Enhancing-Safety-Health--Wellbeing-Through-Collaboration/Suicide-Prevention

For advice on rail related suicide issues contact the rail industry's national suicide prevention team at **suicideprevention@raildeliverygroup.com**.

Trespass

The Trespass Risk Group monitors the effectiveness of control arrangements. It identifies and sponsors improvement opportunities, including research and relevant products and services. It learns from and promotes good practice and facilitates cooperation.

The Trespass Improvement Programme has been formed with input from BTP, ORR and other industry bodies. It provides a framework, guidance and best practice to address trespass sites, and publicity to change public behaviour.

The industry trespass website shares good practice, case studies and resources aimed at preventing trespass. It hosts resources such as the 'You vs Train' Campaign.

https://www.rssb.co.uk/Standards-and-Safety/Improving-Safety-Health--Wellbeing/Enhancing-Safety-Health--Wellbeing-Through-Collaboration/Trespass

3 Station Operations

Vision

Our focus will be on the customer's end to end journey, where collaboration increases efficiency and safe movement and reduces harm at stations, and on platforms and trains.

Where are we now?

In the three years since the LHSBR station operations section was published, the rail industry has seen these developments:

- Research projects developing guidance and solutions on train doors, dispatch, crowding, step/gaps, platform markings, and staff behaviours. Innovation in areas such as customer communication, unsafe behaviour detection in dispatch and kneeling trains.
- Enhancements to existing rail industry standards in train dispatch, platform safety, On-Train Camera Monitors for Driver Controlled Operation, and design and maintenance of station platforms.
- Implementation of tools and new approaches to understanding station operations risk. This includes the RSSB PTI Risk Assessment Tool; and the use of bowties to understand slip, trips, and falls in stations, as well as passenger risk at the platform edge.
- Safety by Design principles used on Mersey Rail and developments in simulated modelling to inform platform and station design. For example, the Siemens Sheffield Advanced Multi-model Simulator (S2AM) and the Ratesetter modelling.
- Professionalism of station management using VR (LNER and Transport for Wales) and game-based approaches (Aston University, Chiltern Railways & RSSB) to training.

To achieve the vision, industry now needs to focus effort on addressing these strategic challenges:

Strategic Challenge 1: Non-technical skills are not integrated into training for all staff who can positively influence passenger behaviour and improve operational safety performance.

Strategic Activity: Enhance the non-technical skills and knowledge of employees (on and off the train) to reduce harm and improve safe performance at stations and on platforms.

Measures of success: Duty holders demonstrate training provided to employees (on and off the train) has an increased focus on passenger and staff interactions, and use of NTS.

Strategic Challenge 2: There is an overreliance on using posters for safety messaging and less consistency in approaches to communication.

Strategic Activity: Enhance customer communications, especially safety messaging, by increasing the consistency and range of communication methods used.

Measures of success: Industry implements consistent approaches to safety messaging, using different communication methods which have a proven impact on behavioural change.

Strategic Challenge 3: Change that affects station operations is not always managed in a collaborative manner.

Strategic Activity: Improve collaboration between DFT, Network Rail, rolling stock operating companies, duty holders, train manufacturers, and other transport authorities when station operation changes are proposed.

Measures of success: Increased use of the RSSB Taking Safe Decisions model to facilitate collaboration.

Strategic Challenge 4: Only 7% of platforms conform with the platform position set out in RIS-7016-INS.[2]

Strategic Activity: Develop and implement a programme of work to reduce the size of steps and gaps across the network, which encompasses the step and gap between the train and the platform, train bodyside gaps, and intervehicle gaps.

Measures of success: DfT, Network Rail, rolling stock operating companies, duty holders, train manufacturers, and other transport authorities develop and implement a programme of work.

Strategic Challenge 5: Industry is not fully using and realising the benefits technology can bring to station operations.

Strategic Activity: Introduce new technology to improve safety and customer service in station operations.

Measures of success: Duty holders can demonstrate an increased uptake of new technology to improve safety and customer service in station operations.

Where to get support

There are many groups that support improvements to station operations. Industry is particularly encouraged to work with, or join, these groups:

- People on Trains and Stations Risk Group (PTSRG): aims to create and facilitate implementation of an industry delivery plan to achieve the station operations strategic activities: **https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/PTSRG**
- RDG Passenger Operations Safety Group (POSG): aims to brings all TOCs together to improve safety across the industry. This includes station operations: **https://www.raildeliverygroup.com/**
- Platform-Train Interface Working Group (PTIWG): supports the PTSRG-developed delivery plan. It focusses on existing and emerging risk at the platform-train interface and ways to reduce this risk: **https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/PTSRG/PTI-WG**
- PTI Good Practice Group (PTIGPG): supports the PTSRG-developed delivery plan by sharing good practice to reduce risk at the PTI, on the platform, and in the station.

[2] Rail Industry Standard (RIS-7016-INS) *Interface between station platforms, track, trains and buffer stops*

4 Occupational Road Risk

Vision

The industry working together to reduce work related road risk exposure to the workforce, passengers and the public

Where are we now?

In the three years since the LHSBR road risk section was published, the rail industry has seen the introduction of these improvements in occupational road risk management (ORRM):

- The formation of the RSSB Road Risk Group (RRG) with representatives from each of the sector/region groups, with additional representation from: ORR, Highways England, RoSPA, TfL, HS2 and Trade Unions
- A collaborative partnership between RSSB and Highways England that has delivered a 'Driving for Better Business' (DfBB) programme developed specifically for the rail industry and supply chain
- The introduction of the RSSB rail industry road risk resource centre promoting:
  - The 10 steps to effective road risk collaboration
  - The introduction of three monthly RSSB road risk safety performance reports
  - Access to the DfBB programme, with tools, guidance and case studies to help rail companies effectively manage occupational road risk

To achieve the vision industry will now need to focus effort on addressing these strategic challenges:

Strategic Challenge 1: There is not a consistent understanding of the benefits from effective occupational road risk management

Strategic Activity: Introduce a common approach to managing road risk by delivering the Driving for Better Business programme across the rail industry and supply chain.

Measures of success: The rail industry and supply chain adopt the '*Driving for Better Business*' programme.

Strategic Challenge 2: There is a lack of consistency in how rail companies assure that the supply chain is able to demonstrate legal compliance in occupational road risk management.

Strategic Activity: Development and introduction of a National Supply Chain Road Risk Accreditation scheme for the procurement of transport services.

Measures of success: Industry adoption of the scheme.

Strategic Challenge 3: The road risk safety performance data is unreliable and cannot be used to fully inform business and collaborative management decisions.

Strategic Activity: To increase the quality and completeness of reporting road traffic accident (RTA) event data into SMIS.

Strategic Activity: Research and develop processes for capturing key telematic data; to inform journey management, vehicle selection, driver behaviour, and sustainability improvement decisions.

Management

Measures of success: Increase in RTA event data reported into SMIS, Close-Call & CIRAS, and closed out by an appropriate investigation.

Strategic Challenge 4: There are currently no consistent or robust collaboration arrangements that enable sector and regional collaboration groups to share and promote road risk good practices with their rail company members.

Strategic Activity: Introduce a national network of rail company road risk champions, to work in conjunction with Highways England's DfBB representatives to support the implementation of the DfBB programme.

Strategic Activity: Introduction of sector and region collaboration arrangements to deliver LHSBR road risk collaboration improvement initiatives.

Measures of success: Rail company business plans identify resources to implement LHSBR road risk collaboration improvement initiatives.

Strategic Challenge 5: There are no existing tools to assist rail companies and collaboration groups to measure increased effectiveness in occupational road risk management.

Strategic Activity: Introduction of an approach to measure rail company compliance with legal requirements.

Strategic Activity: Introduction of an approach to assess increased effectiveness of occupational road risk management.

Measures of success: Published rail industry ORRM maturity evaluation.

Where to get support

- The Road Risk Group (RRG) is a cross-industry collaboration group with representatives from each industry sector. The RRG group monitors road risk safety performance, highlights emerging issues and, with support from RSSB, sponsors LHSBR road risk collaboration improvement programmes: **https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/RRG**
- RSSB rail industry road risk resource centre provides information on how to get involved with road risk collaboration, and access to RSSB road risk safety performance reports and the DfBB 7 steps to excellence: **https://www.rssb.co.uk/Standards-and-Safety/Improving-Safety-Health--Wellbeing/Enhancing-Safety-Health--Wellbeing-Through-Collaboration/Rail-Industry-Road-Risk-Resource-Centre**
- Highways England's Driving for Better Business website provides a range of work related road risk tools, guidance and case studies, including an 'occupational road risk management assessment process': **https://www.drivingforbetterbusiness.com**
- Royal Society for the Prevention of Accidents (RoSPA) provides a range of guidance and tools specifically designed to help rail companies with the 'management of occupational road risk': **https://www.rospa.com/Occupational-Safety/Our-Projects/MoRR**

5 Level Crossings

Vision

The industry working together to continually improve level crossing risk management.

Where are we now?

Level crossings are sited where roads and paths cross the railway. So, the potential for collisions between users and trains is ever present. While Network Rail leads on level crossing management for the railway, there is a large community of public highway owners and users that has an influence on level crossing risk. Over recent years significant effort has been put into reducing the risk arising from level crossing use, and we have one of the best safety records in Europe. This has included closures, upgrades, implementation of new technologies such as automated full barrier crossings, improvements to the risk assessment process and educational campaigns like *Stay Safe with Thomas*.

Network Rail is committed to making the railway a safer place and has developed its own long-term strategy '*Enhancing Level Crossing Safety 2019 -2029*'. The principles set out in the strategy reflect a vision of continuous improvement and ultimately zero harm from level crossings by removal, enhancement, education, and enforcement.

Level crossing incorrect use is addressed through education and enforcement. BTP leads enforcement and there is a need for Network Rail and BTP to continue to work together to deploy resources in the most cost-effective way.

To achieve the vision industry will now need to focus effort on addressing these strategic challenges:

Strategic Challenge 1: There are around 6000 level crossings on GB railways and no two are the same. Each needs a unique risk assessment to inform decisions around its management.

Strategic Activity: Improve the quality of risk assessments undertaken by level crossing managers.

Strategic Activity: Improve the number and quality of reports of near miss and close call incidents at level crossings.

Measure of success: Provision of improved evidence in decision making in the deployment of risk reduction measures.

Strategic Challenge 2: Closing and upgrading level crossings has the most impact on the underlying risk however there are many obstacles in achieving this.

Strategic Activity: Improve stakeholder management to make better and more informed cases for crossing closures.

Strategic Activity: Research and develop emerging technologies that will lead to cost effective level crossing upgrades.

Measure of success: Level crossing closures and approval of new level crossing technologies.

Strategic Challenge 3: Many level crossing users are unaware of the risks associated with level crossings and how to use them properly.

Strategic Activity: Collaborate to deliver consistent messages to the public in relation to level crossings and related topics such as trespass and security.

Strategic Activity: Design and implement educational material that targets 'last mile' delivery drivers.

Measure of success: Reduction in public behaviour related incidents around level crossings.

Strategic Challenge 4: Incorrect use of level crossings is a significant risk contributor; so, enforcement and publicity of enforcement action can act as a deterrent.

Strategic Activity: Improve provision of information to BTP to enable more targeted enforcement.

Strategic Activity: Publicise successful prosecutions.

Measure of success: Increased enforcement, prosecutions and a reduction in incorrect use by road vehicles.

Where to get support

- The Level Crossing Strategy Group oversees the delivery of this chapter of the strategy and is a cross-industry group dedicated to discussing the topic.
- The RSSB Level Crossing Digest (available to members only), provides a history of level crossings and uses rail accidents to explain developments in level crossing safety: **https://www.sparkrail.org/Lists/Records_StaffMembers/DispForm.aspx?ID=950**
- Network Rail provides information relating to its management of level crossings here: **https://www.networkrail.co.uk/running-the-railway/looking-after-the-railway/level-crossings/**

6 Fatigue Risk Management

Vision

Work practices that manage fatigue and reduce the associated health and safety risk are embedded in the industry. All aspects of work, including travel, are designed so that fatigue risk is minimised, and everyone understands their role in managing fatigue.

Where are we now?

In the three years since the LHSBR fatigue chapter was published, the rail industry has seen these improvements:

- Sector-based (passenger, freight and infrastructure) fatigue working groups have been formed to develop and share good practices in fatigue risk management, coordinated and supported by an industry Champion and Sponsor.
- The Freight Fatigue Code of Practice has been published.
- Network Rail has established a Fatigue Reduction Programme.
- The Rail Industry Fatigue Survey results have been published, giving a snapshot of staff perceptions and experiences of fatigue and fatigue risk management.
- The Fatigue and Alertness topic area on **rssb.co.uk** has been launched as a one-stop shop for resources on fatigue risk management and to share good practices.

This has built understanding and put in place a framework which will enable the industry's approach to fatigue to mature in the coming years.

To fully achieve its vision, the industry will now need to focus effort on addressing the following strategic challenges:

Strategic Challenge 1: The industry is progressing its use of high-level principles (fatigue factors) and tools to risk assess rosters for fatigue. But there is still considerable reliance on the out-dated 'Hidden' requirements to manage fatigue. New good practices are often not applied to actual working patterns, overtime and on-call work.

Strategic Activity: Duty holders, contractors, trades unions and researchers will collaborate to enable companies to develop work patterns that minimise fatigue risk and give appropriate consideration to needs such as sleep and rest.

Strategic Activity: Duty holders will, in contracting and planning processes, adopt good practice principles for the design of working patterns. These will include the consideration of fatigue risk from work-related road driving, overtime and 'on-call' arrangements.

Strategic Activity: Work specifications and local 'terms and conditions' will be reviewed with the objective of aligning them with fatigue risk management good practice principles.

Measure of success: Fatigue risk management is integrated into contracting, planning, scheduling and real time operations. Base and actual working patterns are developed to minimise fatigue and meet needs for sleep and rest.

Strategic Challenge 2: Working hours aren't always accurately recorded, particularly for those who work across multiple companies or industries. As a result, it is difficult to assess and control fatigue risk associated with excessive working hours.

Strategic Activity: The industry will develop mechanisms to reliably review and, where it affects fatigue, control actual hours worked. It will take reasonably practicable steps to understand and consider the work that staff may carry out for other organisations and in other industries.

Strategic Activity: Cross-industry collaboration will reduce, and where possible remove, practices that incentivise or tolerate excessive working hours.

Measure of success: The industry has confidence in the accuracy of its data on working hours. Organisations have plans to control the risk indicated by data; an educated workforce participates to control working hours.

Strategic Challenge 3: Fatigue and sleep are not always fully integrated into fitness for duty checks or declarations. Reporting systems are under-used and principles for responding to fatigue reports are not established.

Strategic Activity: The industry will collaborate to develop common guidance for considering fatigue within processes to assess and declare fitness for duty at the beginning of, and during, each duty period (including travel). Organisations will use this guidance to develop easy, accessible, and fair processes.

Measure of success: Staff who are educated and trained in fatigue management proactively report fatigue concerns within a transparent and fair culture. They are supported by their organisation and its senior management to consider fatigue in fitness for duty decisions. Actual reports of fatigue increase to align more closely with the findings of industry surveys.

Strategic Challenge 4: Information on fatigue is available to staff but it is under-used.

Strategic Activity: The industry will share good practice and agree the best approaches to training and development on fatigue.

Strategic Activity: Duty holders will deliver training and education that supports employees to fulfil their personal responsibility to manage fatigue. Tailored training will be developed and delivered to those who have responsibilities under a fatigue risk management system, notably rostering personnel.

Measure of success: Employees have received the training and education they need to understand fatigue risks and to support them to fulfil their responsibilities under a fatigue risk management system. They participate to manage fatigue risk because they believe it is the right thing to do and are fully supported by their organisation.

Strategic Challenge 5: Fatigue-related data has quality problems and does not give a clear indication of the health of a Fatigue Risk Management System. There is no cross-industry agreement on what data should be collected and shared, or how.

Strategic Activity: The industry will collaborate to develop and share good practices on gathering and using data from day-to-day activities—such as sleep disorders, the role of fatigue in incidents; and from fatigue reports.

Strategic Activity: The industry will explore technologies that aid fatigue data collection and collaborate to develop appropriate leading and lagging indicators of fatigue risk at company and industry levels.

Strategic Activity: Duty holders will develop and implement fatigue risk management systems. These will be underpinned by fatigue risk management plans which promote continuous improvement.

Measure of success: Organisations in the rail industry gather reliable data from their operations. They use this to measure their fatigue risk management maturity and improve risk controls. A core set of leading and lagging indicators is shared at an industry forum and used to define collaborative activities.

Where to get support

- Health and Wellbeing Policy Group oversees the delivery of this chapter of the strategy: **https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Health-and-Wellbeing/HWPG**
- The industry's Fatigue Champion co-ordinates the activities of the Train Operating Companies Fatigue Working Group, the ISLG Fatigue Working Group and the NFSG Fatigue Subgroup: **https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/ISLG**

  https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/NFSG
- RSSB Fatigue and alertness webpages bring together a wide range of guidance and tools on managing fatigue. The resources are displayed by role, covering those that are relevant to all staff, those for planners and rostering staff, supervisors and line managers, incident investigators, and those who are setting up and running Fatigue Risk Management Systems: **https://www.rssb.co.uk/Insights-and-News/Industry-Topics/Fatigue--Alertness**
- You can find the ORR guidance on managing fatigue, including the legal requirements, on its Working patterns-fatigue webpage: **https://orr.gov.uk/rail/health-and-safety/health-and-safety-strategy/working-patterns-fatigue**

7 Workforce Safety

Vision

To achieve full collaboration to reduce workforce harm on Britain's railway.

Workforce safety is a wide term for a wide topic. Many aspects of it are covered elsewhere, for example in the workforce assaults and trauma, station operations and road risk chapters. This chapter, however, focuses on two significant areas of workforce safety not covered elsewhere: infrastructure worker safety, and yards, depots and sidings safety.

Where are we now?

Infrastructure worker safety

In the three years since the LHSBR workforce safety section was published, the rail industry has seen the introduction of these improvements in infrastructure safety management:

- A Network Rail Workforce Safety Task Force has been formed to target track worker safety. This will be a partnership with all key industry players and will accelerate the associated Near Miss Reduction Programme (NMRP).
- A sector-wide survey on pressure in the workplace was undertaken, which highlighted that pressure made some exert more effort, ask questions and think on their feet. But it also had a detrimental effect and made others lose focus, cut corners and make mistakes. It also related sleepless nights, headaches and sickness, which made some more aggressive, impatient and irritable.
- A study of the protection of staff in line blockages was sponsored by Infrastructure Strategy Leadership Group. The resulting report was fed into both the NMRP and RAIB's class investigation into factors affecting safety-critical human performance in signalling.
- Introduction of new technology that provides additional or alternative warning and protection for those working on the track.
- Roll-out of Network Rail's Safety Hour programme and Think RISK initiative to encourage front line workers to discuss safety issues and identify and manage risk more effectively.

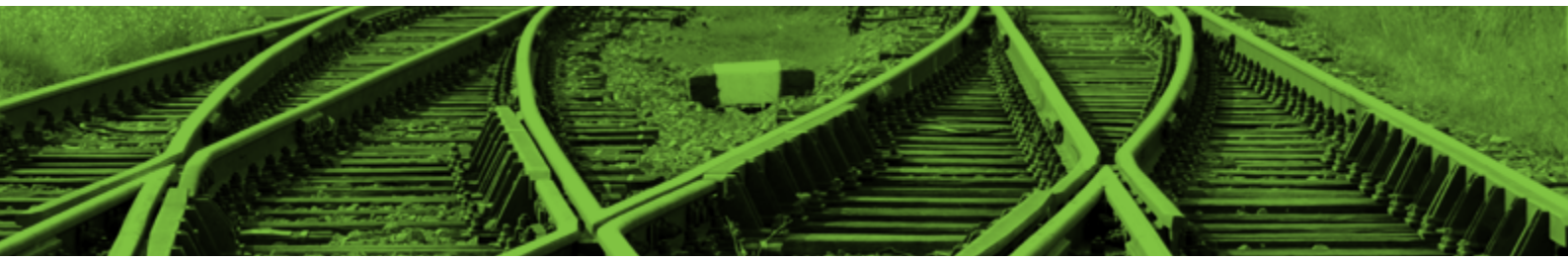
To achieve the vision, industry will now need to focus effort on addressing these strategic challenges:

Strategic Challenge 1: There is a lack of clarity in roles and responsibilities, developing and maintaining competence, and safety culture among trackside workers and managers.

Strategic Activity: Develop evidence-based competence management systems and improve clarity on roles and responsibilities.

Measure of success: Successful introduction of the new Person in Charge role. Fewer incidents with culture, competence or clarity of roles and responsibilities in the causal chain.

Measure of success: An enhanced Sentinel system that better tracks competence and supports an evidence-based approach for matching supply to demand.



Strategic Challenge 2: There is inconsistency around planning and implementing safe systems of work with a high level of protection.

Strategic Activity: Support planners by providing better information to improve protection system design.

Strategic Activity: Enhance safe work packs to be risk-based and easier to use.

Strategic Activity: Consider maintenance and maintainability in a more integrated approach to franchising and timetabling and continue move to predict-and-prevent rather than reactive maintenance.

Measure of success: More usable systems for planning and a more intelligent process for understanding where and when to grant line blocks and possessions. A more transparent and effective system for planning track access and safe systems of work.

Strategic Challenge 3: Insufficient use is being made of digital technology in reducing the risk to those working on or about the track.

Strategic Activity: Design and develop new protection and warning systems to warn workers of approaching trains and provide additional protection in line blockages.

Strategic Activity: Improve how site access is planned and monitored by enabling digital sign-in at access points.

Measure of success: Risk-based roll-out of new technology to improve track worker safety. Reduction in near misses between trains and track workers. Fewer incidents in which access point issues result in a loss of safety or productivity.

Strategic Challenge 4: Management has limited visibility of the risk to infrastructure workers because of deficiencies in monitoring, supervision, and assurance.

Strategic Activity: Improve the consistency of investigations and how learning from them is recorded, valued and shared.

Strategic Activity: Develop better track worker safety metrics, including close calls, with better information on losses of controlled separation.

Strategic Activity: Introduce leading indicators, including exposure metrics such as the level of protection achieved, to track and influence behaviours and drive a sustained approach to improving safety and productivity.

Measure of success: Richer information on infrastructure worker safety helps to prioritise improvement effort, make the business case for improvement initiatives, and track their impact. Measurable progress in phasing out the use of unassisted lookouts where other options exist.

Strategic Challenge 5: Collaboration in this sector has often been found to be wanting.

Strategic Activity: Strike the right balance between sharing local innovation and adopting industry best practice.

Measure of success: Industry sharing and take-up of best practices demonstrably increases.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Depot safety

Operators and maintainers of rail vehicles manage risk in their depots. Accidents in depots are reported and shared via SMIS by train operators but not by other organisations that carry out train care and maintenance.

To achieve the overall vision, industry will now need to focus effort on addressing these strategic challenges:

Strategic Challenge 1: There is no clear industry-wide picture of risk and safety performance in depots.

Strategic Activity: Improve industry-wide understanding of risk in depots by improving the quality of accident and incident information.

Strategic Activity: Improve the sharing of experience and best practice to understand and manage the operational risks and mitigation measures in depots.

Measure of success: Improvements in reporting levels and increased understanding and activity on depot safety.

Where to get support

Infrastructure worker safety

- ISLG is an RSSB-supported cross-industry collaboration group with representatives from the contractor community. Part of its remit is to establish and implement arrangements to address the 'duty of cooperation' across the mainline and non-mainline rail networks: **https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/ISLG**
- RSSB rail industry workforce safety resource centre provides information on the strategies, tools, and other resources pertinent to workforce safety: **https://www.rssb.co.uk/RSSB-and-the-rail-industry/Products-and-Services/Workforce-safety**
- Network Rail's Safety Central website provides a range of health and safety materials, including safety alerts, briefing notes and videos: **https://safety.networkrail.co.uk/**

Yards, depots and sidings safety

- TARG is an RSSB-supported cross-industry collaboration group with representatives from passenger train operators: **https://www.rssb.co.uk/en/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/TARG**
- Rail Freight Operators Group is an RSSB-supported collaborative group that oversees rail freight operational safety and standards: **https://www.rssb.co.uk/en/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/NFSG/RFOG**

8 Infrastructure asset integrity

Vision

Stakeholders in the industry and supply chain work effectively together to minimise the incidence of unsafe failures of infrastructure assets, and provide transparent assurance that this has been achieved across integrated systems.

Where are we now?

The integrity of infrastructure assets is the responsibility infrastructure managers (IM) and the relevant parts of the supply chain. Cross-industry collaboration on matters related to infrastructure asset risk had been assigned to the Train Accident Risk Group (TARG) but will now be driven by the Asset Integrity Group (AIG).

In the three years since the LHSBR infrastructure asset integrity section was first published, the rail industry has seen the introduction of some improvements in the collaborative management of infrastructure asset risk, including:

- New rules for Emergency Special Working which allow trains to be moved more quickly and more safely following a major signalling failure.
- Introduction of passenger fleets equipped with unattended asset monitoring equipment. These include Crossrail and Thameslink EMUs (electric multiple-unit) in London and Inter City Express Trains for the Great Western and East Coast main lines.
- Formation of the Vehicle Introduction forum which enables collaborative discussions between the infrastructure manager and parties introducing new trains.

To achieve the vision industry will now need to focus effort on addressing these strategic challenges:

Strategic Challenge 1: There is inconsistent understanding about the key safety requirements for infrastructure assets in an integrated operational system.

Strategic Activity: Promote understanding of the key safety requirements of infrastructure assets as part of an integrated operational system.

Measure of success: Demonstrable improvement in levels of understanding of key stakeholders. Enhanced processes and plans to develop appropriate competence for all stakeholders to enable effective and safe procurement, build, operation and maintenance of infrastructure assets.

Strategic Challenge 2: There is insufficient collaboration across industry to report and address emergent hazards and risks associated with infrastructure resilience and integrity at the interfaces with rolling stock assets.

Strategic Activity: Enhance collaboration across the supply chain to reduce the risks associated with the failure of infrastructure assets and their impact on interfacing systems and subsystems; improve operational performance.

Strategic Activity: AIG to identify the key activities and areas for collaboration on infrastructure asset risk which have the potential to deliver the most benefit to industry.

Measure of success: Define and deliver a fit for purpose integrated defect reporting and corrective action system. Information on asset condition is shared with operators and other infrastructure managers, ensuring that key safety functions and interfaces are covered.

Measure of success: Develop a prioritised roadmap of collaborative activities for industry stakeholders to manage infrastructure asset risk.

Measure of success: Significantly improved behaviours and supporting collaborative processes for assuring a high level of asset integrity and resilience, including for software-based, safety critical and safety related trackside systems.

Strategic Challenge 3: The processes for providing safety assurance on critical infrastructure assets, their fitness for use, and their limit-state conditions are poorly understood and/or inconsistently applied.

Strategic Activity: Develop standardised and common methods and capabilities to provide better assurance for the safe use and continued performance of infrastructure assets, including at interfaces with low-high integrity systems.

Measure of success: Introduce suitable and cost-effective processes and/or tools to increase transparency and sharing of safety assurance cases for infrastructure assets and applications. There is evidence of greater visibility, assurance and trust among all stakeholders.

Measure of success: Clear descriptions are published of key assurance roles and activities in the infrastructure asset approvals process. Especially the key statutory assurance role played by the infrastructure manager.

Measure of success: The industry skills base is enhanced to enable the safe interrogation of integrated trackside and train software systems. To include root-cause analysis and decision support for executing corrective actions across the supply chain.

Strategic Challenge 4: Operators and suppliers need continued and ongoing assurance that consistent collaboration will be maintained at the route and regional levels, including for the recording and reporting of safety and performance data.

Strategic Activity: Advance and closely monitor the effectiveness of collaboration in implementing the requirements published in railway industry standards and guidance.

Measure of success: OPSRAM and TOSG are established and working to ensure industry conformance, and to report on the effectiveness of collaboration during the transition and following devolution.

Where to get support

The Asset Integrity Group (AIG) will become the group to oversee the development of this area, and the cross-industry group dedicated to leading collaborative activity on the topic.

- Network Rail has an asset management policy and an asset management strategy. These define the key principles and requirements Network Rail applies to assets and set out the key areas of improvement needed to support excellence in asset management: **https://www.networkrail.co.uk/running-the-railway/looking-after-the-railway/asset-management/**
- Network Rail has a geotechnical strategy which articulates its priorities and key activities for long-term safety improvement: **https://cdn.networkrail.co.uk/wp-content/uploads/2018/07/Earthworks-Technical-Strategy.pdf**
- Network Rail's delivery plan for CP6 includes details of the Intelligent Infrastructure programme of work: **https://www.networkrail.co.uk/who-we-are/publications-and-resources/our-delivery-plan-for-2019-2024/#downloadall**
- RSSB publishes the Precursor Indicator Model each reporting period. This includes data-driven indications of how the train accident risk associated with track, earthworks signalling, and structures might be changing: **https://www.rssb.co.uk/en/Standards-and-Safety/Tools--Resources/Rail-Risk-Toolkit/Precursor-Indicator-Model**
- RSSB has published resources designed to help understand Emergency Special Working: **https://www.rssb.co.uk/en/Insights-and-News/Industry-Topics/Peformance/Emergency-Special-Working**


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9 Work-related violence and

Vision

Work-related violence continually reduces as a result of staff training, and appropriate aftercare is consistent and available to all who need it.

Where are we now?

In the three years since the LHSBR work-related violence and trauma chapter was published, the rail industry has seen these improvements:

- A cross-industry strategic police and partners group has been established to set out national best practice and lead decision making body in work-related violence (WRV).
- A standardised definition of WRV has been agreed and is being adopted by industry.
- A standardised pledge to staff affected by WRV has been developed.
- BTP provide quarterly reports to industry on reported WRV.
- RSSB's survey on WRV has been published, giving a snapshot of its prevalence.
- RSSB has published guidance and a supporting toolbox on responding to potentially traumatic incidents.
- An evaluation of body worn cameras has been undertaken.

To fully achieve its vision, the industry will now need to focus effort on addressing these strategic challenges:

Strategic Challenge 1: Data on WRV and trauma are inconsistently gathered and reported; this undermines their capacity to support risk management and interventions.

Strategic Activity: Stakeholders will develop mechanisms to improve reporting, data sharing, and data quality.

Strategic Activity: New technologies to improve reporting will be researched.

Strategic Activity: Companies will use data to complete risk assessments that identify hotspots and inform interventions.

Measures of success: Incidents of WRV and trauma are reliably recoded with data quality assured across the industry. Companies use data to assess and manage risk.

Strategic Challenge 2: While work-related violence and other traumatic events should never be 'part of the job', recruitment and onboarding processes do not adequately equip and prepare staff to manage risk.

Strategic Activity: Recruitment processes will outline the nature of the work to prospective employees, including the potential for physical and psychological hazards that may be foreseeable.

Strategic Activity: Competency management systems will include evidence-based training for managing foreseeable WRV and other traumatic events.

Measures of success: Staff are aware of the nature of their work and prepared using training that is evaluated and embedded in competency management systems.

trauma

Strategic Challenge 3: The physical environment influences emotional states and behaviour. Good workplace design plays a key role in preventing and reducing the impact of incidents. Insufficient evidenced-based environmental controls have been identified and adopted.

Strategic Activity: Platform planning, design and management will consider people-environment factors and psychosocial impact.

Strategic Activity: Strategies for improving passenger information, especially during disruption, will be considered as a mechanism for reducing work-related violence.

Strategic Activity: Body-worn cameras will be rolled out along with associated training, following consideration of local operational requirements and risk assessments.

Measures of success: Psychosocial factors and environmental controls for WRV and trauma are evaluated and considered as part of the design process.

Measures of success: Strategies to improve passenger information during disruption are developed and implemented to reduce WRV and trauma.

Measures of success: Body-worn cameras and associated training are rolled out strategically across industry.

Strategic Challenge 4: Workplace policies and practices can increase the risk of work-related violence and other traumatic events. The effectiveness of organisational policies and practices are not systematically evaluated, and good practice shared.

Strategic Activity: The effectiveness of company policies and supporting procedural documents in managing WRV and trauma are evaluated. Good practice for mitigating the impact of work-related violence and trauma before, during and after incidents is shared.

Strategic Activity: Policies and procedures for managing psychosocial risk will dovetail with other crisis management and business continuity policies, lone working policies, and other care and support systems.

Measures of success: Company policies and procedures align with good practice guidance, including RSSB's Guidance on Responding to Potentially Traumatic Incidents.

Strategic Challenge 5: Chain-of-care and post-event support is inconsistent with industry guidance at an individual and organisational level.

Strategic Activity: Companies to review chain-of-care and post-event support to ensure alignment with RSSB's Guidance for Responding to Potentially Traumatic Incidents.

Strategic Activity: Managers and peer supporters will be trained to provide post-event support.


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Platforms 1-4,
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Strategic Activity: Companies will develop accessible referral pathways for specialist psychological intervention post-event.

Strategic Activity: Staff affected by work-related violence to be given reasonable release to provide statements to BTP and, if required, to attend court.

Measures of success: There is evidence that chain-of-care and post-event support has been reviewed and updated appropriately. Managers and peer supporters are competent in post-event support, and there is an increase in staff providing statements.

Where to get support

RSSB's website provides a range of resources on trauma support, including guidance, templates, and other materials:
https://www.rssb.co.uk/Insights-and-News/Industry-Topics/Health-and-Wellbeing/Mental-wellbeing/Responding-to-traumatic-incidents-in-rail

These groups collaboratively identify and disseminate good practice relevant to work-related violence and trauma:

- The Work-Related Violence Strategic Group sets out the desired national best practice and is the lead decision making body in the area of work-related violence. The group reports to the RDG Policing and Security Group.
- The Mental Wellbeing Subgroup manages the mental wellbeing components in the health and wellbeing roadmap. This includes the psychosocial consequences of work-related violence and other traumatic events.
  The group reports into the Health and Wellbeing Policy Group:
  https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Health-and-Wellbeing/HWPG
- The People on Trains and Stations Risk Group looks for new ways to reduce the risk associated with station operations:
  https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/PTSRG
- The Suicide Prevention Duty Holders' Group aims to reduce the potential for suicide on the rail network, the impact of suicide events on staff and customers. These efforts are driven through trauma management and support, and disruption and delay caused by fatalities:
  https://www.rssb.co.uk/Standards-and-Safety/Improving-Safety-Health--Wellbeing/Enhancing-Safety-Health--Wellbeing-Through-Collaboration

10 Train Operations

Vision

The operation of trains sees a continuous, sustainable reduction in risk.

Where are we now?

In the three years since the LHSBR train operations section was published, the rail industry has seen the introduction of these improvements in train operations risk management:

- Launch of the Signals Passed at Danger (SPADs) Risk Reduction Strategy
- New requirements for defective on-train equipment, that reduce early train termination with no significant effect on safety risk
- Launch of the Red Aspect Approach to Signals Toolkit (RAATS)
- Publication of the sixth edition of the Low Adhesion Manual
- Improved collaboration at the route and national level
- Publication of tools to help manage train driver cognitive underload
- Publication of the Safety Critical Communications Manual
- Improved functionality in SMIS for reporting the causes of safety events

To achieve the vision, industry will now need to focus effort on addressing these strategic challenges:

Strategic Challenge 1: There is inconsistency across the industry in how SPAD risk is managed.

Strategic Activity: Share cross-industry good practice, initiatives and activities that have positively impacted on SPAD risk management.

Measure of success: An effective SPAD strategy is developed, embedded and used within the industry to manage and reduce the risk from SPADs.

Strategic Challenge 2: The industry doesn't fully understand the context in which signals are approached at danger and where the likelihood of a SPAD is greatest.

Strategic Activity: Maintain and develop the Red Aspect Approaches to Signals (RAATS) toolkit.

Strategic Activity: Develop the Red Aspect Approaches by Train Service (RABYTS) extension to RAATS.

Measure of success: The industry is using RAATS and RABYTS information to normalise SPADs and better understand which signals are most at risk from a SPAD. More targeted intervention measures are being put in place.

Strategic Challenge 3: Currently the industry doesn't have a detailed migration strategy for how existing and novel train protection solutions should be implemented over the next 50 years.

Strategic Activity: Novel train protection solutions will be evaluated along with a review of how the existing Train Protection and Warning System (TPWS) is applied, to determine an optimal train protection strategy that facilitates the roll-out of European Train Control System (ETCS).

Measure of success: An industry train protection strategy is developed and there is a clear implementation path to fitting ETCS where applicable, and alternative solutions where not.

Strategic Challenge 4: The risk from overspeeding and the effectiveness of controls and mitigations are not fully understood.

Strategic Activity: Understand the hazard of trains 'going too fast', the associated risks, and the effectiveness of related controls.

Measure of success: Production of an industry-wide strategy to improve the management of trains overspeeding.

Strategic Challenge 5: Safety critical communications continue to be a significant factor in incidents.

Strategic Activity: Develop, promote, and monitor the uptake of an industry-wide safety critical communications strategy, based on the Safety Critical Communications Manual.

Measure of success: Launch and embedding of a safety critical communications strategy.

Strategic Challenge 6: There is inconsistent collaboration in managing train accident risk at the route and regional levels.

Strategic Activity: Encourage and monitor collaboration and implementation of the requirements published in RIS 3704 TOM.

Measure of success: Local operation safety groups are established and working in line with RIS 3704 TOM.

Where to get support

- TARG is an RSSB-supported cross-industry collaboration group overseeing activity relating to train accident risk: **https://www.rssb.co.uk/en/Learn-and-Connect/ Groups-and-Committees/Safety/SSRG/TARG**
- The Adhesion Working Group has published a low adhesion manual. It documents best practice for managing adhesion on the mainline railway. It is available from the Rail Delivery Group's website: **https://www.raildeliverygroup.com/component/arkhive/file/39-publications/469773735-2018-01-managing-low-adhesion-ed6-0-pdf.html?Itemid=101**
- RSSB has launched the SPAD management good practice guide, designed to make the next step change in reducing and managing SPAD risk: **https://www.rssb.co.uk/Insights-and-News/Industry-Topics/SPAD-Good-practice-guide**
- The Precursor Indicator Model, published each period, provides data-driven indications of how train accident risk might be changing: **https://www.rssb.co.uk/en/Standards-and-Safety/Tools--Resources/Rail-Risk-Toolkit/Precursor-Indicator-Model**
- The Red Aspect Approaches to Signals (RAATS) toolkit is designed to estimate the number of times a signal is approached at red. It provides a breakdown of the different types of approaches and considers factors such as the train type, the time of day and day of week: **https://catalogues.rssb.co.uk/safety-risk-model/raats-toolkit**
- The Cognitive Underload Toolbox, to help drivers manage the risks of cognitive underload: **https://www.rssb.co.uk/en/Standards-and-Safety/Improving-Safety-Health--Wellbeing/Understanding-Human-Factors/The-underload-toolbox**

11 Freight Derailment

Vision

The risk relating to freight derailments will continue to reduce.

Where are we now?

Freight is a wide term for a wide topic. This risk area focusses on freight derailment. Many aspects of freight risk are covered elsewhere in priority areas such as the Fatigue, Trespass, Workforce Safety and Road Risk chapters.

In the three years since the LHSBR freight chapter was published, the freight sector has implemented these improvements:

- There is improved collaboration between infrastructure manager, freight operating companies and their customers.
- A rail freight project charter and integrated freight safety plan have been developed and its progress is regularly reviewed.
- Development of a freight derailment bowtie analysis and quantified risk analysis.
- Wheel Impact Load Detection (WILD) reports on offset loads are being used in collaboration between Network Rail, freight operating companies, and major bulk loading customers, to reduce the risk of freight derailment.
- In collaboration with other stakeholders, the Cross-Industry Group on Preventing Freight Derailment Prevention (XIFDPG) has published a code of practice on bulk loading.
- Sharing best practice in loading scrap metal containers has virtually eliminated end-to-end offset loads.

To achieve the vision industry will now need to focus effort on addressing these strategic challenges:

Strategic Challenge 1: The railway doesn't always have control over the loading of wagons that it transports.

Strategic Activity: With our customers, develop approaches to ensure vehicles and wagons are loaded in compliance with loading standards.

Measure of success: A reduction in the number of vehicles and wagons that are not loaded in compliance with the loading standards.

Strategic Challenge 2: There is no single, easily accessible or reliable source of data that allows easy identification of wagons that are unevenly loaded.

Strategic Activity: Development of an approach to link WILD activations with specific vehicles and wagons, to reduce offset load risks relative to derailment.

Measure of success: A single source of data that reliably identifies unevenly loaded wagons.

Strategic Challenge 3: Currently industry has difficulty in measuring track twist at low speed, particularly at crossovers.

Strategic Activity: Develop more effective approaches to monitoring dynamic track twist.

Measure of success: An efficient way to identify track twist at crossovers has been developed.

Strategic Challenge 4: There is lack of understanding concerning the risk of vehicles entering the network in an unsafe condition and the associated potential for freight train derailment.

Strategic Activity: Quantify risk and identify emerging trends of vehicles entering the network in an unsafe condition and develop a risk management plan that identifies immediate risk reduction initiatives and long-term mitigation objectives.

Strategic Activity: Standardise and embed best practices and suitable control measures within the safety management systems of all operators, to mitigate the emerging trends identified and prevent future recurrences.

Measure of success: A reduction in the number and frequency of freight trains being stopped due to an unsafe condition.

Strategic Challenge 5: There is a lack of visibility of how freight risk is changing across the sector as a whole.

Strategic Activity: Monitor the profile of freight risk and prioritise collaborative activities to address key and emerging risks.

Strategic Activity: Develop better metrics for tracking trends in freight train accident risk.

Measure of success: More consistent reporting across the freight sector.

Where to get support

The RSSB website hosts a topic hub to help duty holders and XIFDPG members enhance their understanding of, and engagement with, how to reduce freight derailment risk: **https://www.rssb.co.uk/Standards-and-Safety/Improving-Safety-Health--Wellbeing/Enhancing-Safety-Health--Wellbeing-Through-Collaboration/Tackling-Freight-Derailment**

Freight industry groups are in place to work together to identify and disseminate good practice relative to freight. All parties across industry are encouraged to engage with these groups:

- National Freight Safety Group: the collaborative group overseeing rail freight safety: **https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/NFSG**
- Freight Technical Committee: the engineering focused group: **https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Standards/ISCC/RST-SC/FTC**
- Rail Freight Operations Group: **https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/NFSG/RFOG**
- Cross-Industry Group on Preventing Freight Derailment: reports to NFSG, and focuses on reducing the risks of freight derailment due to combinations of dynamic track faults, wagon faults, and offset loads: **https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/NFSG/XIFDPG**

12 Rolling stock asset integrity

Vision

Stakeholders in the industry and its supply chain work together to minimise the incidence of unsafe failures of rolling stock assets, and to provide transparent assurance that this has been achieved.

Where are we now?

In the three years since the LHSBR rolling stock asset integrity section was published, the extent and pace of increased collaborative activity in risk management across the industry has been minimal. Significant work remains to fully achieve the vision.

To achieve the vision industry will now need to focus effort on addressing these strategic challenges:

Strategic Challenge 1: Funders, owners, manufacturers, supply chain, operators, maintainers and the regulator do not have a consistent, shared understanding of the safety requirements of the most recent design configurations of rolling stock. They are unable to fully assure each other that these requirements have been met throughout the asset lifecycle.

Strategic Activity: Close coordination is needed between relevant industry parties to identify and promote understanding of the key safety requirements, especially of modern rolling stock, where local application requires variation of approach.

Measure of success: Directory of key safety requirements, and the risk analysis underpinning them, to be made available as a sharing resource across specifiers, procurers, designers, suppliers, operators, and others.

Strategic Challenge 2: Funders, owners, manufacturers, supply chain, operators, and maintainers do not collaborate adequately, or in a fully integrated manner across whole-system interfaces.

Strategic Activity: Enhance collaboration across and within the supply chain to reduce the risks associated with systematic and random faults and failures of rolling stock and interfacing infrastructure systems.

Strategic Activity: Develop a process for all relevant industry parties to collaborate and better understand, monitor, and manage the risks from safety critical and safety related defects.

Strategic Activity: Define requirements, seek industry funding and buy-in for an integrated, system-wide safety defect reporting and corrective actions system.

Strategic Activity: Reporting processes and associated data quality initiatives to be updated to ensure raised awareness of any train-side failures of systems that lead to failure of the defined safety critical railway functions.

Measure of success: Fewer rolling stock and infrastructure interface faults and failures are recorded, and operational performance improves.

Measure of success: There are fewer safety critical and safety related defects in rolling stock, and performance improves across the asset lifecycle.

Measure of success: Improved root-cause analysis and decision support for executing corrective actions across the supply chain. This should include an asset management system for rolling stock and infrastructure assets. In doing this, ensure that all key safety functions are covered.

Measure of success: Updated reporting processes and data quality initiatives to ensure raised awareness of any train-side failures of electrical, electronic and programmable electronic systems that lead to failure of the defined safety critical railway functions. Improved root-cause analysis and decision support for executing corrective actions across the supply chain.

Strategic Challenge 3: The functionality of modern rolling stock is increasingly delivered through an international and multi-tiered supply chain. It is also increasingly complex, and software driven. As a result, there is the potential for a growing gap in safety assurance particularly as new hazards and threats evolve.

Strategic Activity: Develop standardised and common methods to provide improved assurance for the safe use and continued performance of rolling stock assets to a high level of safety integrity.

Measure of success: Introduce suitable and cost-effective processes and/or tools to increase transparency and sharing of safety assurance cases for rolling stock platforms and applications between all stakeholders to build greater visibility, assurance and trust.

Measure of success: Production of key materials, for example: a clear list of railway safety functions and their required safety integrity level (SIL); reference functional architectures of rolling stock showing how these functions are typically implemented.

Measure of success: Clear descriptions of key assurance roles and activities in the rolling stock approvals process, especially the key statutory assurance role played by Assessment Bodies, with the aim of producing effective guidance on good practice for this assurance activity.

Strategic Challenge 4: There is an uneven base level of skills and competencies in industry to manage the risks from EEPE (electrical/electronic/programmable electronic) system failures.

Strategic Activity: Develop and run an educational campaign to demystify the key concepts around safety assurance of complex, integrated electrical, electronic and programmable electronic systems, including root-cause analysis of defects; providing industry a common understanding of how to realize these capabilities in their various roles.

Measure of success: Demonstrable improvement in levels of understanding and capability of key stakeholders. Enhanced processes and plans for development of competences for all stakeholders to enable effective and safe procurement (build, test, commission, operate and maintain), and enhanced awareness of cyber security as it affects software safety.

Measure of success: Improved behaviours and competencies in response to, for example, the RAIB Cambrian Line investigation recommendations on the development of collaborative processes for assuring high integrity, software-based safety critical and safety related train-side systems.

Where to get support

- RSSB provides the industry with a range of products and services designed to help buyers in the GB rail market ensure their suppliers have the right competence and resources to consistently deliver to the right specification: **https://www.rssb.co.uk/Standards-and-Safety/Tools--Resources/Supplier-assurance**
- The Asset Integrity Group (AIG) will become the group to oversee the development of this area, and the cross-industry group dedicated to leading collaborative activity on the topic.

Improving our Capability

Vision

The GB railway is an industry where everyone takes responsibility for improving health and safety and benefits from it.
Rail companies see health and safety as an integral part of an effective and efficient business. They take risk-based decisions in the interests of passengers, staff and other stakeholders and work together to develop the people, processes, tools and information needed to deliver world class health and safety management.

Where are we now?

GB rail has benefitted from a well-established risk and evidence-based approach to safety management. It has begun to build the foundations for a similar capability for health and wellbeing risk but there is further to go.

In the three years since the LHSBR Improving our Capability chapter was published, the rail industry has seen these improvements:

- Widespread use of the Risk Management Maturity Model (RM3), with ORR launching a new version in 2019 to push the boundaries of excellence.
- Update and relaunch of Taking Safe Decisions and a programme to embed its principles.
- The Connected Leaders programme has been established to bring senior figures together to solve industry problems.
- An increased focus on health and wellbeing, and a start on developing the competences, processes, tools and information required to manage it.
- Launch of the new Safety Management Intelligence System (SMIS).
- Increased adoption of close call reporting systems to bring about culture change and improve understanding of health and safety risk.
- Improved use of non-technical skills, through training and integration of non-technical skills into company competence management systems.
- Greater application of risk bowties to understand threats to safety, the risk controls in place to manage them, and their effectiveness.
- An improved Rail Industry Supplier Qualification Scheme (RISQS), run by the industry for the industry, and the capability for suppliers to benchmark performance against their peers.
- Revision and reissue of the Rail Industry Standard for Accident and Incident Investigation supported by training and other resources.
- More use of data from operational and engineering systems to deliver safety insights and target risk reduction activities.

Strategic Challenges

This section identifies strategic capability improvement challenges structured around the five criteria groups from RM3.

Policy, leadership and governance

Strategic Challenge A1: Good practice in health and safety management systems is not applied consistently across activities and organisations.

Strategic Activity: Continuously improve risk management capability through widespread and effective application of RM3.

Measure of success: High levels of engagement with RM3 and sustained improvement in assessment results.

Strategic Challenge A2: Organisations need to take decisions that protect people's safety, satisfy the law, respect the interests of stakeholders, and meet wider business objectives. Lack of clarity over legal requirements can create unnecessary cost.

Strategic Activity: Embed the principles in Taking Safe Decisions.

Measure of success: Relevant aspects of Taking Safe Decisions are understood and applied by senior leaders, engineers, project managers and planners, as well as health and safety professionals.

Strategic Challenge A3: Rail operations increasingly rely on digital technology. This brings security threats that can lead to safety risk.

Strategic Activity: Build capability in security and cyber security risk management.

Measure of success: The principles for managing safety-related security and cyber security risk have been agreed and embedded.

Strategic Challenge A4: Many of the big health and safety challenges facing the industry can only be addressed effectively by taking a systems approach and working across organisational boundaries.

Strategic Activity: Work together through the Connected Leaders programme to improve health and safety culture.

Strategic Activity: Maintain effective structures and delivery mechanisms for realising the vision set out in Leading Health and Safety on Britain's Railway.

Measure of success: Strong commitment to, and effective delivery of, the activities in this strategy results in health and safety improvements.

Organising for control and communication

Strategic Challenge B1: Different organisations and projects have different ways of describing hazards and controls. This inhibits the efficient sharing and re-use of information about how risk is managed.

Strategic Activity: Establish and embed a common structure and language for hazards and risk controls.

Measure of success: Widespread use of a common structure and language supports efficient and effective hazard identification and provides a recognised way to map between requirements in standards and the hazards they manage.

Strategic Challenge B2: Trusted information on safety performance and risk is needed to support local and national decisions.

Strategic Activity: Make the industry's Safety Management Intelligence System (SMIS) easier to use and provide assurance on the data it contains.

Strategic Activity: Evolve the models and tools that industry uses to support risk management activity, such as the Safety Risk Model and Precursor Indicator Model, to meet the needs of a devolved railway.

Measure of success: SMIS is the trusted single source of the truth for system-wide event data that industry has agreed to share. Common risk models and tools are used to support decisions at a system, company, region and route level.

Strategic Challenge B3: Management of health and wellbeing risk is less mature than the management of safety risk. The foundations for a risk and evidence-based approach are still being built.

Strategic Activity: Develop a more structured approach to understanding threats to health and wellbeing and the controls available to manage them.

Strategic Activity: Improve how health and wellbeing data is recorded, shared and used.

Measure of success: Decisions that affect health and wellbeing are risk-based and supported by evidence.

Securing the co-operation, competence and development of employees

Strategic Challenge C1: Front line workers and managers need to take timely risk-based decisions, adapt quickly when circumstances change and know when to bring in professional health and safety expertise.

Strategic Activity: Create resources that support the development of basic risk assessment skills.

Strategic Activity: Integrate non-technical skills into company competence management systems.

Measure of success: Good uptake of resources by rail companies and their workforce. Front line staff have the competence and confidence to take sound decisions that affect health and safety.

Strategic Challenge C2: Learning opportunities are missed if information about accidents, incidents, unsafe acts and unsafe conditions is not reported and shared. Sometimes this is because those involved believe they will be unjustly blamed; sometimes it is because reporting channels are unclear or difficult to use.

Strategic Activity: Develop a culture in which people and organisations report, share and learn from accidents, near misses and close calls.

Strategic Activity: Establish widespread adoption and use of close call reporting systems.

Measure of success: Increased reporting of health and safety related events, acts and conditions results in better understanding and management of risk.

Planning and implementing risk controls

Strategic Challenge D1: Effective health and safety management needs to be built on a good understanding of risk controls and their effectiveness.

Strategic Activity: Increase use of risk bowties based on good practice from within GB rail and from other sectors.

Measure of success: New bowtie guidance is produced and adopted, resulting in greater use and more consistent application of the bowtie method within rail companies. An agreed set of industry-level bowties is available to support the collaborative activity of cross-industry risk groups.

Strategic Challenge D2: The rail industry is going through a period of change. Effective change management exploits opportunities to improve health and safety and manages threats to health and safety.

Strategic Activity: Promote industry guidance and develop supporting case studies to raise awareness and improve application of the risk management process from the Common Safety Method on Risk Evaluation and Assessment, which is mandatory for significant change.

Measure of success: Proposers of change use an effective risk management process and adopt health and safety by design principles.

Strategic Challenge D3: The health and safety challenges facing the industry over the longer term are not always taken into account when decisions are made.

Strategic Activity: Develop a systematic approach for evaluating how changes within and outside the industry will shape its future risk profile.

Measure of success: Strategic risk reduction activity is supported by horizon scanning and risk forecasting. Opportunities for health and safety improvement are integrated into the Rail Technical Strategy.

Strategic Challenge D4: Introducing new technology can be slow and expensive because of actual and perceived barriers. It can also introduce risk if there has not been adequate consideration of human factors and the operational environment.

Strategic Activity: Take a risk-based approach to removing barriers to the adoption of new technology.

Strategic Activity: Ensure closer cooperation between designers, manufacturers and operators, and adopt the human factors integration principle of technology and people as a team.

Measure of success: Technology that delivers incremental health and safety improvements is delivered quickly and cost-effectively.

Strategic Challenge D5: A key interface is that between rail industry buyers and suppliers. Buyers need confidence in the products and services they procure, and suppliers need an efficient way of demonstrating their capability and benchmarking performance.

Strategic Activity: Continue to develop and embed the use of a consistent, efficient and risk-based approach to supplier assurance, supported by relevant systems and tools.

Measure of success: There is mutual confidence between buyers and suppliers and supply side risks are effectively managed.

Monitoring, audit and review

Strategic Challenge E1: Some accident and incident investigations do not look beyond immediate causes and so learning opportunities are lost.

Strategic Activity: Embed good practice in accident and incident investigations through guidance, training and an increased awareness of human factors.

Strategic Activity: Improve how investigation outcomes are shared within GB rail and with other railways and other sectors.

Measure of success: Accident and incident investigations consistently identify root causes. Investigation findings are shared and implemented.

Strategic Challenge E2: Most health and safety monitoring is reactive and outcome based.

Strategic Activity: Establish greater use of activity indicators to support proactive monitoring.

Measure of success: Rail companies use a mix of outcome and activity indicators to monitor the health of their critical and vulnerable risk controls and to track improvement initiatives.

Strategic Challenge E3: There is no industry level solution for reporting and monitoring railway system faults and failures.

Strategic Activity: Establish a collaborative industry process for reporting and sharing information on railway system defects and corrective actions and the systems required to support this.

Measure of success: A solution has been developed for rail vehicles that is extendable to other areas and able to meet the needs of the future digital railway.

Strategic Challenge E4: There is untapped potential in the large volumes of information being generated by an increasingly data-enabled railway.

Strategic Activity: Exploit open or shareable data sources, unlock access to other relevant data, and apply new analysis techniques to better understand and manage risk.

Measure of success: Health and safety requirements are integrated into initiatives like the Rail Data Action Plan. New data sources and analysis techniques are generating new health and safety insights.

Where to get support

- The Office of Road and Rail's website hosts the Risk Management Maturity Model (RM3) and supporting material: **https://orr.gov.uk/rail/health-and-safety/health-and-safety-strategy/risk-management-maturity-model-rm3**
- The Improving Safety, Health and Wellbeing section RSSB's website hosts Taking Safe Decisions as well as guidance on different aspects of risk management, information about RSSB-managed risk models and tools, and intelligence on safety performance. RSSB also provides a health and wellbeing topic hub, which covers aspects of health and wellbeing risk management capability: **https://www.rssb.co.uk/Standards-and-Safety/Improving-Safety-Health--Wellbeing/**
- The Risk Management Capability Group (RMCG) is a senior strategic group that supports the delivery of strategic risk management capability improvement initiatives to support of the vision set out in this document. It advises RSSB on its activities and facilitates and monitors collaborative industry effort. Its members represent passenger train operators, freight train operators, infrastructure contractors, Network Rail and the ORR:11 mins is good **https://www.rssb.co.uk/Learn-and-Connect/Groups-and-Committees/Safety/SSRG/RMCG**


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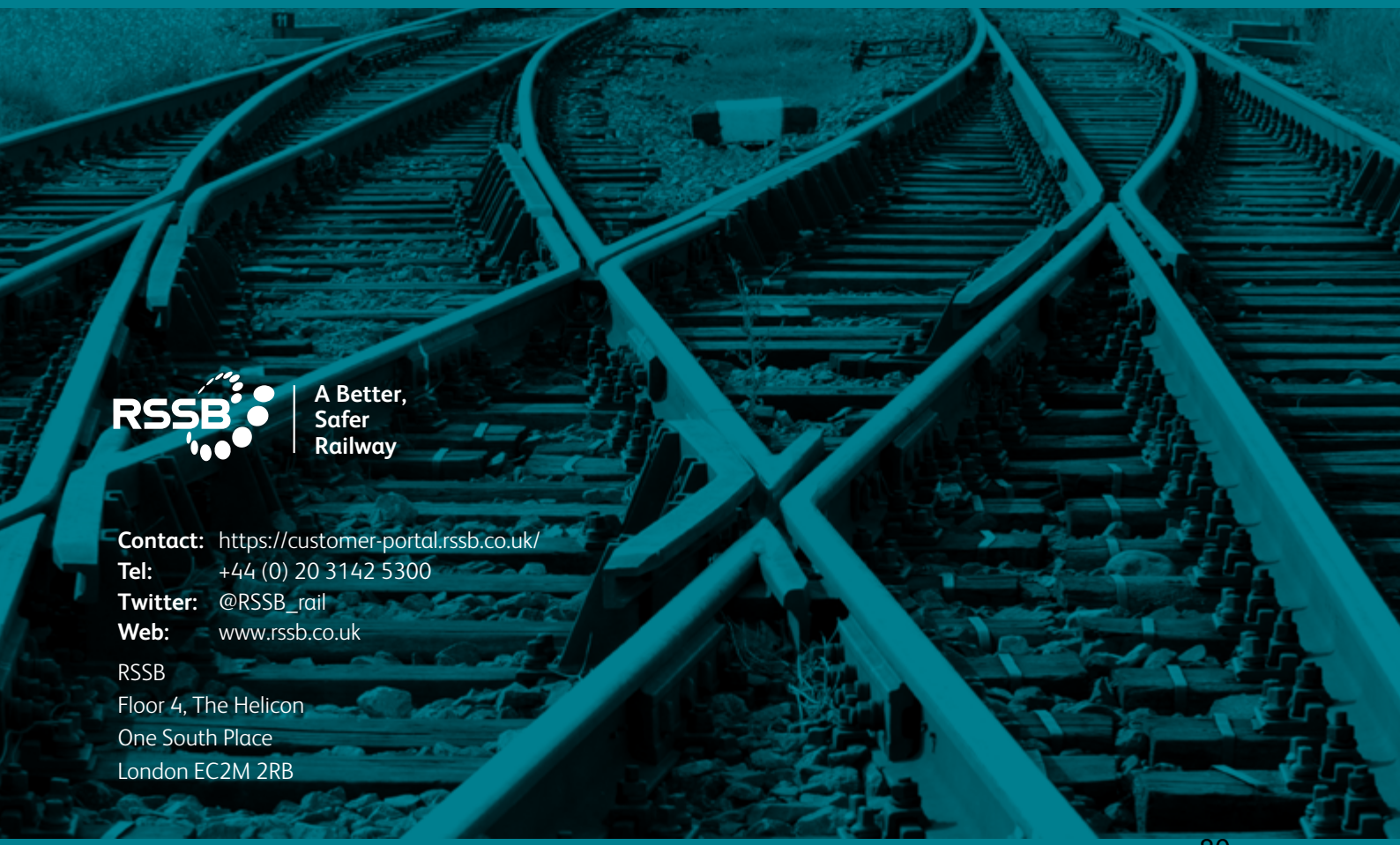

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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (LEEDS TO MICKLEFIELD ENHANCEMENTS) ORDER

DOCUMENT CD.01.21.03

Appendix to Proof of Evidence of Jerry Greenwood, Head of Infrastructure Liability

On behalf of Network Rail Infrastructure Limited

Penny's PFP LC section 118A Order Decision 17.11.2023

Date 06 February 2024

The Planning Inspectorate

Order Decisions

26 September 2023

by Claire Tregembo BA(Hons) MIPROW

An Inspector appointed by the Secretary of State for Environment, Food and Rural Affairs

Decision date: 17 November 2023

Order Ref: ROW/3302626 **Extinguishment Order**

- This Order is made under Section 118A of the Highways Act 1980 and is known as Doncaster Borough Council Public Footpath Rossington Number 10 (Part) Rail Crossing Extinguishment Order 2019.
- The Order is dated 25 June 2019 and proposes to extinguish the public right of way shown on the Order plan and described in the Order Schedule.
- There was one objection outstanding when Doncaster Borough Council submitted the Order to the Secretary of State for Environment, Food and Rural Affairs for confirmation.

Summary of Decision: The Order is confirmed.

Order Ref: ROW/3282627 **Creation Order**

- This Order is made under Section 26 of the Highways Act 1980 and is known as Doncaster Borough Council Public Footpaths Rossington Numbers 17 and 18.
- The Order is dated 25 June 2019 and proposes to create two public footpaths as shown on the Order Plan and described in the Order Schedule.
- There was one objection outstanding when the Doncaster Borough Council submitted the Order to the Secretary of State for Environment, Food and Rural Affairs for confirmation.

Summary of Decision: The Order is confirmed.

Procedural Matters

1. I undertook an accompanied site visit on 26 September 2023 with representatives of Network Rail (NR), Doncaster Borough Council (the OMA), the owner of the land and the objector. The crossing is currently closed by a Temporary Traffic Regulation Order and the decking has been removed, so we could not cross it. The Level Crossing Manager opened the locked gate on the western side of the railway to allow us to view it from the crossing point. The gate on the eastern side is welded shut so it was not possible to view it from this side.

2. Following the making of the Orders, an objection to the Extinguishment Order (EO) was made by a resident. Since the Orders were made, the land on the east side of the railway line has changed hands and the new owner objects to the Creation Order (CO). Section 26 of the Highways Act 1980 (the 1980 Act) does not require permission from the landowner for a right of way to be created over land.

3. When the Orders were made, there was a proposal for a development for a golf course and approximately 500 houses which would increase the use of Penny's Crossing. This development is no longer going ahead. NR asked the OMA to withdraw the Orders so they could submit a new application based on the current situation. However, the OMA still considers the EO necessary on the grounds of public safety and declined to withdraw the Orders. NR's statement of case is based on the current situation with no consideration given to any future development proposals.

The Main Issues

4. The section of footpath proposed to be extinguished crosses the East Coast Main Line (ECML) railway at grade.

5. The CO would create footpaths on both sides of the railway to link to an existing footbridge to allow the public to cross the railway.

6. Under Section 26 of the 1980 Act, if I am to confirm the CO, I need to be satisfied there is a need for the footpaths and that it is expedient that they should be created having regard to:

   a) the extent to which the paths would add to the convenience or enjoyment of a substantial section of the public, or the convenience of persons resident in the area; and

   b) the effect which the creation of the paths would have on the rights of the persons with an interest in the land, account being taken of the provisions for compensation.

7. Under Section 118A of the 1980 Act, if I am to confirm the EO, I need to be satisfied that it is expedient to extinguish the footpath over the level crossing, having regard to all the circumstances, and in particular to:

   a) whether it is reasonably practicable to make the crossing safe for use by the public, and

   b) what arrangements have been made for ensuring that, if the Order is confirmed, any appropriate barriers and signs are erected and maintained.

8. I consider the key points to be considered are:

   a) the extent to which the CO would provide an alternative path;

   b) the current safety of the pedestrian railway crossing for the public;

   c) whether any improvements to the pedestrian crossing, so as to make it safe, are reasonably practicable; and

   d) whether, if the Order is confirmed, adequate arrangements have been made to secure the redundant crossing.

9. I must have regard to 'all the circumstances' and these could include the use currently made of the existing path, the risk to the public, the effect the loss of the path would have on users of the public rights of way network as a whole, the impact on the owner of the land and their agricultural activities, the options for alternative measures and the relative cost of such measures.

10. I must also have regard to any material provision of any Rights of Way Improvement Plan (ROWIP) for the area and to the Public Sector Equality Duty (PSED).

Reasons

The Creation Order

11. The CO would provide two new footpaths on either side of the railway line between Rossington 8 and 10. Rossington 17 is on the western side of the railway shown

between A and C on the CO plan appended to the end of my decision and Rossington 18 is on the eastern side shown between B and D.

The need for the proposed paths

12. I am advised that a definitive map modification order application (DMMOA) has been made for a footpath between B and D supported by evidence of use for twenty years. I have not seen this application or the evidence which supports it, but the claim could suggest there is a need for this footpath. There is also a very clear worn line along the proposed footpath indicating it is well used.

13. NR believe the footbridge on Rossington 8 is the preferred route over the railway and most walkers cross here and walk along the Rossington 18 to reach Common Lane. The objector advises that regular dog walkers use the footbridge to cross the railway and walk a circular route using Penny's Crossing and the CO footpaths as do other walkers and joggers.

14. I am satisfied that there is a need for the proposed footpaths.

The extent to which the paths would add to the convenience or enjoyment of the public or the convenience of residents

15. Most of those walking this path network will be starting from New Rossington to the north of the Order route.

16. Rossington 17 would provide a traffic-free alternative to Stripe Road for anyone who wanted to walk in that direction. Stripe Road has a 40 to 60 mph speed limit and south of Hall View Road, there is no pedestrian footway. Therefore, Rossington 17 would provide a safer route for public use.

17. Looking at the wider path network, Rossington 18 would ensure a footpath that could be used as part of a circular walk adding to the enjoyment of the public. The DMMOA and the worn line would suggest this footpath would add to the enjoyment of the public or residents.

18. For these reasons, I consider the proposed footpaths would add to the convenience and enjoyment of the public and residents.

The effect on persons with an interest in the land

19. The proposed footpath on the western side of the railway is over land owned by NR who requested the Order.

20. When the CO was made, the owner of the land on the eastern side of the railway agreed to the creation of the footpath. However, the land has since been sold and the new owner does not support the creation of Rossington 18.

21. The new owner intends to use the land for agricultural purposes and his farming business includes breeding sheep and cattle. They are likely to use it to graze their livestock. The owner considers the footpath would need to be fenced off from the field for health and safety reasons and to reduce the likelihood of dog attacks on livestock and injuries to walkers. NR are willing to fund the provision of a stock-proof fence if the CO is confirmed.

22. If the Order is confirmed, the owner would be entitled to statutory compensation for depreciation in the value of the land and disturbance under Section 28 of the 1980 Act which NR are prepared to pay.

23. The objector also has concerns about what would happen if the land was developed or if the owner prevented access. If the CO is confirmed, the footpaths would be recorded on the definitive map and statement for public use and would need to remain open and available unless they were legally diverted or extinguished.

24. Although the creation of Rossington 18 would affect the interests of the owner, NR are willing to fund stock-proof fencing alongside the proposed footpath and pay any compensation for the depreciation in the value of the land and disturbance to the owner. I consider any negative impacts can be addressed by way of compensation.

Conclusions on the Creation Order

25. I consider there is a need for the proposed footpaths and that it is expedient to create them taking into account the beneficial effects of the creations for the public, which are not outweighed by any adverse effects upon the rights of the persons with an interest in the land.

The Extinguishment Order

26. Rossington 10 runs along Common Lane and crosses the railway over a pedestrian level crossing known as Penny's Crossing. It is shown on the EO plan between A and B appended to the end of my decision. It is a passive crossing which relies on those using it to 'stop, look, and listen.' There are two sets of pedestrian gates on either side of the railway, at the line side and set back from the railway.

27. NR advises that Penny's Crossing is compliant with level crossing standards, but a compliant crossing is not the same as a safe crossing. They consider there are factors that make it a high-risk crossing which cannot be made safe and therefore should be closed.

The extent to which the Creation Order would provide an alternative way

28. The alternative route would be along the proposed footpaths shown in the CO plan to reach Rossington 8 which crosses the railway line using an existing footbridge. The proposed footpath on the western side of the railway would be along an access track owned by NR and used for maintenance purposes. On the eastern side, it would be along a field edge path.

29. The proposed footpaths are already securely fenced off from the operational railway. There appears to be limited vehicular use of the maintenance track. The owner of the field may keep livestock in it which they consider could put the public at risk. However, NR is prepared to fund stockproof fencing to separate the public from livestock. Therefore, I consider the proposed alternative route would be significantly safer than Penny's Crossing.

30. The footpaths in the CO are 570 metres and 580 metres long. Therefore, anyone wishing to walk the full length of Common Lane would have to walk approximately 1.2 km further. This additional distance would be less convenient to the public. However, Common Lane does not provide access to any amenities or points of interest. The footpath and connecting path network are used for recreational and

dog walking purposes. There are few properties and limited paths south of Common Lane.

31. Whilst the additional distance weighs against the EO, it is a recreational path network, and the additional length is unlikely to discourage use of Common Lane. Although the alternative would not be as convenient, it would not be significantly less convenient given its recreational use and the safety considerations.

32. The proposed footpaths are both level with mostly grass and earth surfaces, although some sections of the maintenance track have a stone surface. There are some puddles within the vehicular tracks on the western side of the railway but the ground between them is dry. On the eastern side, the walked line is dry and level. There are no steps on the existing footbridge. I do not consider the surface would affect the convenience of the public.

33. The proposed footpath on the eastern side of the railway has good views across open fields and appears to be a popular route. Views on the western side of the railway were limited by a tall sweetcorn crop. However, the crop would not be present all year round. Furthermore, Rossington 8 is a similar width with sweetcorn growing on either side. Given the number of walkers I saw, the crop did not appear to deter use or reduce its enjoyment.

34. It is claimed the crossing is used to access horse fields off Stripe Road, but no owners of the fields have come forward in objection to the closure of the crossing.

35. A census of Penny's Crossing in Summer 2022 showed average daily use by 34 people, which I consider to be low.

36. I consider the proposed alternative route, if I were to confirm the CO, would be significantly safer and as enjoyable as the existing footpath. The increased distance would make it less convenient, but I do not consider it to be significantly less convenient given the recreational nature of the footpath and surrounding path network.

Whether the current crossing is safe

37. Penny's Crossing is over two high-speed tracks used by InterCity trains with speeds of up to 125 mph and long freight trains with speeds of up to 75 mph. The ECML is used by 212 trains daily and has the capacity to run up to 310 trains which is approximately five times the national average. NR considers the ECML to be the most important route in the UK railway network and it connects London with the North East, East and Scotland.

38. NR uses an application called All-Level Crossing Risk Model (ALCRM) to provide a consistent method of assessing safety risk at level crossings. It incorporates a quantitative and qualitative approach to achieve a rounded and balanced analysis of risk. It has been developed through extensive research and a collaborative partnership between NR and the Rail Safety Standards Board.

39. The most recent level crossing risk assessment determined an ALCRM Risk Rating of B3 which is a high-risk category. The letter represents the risk to an individual per traverse. A represents the highest risk and M the lowest. The number represents the collective risk based on total harm or safety loss with 1 representing the highest risk and 13 representing no risk.

40. Although Penny's Crossing has good sight lines, the speed of the approaching trains gives little time to cross safely. From the shortest sighting distance, a train takes 16 seconds to reach the crossing. A fit and healthy person requires 9 seconds to cross, with vulnerable users requiring 13.88 seconds. A safe crossing relies on the path user crossing quickly and continuously checking for approaching trains. NR considers the margin for error on Penny's Crossing is very low.

41. A census in 2019 found all users were considered to be vulnerable. Vulnerable users include older users, those with mobility issues and young people who may not be fully aware of the dangers of using a level crossing. Sight lines can also be reduced by rain, fog, snow, and sun-glare. The crossing is primarily used by dog walkers and the Rail Accident Investigation Board advises that a high proportion of fatalities at level crossings involve pedestrians with dogs. I am satisfied that, given the number of dog walkers and vulnerable users, the crossing times are marginal and would be a risk to public safety.

42. The variations in speed difference between the InterCity trains and freight trains is at least 50 mph. This makes it more difficult for path users to judge the speed of the trains. The freight trains can also take over a minute to pass through Penny's Crossing which can make path users impatient. I consider this speed variation could pose a risk to public safety.

43. The InterCity trains are 260 metres long and freight trains vary in length from 420 to 775 metres. This can lead to trains being hidden by trains passing in the opposite direction. London North East Railway company have confirmed many of their trains pass each other close to Penny's Crossing making this a significant risk and hidden trains have been the cause of many near-misses and actual fatalities. During the site visit, two trains passed each other close to the crossing. Given the marginal crossing times with full sight lines, I consider hidden trains a significant risk to public safety in this location.

44. Between 2006 and 2022, 56 incidents were recorded at Penny's Crossing. These include three fatalities, six significant near misses where train movements were suspended, seven incidents of obstructions being placed on the line and five reports of deliberate misuse. Twelve of these events occurred between March 2022 and 2023, including two fatalities and three attempted suicides.

45. Penny's Crossing is in a quiet, rural location and attracts young people who have been photographed sitting on the crossing and loitering around it.

46. There were three suicides at Penny's Crossing between 2017 and 2022. During this time there were 173 suicides nationally, with 13 level crossings having two suicides and only two having three. Its quiet location could be a factor in the number of suicides and attempted suicides.

47. Due to the ALCRM risk rating, the limited crossing time, the train speeds, the significant risk of hidden trains, and the number of incidents on the line, I consider Penny's Crossing does present a risk to the public.

Whether it is reasonably practicable to make the crossing safe for use by the public

48. Several measures have previously been implemented to try and reduce the risk at Penny's Crossing. These included straightening the deck to reduce crossing times, anti-slip surfacing, clearly defining the decision point, corral fencing to prevent

users from deviating off the approaches, signs with contact details for the Samaritans and the installation of CCTV and signage to deter misuse. Security patrols by NR and British Transport Police were increased and focussed safety campaigns were used to highlight the issues to residents and children. These measures do not remove the risk of human error and appear to have had limited impact on safety or misuse.

49. A wider deck would enable users to pass each other more easily. However, this would also require wider gates which would allow the crossing to be accessed by horse riders, motorbikes, and quad bikes, leading to an increase in risk.

50. Illuminating the crossing could lead to an increase in people gathering at night, anti-social behaviour, misuse, and trespass. Common Lane and the surrounding area are unlit. Illuminated crossings in an otherwise dark environment can cause distractions to train drivers and make it more difficult for path users to see approaching trains.

51. Whistle boards need to be fitted 400 metres from a crossing to be heard. At Penny's Crossing the whistle boards would need to be erected 776 metres from the crossing to provide the minimum 14 second warning. Therefore, this is not feasible and is likely to lead to complaints from residents of New Rossington where a whistle board would need to be located.

52. Supplementary audible warning devices would give an audible warning at the crossing when a train passes a whistle board. However, they can only be installed with a whistle board. There is no way for crossing users to tell if they are not working and they can be a target for regular vandalism which makes their efficiency questionable.

53. Reducing the line speed would cause delays to train services on the line and have an effect on services to the North East, East Coast, Scotland, and London. NR advises the operational efficiency of this strategic railway line needs to be maintained and Government expectation is that line speeds should be maintained, services and capacity increased and journey times reduced. Therefore, this is not considered to be a feasible option.

54. Miniature Stop Lights (MSL) could be installed. However, due to the location of Auto Stop signals, the cheaper overlay MSL cannot be used. The more expensive integrated MSL would cost at least £1 million but the cost-benefit analysis determined this would be disproportionate to the benefits it would give. A flex MSL is currently under development but does not have safety approval. The effectiveness of MSL at Penny's Crossing would be significantly reduced by the variations in train speeds and lights would be red for a significant amount of time and for prolonged periods. The installation of MSLs would only achieve a partial and inadequate risk reduction.

55. A stepped footbridge would cost approximately £2.7 million, a ramped footbridge approximately £4.5 million and a subway approximately £6.5 million. The census undertaken in summer 2022 recorded a low number of users. Therefore, I consider the cost of these options to be disproportionate to the benefits achieved.

56. For the above reasons, I consider it is not reasonably practicable to make the crossing safe for use by the public.

Arrangements for appropriate barriers and signs to be erected and maintained

57. NR has entered into an agreement with the OMA to defray any expenses incurred in the erection or maintenance of barriers and signs. At the time of my site visit, the high outer security gates were locked on the western side of the railway and welded shut on the eastern side. The gates on the western side would be welded shut on confirmation of the extinguishment order. Therefore, I am satisfied appropriate arrangements would be made to secure Penny's Crossing and erect appropriate signage if I were to confirm the EO.

Other Considerations

58. NR has a duty to promote operational efficiency of the railway network by virtue of the Railways Act 1993. Operational efficiency is affected by delays to train services, timetable disruptions, compensation payments to train operators and reduced scope for enhancing services, increasing speeds, or reducing journey times. When trains are delayed or services suspended due to an incident on a line, it almost inevitably affects the wider network.

59. For every incident that requires the suspension of train services NR is required to pay around £100 compensation for every minute of delay for every train that is affected. Following the fatality on Penny's Crossing in May 2022, four services were cancelled, and 1,594 minutes of delays occurred. The total cost of compensation paid was £180,191.

60. Given the number of incidents at Penny's Crossing which resulted in delays, stoppages, or suspension of services, the closure of the crossing would promote operational efficiency on the ECML and given the importance of the line, potentially the wider rail network.

Conclusions on the Extinguishment Order

61. I am satisfied that it is expedient to extinguish the footpath across Penny's Crossing having regard to all the circumstances, and in particular to whether the crossing can be made safe and the arrangements for appropriate barriers and signs.

Rights of Way Improvement Plan

62. The ROWIP for the area includes policies for developing the rights of way network by creating new routes and improving safety when the network interacts with railways. The Orders would meet the aims of these ROWIP policies.

63. Where NR wish to close level crossings the ROWIP aims to ensure that the alternative route is not less convenient or not substantially longer than the route to be extinguished. The OMA accepts the alternative route is longer than the crossing to be extinguished. However, they do not consider this to be a negative factor given the recreational nature of the footpath and the opportunity to connect with other rights of way.

Public Sector Equality Duty

64. The alternative routes are level and in a similar condition to the existing footpath network with no gates or stiles. There are no steps on the footbridge on Rossington 8. There are four gates on the section of Rossington 10 proposed to be extinguished which could restrict access to people with mobility issues. The

alternative route would be longer than the existing footpath proposed to be extinguished. However, use of this footpath network is predominantly for recreational purposes and most path users access it from Rossington 8 rather than Rossington 10. Therefore, I consider the PSED to be discharged.

Overall Conclusions

65. Having regard to these and all other matters raised in the written representations I conclude that the EO and CO should be confirmed.

Other Matters

66. References were made to the safety of, and proposals for other crossings in the area, but I am only able to consider the Orders before me.

Formal Decision

The Creation Order

67. I confirm the Order.

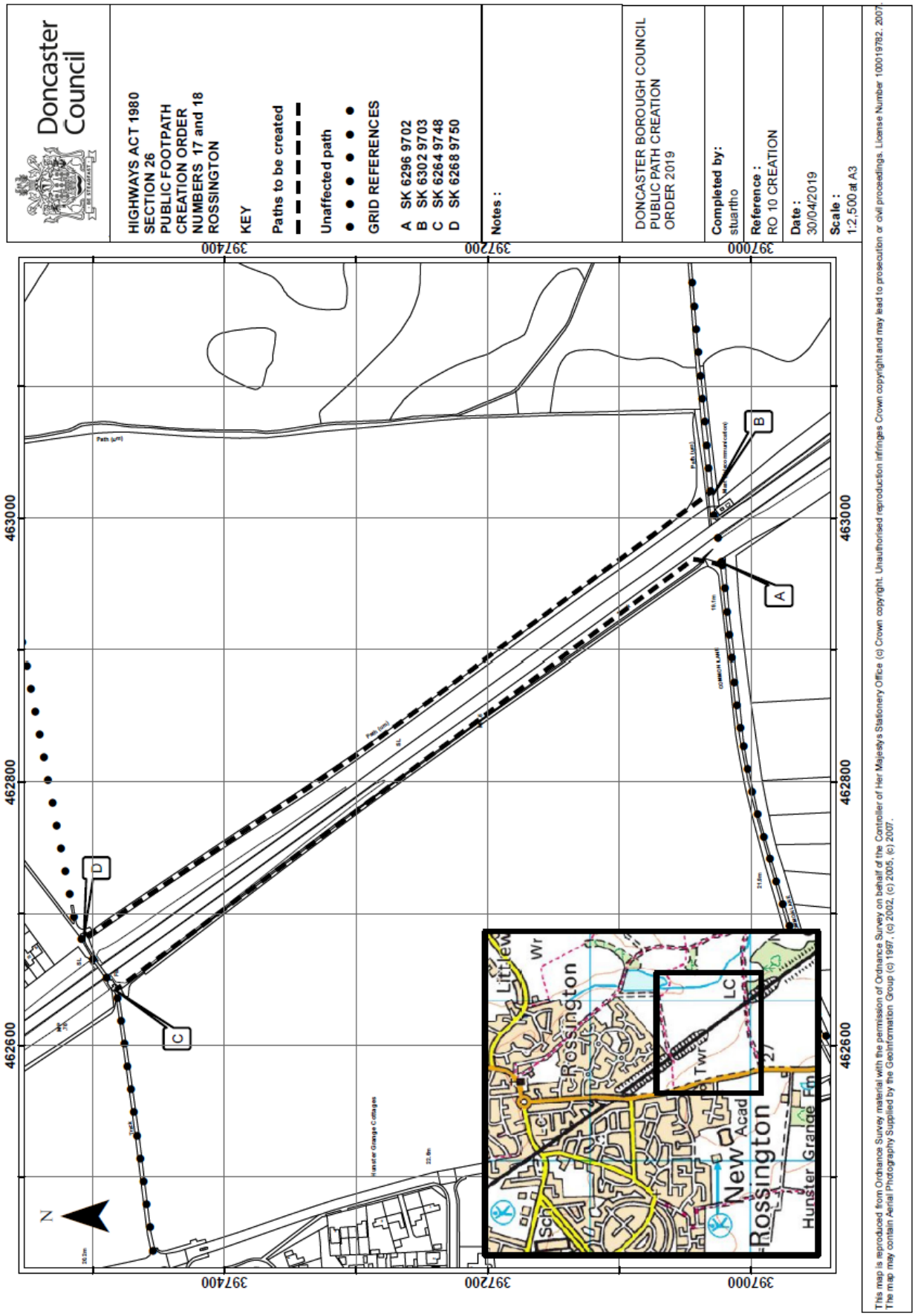
The Extinguishment Order

68. I confirm the Order.

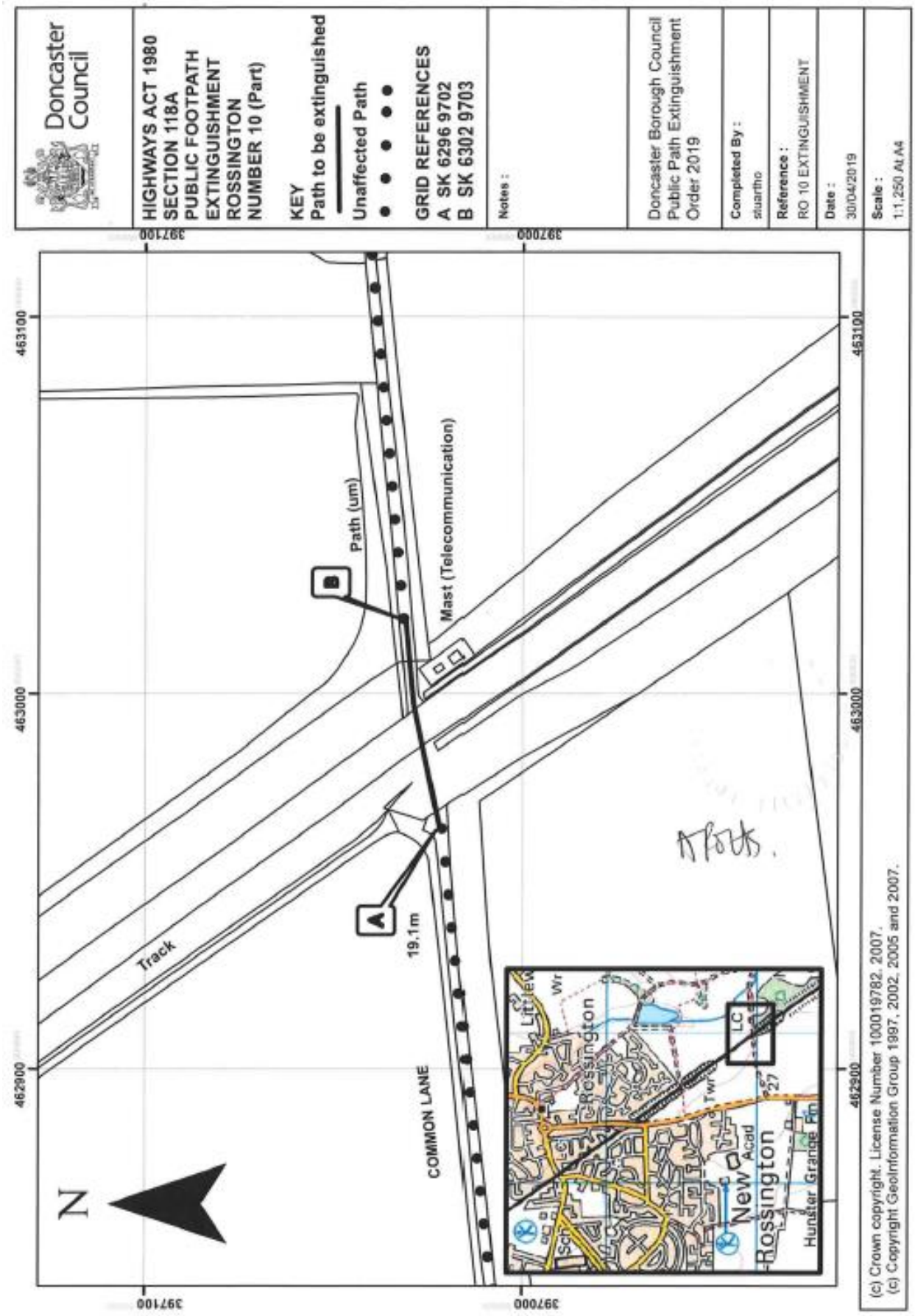
Claire Tregembo

INSPECTOR

Creation Order Plan



Extinguishment Order Plan



TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (LEEDS TO MICKLEFIELD ENHANCEMENTS) ORDER

DOCUMENT CD.01.21.04

Appendix to Proof of Evidence of Jerry Greenwood, Head of Infrastructure Liability

On behalf of Network Rail Infrastructure Limited

LCG Census Good Practice (July 2017)

Date 06 February 2024

CENSUS GOOD PRACTICE

KNOW YOUR CROSSING, ITS USERS AND ITS ENVIRONMENT

CONTENTS

1 Purpose

This document provides guidance in the undertaking of census data collection as part of the risk assessment of level crossing safety.

2 Scope

It is intended for Level Crossing Managers and any other competent person responsible for the safe management and risk assessment of level crossings. It may also be used by other Network Rail personnel undertaking census data collection in support of level crossing risk assessments.

It should be applied to all risk assessments of level crossings and used to support decision making regarding the best means to obtain accurate census data, so far as is reasonably practicable.

3 The importance of accurate census

Census is one of the underpinning elements of a level crossing risk assessment. It is one of the most important influences on the level of risk. Therefore it is vital that a robust census is undertaken to achieve a meaningful and accurate risk assessment.

In general, the window of opportunity for an accident at a level crossing increases with a high level of crossing usage and a high number of train movements. Therefore, the number of level crossing users and the equivalent train moment, or trains per day, is a key influence of risk.

Census is also a key input of the All Level Crossing Risk Model [ALCRM] and forms a critical component in the calculated levels of risk. Underestimating or overestimating census can have a varying effect on the modelled output, which could influence decisions taken by the assessor or the business to manage safety. For example, crossings with a high individual risk and a low collective risk can be sensitive to changes in census data. In this circumstance, ALCRM might evaluate a crossing with weak census data to represent a slightly lower risk than that of the true risk profile. This could result in a lack of intelligence about the level of risk at an asset, leading to inaccuracies in strategic planning to manage safety.

In addition to the volume of use, it is also vital to understand the user demographic; i.e. the types of users who make up the census number, so as to identify hazards which may be prevalent to one or more user segments and to better target risk mitigation in these areas. Accurate census will therefore help us to better identify, and encapsulate within risk assessments, the types and vulnerabilities of users of our assets.

4 Census types, selection criteria and enhancing census accuracy

4.1 General

In general it may be considered that the greater the duration of census data collection activity, the greater the opportunity to improve the accuracy of the census.

This is an especially pertinent point in relation to determining pedestrian usage and in the undertaking of all census at footpath, bridleway and private user worked crossings.

In some cases due to seasonal fluctuations or peaks and troughs in use, it might be necessary to undertake more than one census data collection activity so as to broaden understanding regarding daily/annual usage. ALCRM can accommodate two censuses for this purpose.

In addition to physical on-site data collection techniques, an array of smart-sources of intelligence should also be used to support understanding; see 8. In determining robust knowledge of crossing usage, it might be necessary to use multiple combinations of on-site activities and other research based intelligence to accrue the complete picture.

4.2 Types of census and the preferred approach

Non-estimated census

The quick census is the least favoured of the non-estimate types due to its limited capacity to accurately reflect usage levels or identify all segments of users. A quick census can be susceptible to the time and date of the visit, omitting or overly including, peaks, troughs, seasonal activity and omitting weekend, evening and variances in use. It has, however, been independently endorsed as a broadly capable method for counting vehicles at public road crossings.

Where-ever possible, nine day census or greater (extended census) should be the census of choice for assessors. It offers strength in accuracy and endorses the company's approach to continuous improvement by enhancing the accuracy of risk assessments and improving level crossing safety.

Estimated census

Estimated census should ideally be a last resort unless using forecast figures to determine the impact of a proposed housing development for example.

If it is to be used as the primary source, every effort should be made to determine usage levels using actual census data collection activity and prior to adopting it as the chosen census gathering technique. As with all census gathering activity, but especially so when using estimated structured judgement, all available intelligent sources should be used to aid decision making; see 5.7 and 8.

Table 1 details the types of census which can be used within the risk assessment process. It also highlights some of the benefits and dis-benefits associated with each census type.

Type	When to use	When not to use	Strengths and weaknesses	Census owner
Nine day or extended duration	**In all cases where a census is required**. Applicable to all asset types and all assessments from steady-state to project work where it is a prerequisite; e.g. re-signalling schemes and level crossing (LC) renewals. Serves to enhance understanding of LC usage and user behaviour, e.g. identifying night time usage, confirming vulnerable or irregular users, identifying peaks and troughs etc.		**Strengths:** High level of accuracy leading to improved modelling of risk in ALCRM and informed decision making for the assessor and the business. **Weaknesses:** Internal resources needed to deploy equipment and analyse footage. Availability of mobile or fixed camera technology within the Route. Cost to employ external supplier to undertake census. Availability of external supplier to meet business timescales/deadlines. ***TIP:*** *Camera equipment should be directed away from train movements to prevent spurious activations and to improve analysis time and resource.*	Manager or External Supplier
24 hours	To support understanding of LC usage and where time-constraints prevent use of nine day or extended duration census. *NOTE: At lesser used crossings a longer census will be more appropriate to identify consistent usage and afford greater accuracy*.	Not appropriate for understanding weekend, consistent night time usage or where there are known or suspected peaks and troughs in usage which are likely to extend beyond 24 hours.	**Strengths:** A better level of accuracy than a quick census and might otherwise improve the accuracy of the risk assessment. Could be undertaken as a physical count by Network Rail staff in the absence of technology, for expediency or to facilitate engagement with users. **Weaknesses:** Does not provide the same level of accuracy as a nine day census. Resource implications for Network Rail staff to deploy technology or undertake a physical count. Cost and availability of external supplier to meet business timescales/deadlines.	Level Crossing Manager, Operations Staff or External Supplier

Type	When to use		When not to use	Strengths and weaknesses	Census owner
Quick 30 to 60 minutes, Mon to Fri between 9:30 - 16:30	Weakest of all non-estimated census types. Primarily best suited for vehicle count at public roads.		Not appropriate where pedestrian usage is inconsistent throughout the day or unlikely to be witnessed during the census, but is known or suspected, or where vehicle use at private crossings is subject to variation. Where an assessor is seeking to identify weekend use, night time usage or where there are known or suspected peaks and troughs in usage, including seasonal variations.	**Strengths:** Speed of data collection and assessor can observe and interact with users of the crossing. **Weaknesses:** Less accurate than a nine day, extended census or a 24 hour census. Only provides a snapshot of use observed during the site visit. Provides poor understanding of crossing user demographic.	Level Crossing Manager
Estimate at passive crossings including 24 hour usage	**No crossing usage witnessed**	Authorised user data available where: a). Authorised user provides written daily usage information; or b). Interview conducted with authorised user(s).	Not advisable if an authorised user is known or suspected to provide inaccurate information, e.g. over estimates usage due to fear of asset closure.	**Strengths:** Reasonable expectation of accuracy. **Weaknesses:** Reliability of data provided by user. Behavioural patterns not observed.	Level Crossing Manager
		Interview conducted with crossing user.	Not advisable if it is established or suspected that the user is unfamiliar with the crossing.	**Strengths:** Data potentially more accurate than relying on visual appearance of crossing. **Weaknesses:** Individual's opinion might not reflect accurate usage. User demographic might be misinformed.	
		Based on appearance of crossing.	Not advisable when trying to establish sleeping dog status, or where suspected or known high usage exists. Census needs to be supported with further evidence and is better suited to a nine day count.	**Strengths:** Allows use of structured expert judgement. **Weaknesses:** Relies on structured expert judgement being accurate. Unsupported by factual information. Behavioural patterns not observed.	

Type	When to use	When not to use	Strengths and weaknesses	Census owner
Estimate at protected crossings	For modelling the effect of changes in predicted traffic flows, e.g. impact of new developments on LC usage.	Not advisable where real time data is available.	**Strengths:** Allows forecast changes to be modelled in ALCRM enabling the impact to safety to be understood. This intelligence enables, for example, informed decision making in regard to planning application approvals or objections. **Weaknesses:** Relies on projected data to be accurate, as far as is reasonably practicable.	Level Crossing Manager

Table 1 Types of census

4.3 Selecting an appropriate census type

Although a nine day or extended census offers the greater opportunity for accuracy and is therefore the preferred choice, as detailed in 4.2, there are many factors that might ultimately influence the type of census chosen by an assessor.

Decisions that influence census selection might include matters such as the availability of source material; such as mobile camera technology, the readiness of resources required to undertake the census or deploy equipment, the confidence in existing intelligence or the financial outlay if using third party suppliers or procuring technology. In addition there are other considerations which can vary between assets and which will influence the requirement. For example:

- Reason for census – e.g. the census is required to support a risk assessment at which intelligence is already rich and relatively current, to verify and quantify vulnerable usage or to support a re-signalling or renewal project.
- Peaks and troughs – where usage can vary significantly during the hours of the day and days of the week, a nine day census or longer is more likely to provide a much better picture of crossing use than a quick 30-60 minute census.
- Seasonal variations – where usage varies significantly at different times of the year, e.g. due to holiday periods, leisure attractions or agricultural use, a second census is advised as this will provide better quality data relating to annual usage.
- Weekend peaks – where high weekend usage is suspected e.g. crossing is on a route to a tourist attraction or is used as a leisure walkway, a nine day census or longer will offer a much better picture of crossing use than a quick mid-week or 24 hour census.
- Logistics, practicalities and costs – e.g. an extended census might be needed for a duration of between nine days to several months to substantiate usage or the crossing might be in a remote location.

To illustrate this further, the table below offers examples of how factors may shape decision making. The content of Table 2 is not exhaustive.

Factor	**Requirement**	**Census suitability**
Uncertainty over night-time quiet period usage	Need to establish the level of use during the hours when whistle board protection is removed.	Quick census is unsuitable for this purpose as it will not offer a consistent picture or pattern. A nine day census or extended census is needed. Deployment of mobile camera technology or third party supplier required.
School in close proximity to level crossing	Need to better understand behavioural patterns and the volume of crossing usage by vulnerable users. *NOTE: Whilst it is essential to understand the effect the school has on crossing usage, it is also important that a quick census does not focus solely on school arrival and departure times or during a lull in activity during the day.*	A nine day census or extended census offers to the best opportunity to identify trending patterns of use. Deployment of mobile camera technology or third party supplier required. A 24 hour census is better suited for this purpose than a quick census, but is not as robust as a nine day or extended census.
24 hour operational business resides in close proximity to level crossing	Need to understand the impact that shift change or deliveries might have on level crossing safety, e.g. night time quiet period, darkness risk and peaks in usage.	Quick census is unsuitable for this purpose as it will not offer a consistent picture or pattern. A nine day census or extended census offers to the best opportunity to identify trending patterns of use. Deployment of mobile camera technology or third party supplier required. *NOTE: Speaking to local businesses for information on working hours can enhance understanding of business impact on level crossing safety.*

Table 2 Additional census selection factors

5 Good practice regarding census data collection activity

5.1 General

This section contains good practice guidance for assessors when undertaking quick or 24 hour census in-house, in addition it details items to consider when actively recruiting an external supplier to undertake a 24 hour, nine day or extended census.

Section 5 also features guidance on vulnerable users.

5.2 Quick and 24 hour 'manual count' census undertaken by Network Rail staff

If a nine day or extended census cannot be undertaken, it is important that assessors are confident that either a 24 hour or quick census is appropriate to reflect reasoned accuracy for the asset being assessed. Census selection is discussed in 4.

Preparation	**Quick & 24 hour census** Always review previous censuses to re-familiarise yourself with the user demographic recorded and take cognisance of observations relating to vulnerable users, irregular users, peaks, troughs and seasonal fluctuation. Also use this information to determine the appropriateness of using a 24 hour or quick census. **Quick census** Previous census might also offer intelligence to inform decision making when deciding on the best time of day or day of the week to undertake census data collection activity. Make sure that you source equipment, tools and other items in a timely manner. Such items might include: downloading of electronic forms, iPad (charged), paper collection forms (contingency), pens, compass, range finder, measuring wheel, camera (charged/memory card with capacity) and appropriate clothing aside of corporate PPE; e.g. taking forecast weather conditions into account, the crossing location and the need for personal comfort. Prepare and obtain necessary SSOWPs to assure your site safety during the visit. **24 hour census** Agreement with relevant operations staff will be needed if a 24 hour 'manual count' census is considered appropriate. Consideration will need to be given to staff welfare; the ability for this method to provide a robust count and take cognisance of resource implications, so as to justify why this approach is better suited than deploying technology or employing outside parties. If a 24 hour 'manual count' census is considered appropriate, a template for this purpose should be provided to staff undertaking the task.

On site behaviour	**Site safety and staff welfare is the first priority** Take the census from a position of safety where the crossing is fully visible. Do not obstruct user access or distract users during the traverse/within the confines of the crossing. Park road vehicles appropriately, e.g. do not obstruct signage, crossing equipment or impair safe use of the crossing. Do not stand where you might obstruct crossing signage or equipment. If engaging with users to determine a broader understanding of the risk profile: – be approachable, professional and prepared to listen; – be cognisant of the environment and the positions of safety; and – only engage in conversation when it is safe and appropriate to do so
Data collection	Note the start time, date and duration of the activity. Take cognisance of the type of crossing you are at and the level of concentration that is needed to conduct an accurate census, e.g. are you at a public highway crossing with high traffic moment or are you at a rural passive crossing that is lightly used? Observe usage: – is it in keeping with the calculated traverse time? – are users operating the crossing safely? – are there a high number of vulnerable and irregular users and how does this translate into applying the 50% safeguard? It is always useful to engage with users to obtain census information. It might lead to intelligence on risks and hazards that you might be unsighted to. It is often good practice to ask them about user demographics, if they have observed deliberate misuse or safety events and if they have any issues of concern with the asset, e.g. slippery surface, confusion with instructions on safe crossing protocol etc. Be aware of extreme weather conditions; this might influence the level of use witnessed during the census gathering activity. This can be particularly relevant at footpath or bridleway crossings. For example, very bad weather (gale-force winds, sleet, snow and very cold conditions) might lead to a reduction in the number of crossing users seen and conversely very good weather (heatwave) might result in slightly more users being out-and-about. Whilst both extremes are valid user moment experiences, in terms of quick census they could distort accuracy levels if significant. It is important therefore to consider if the weather conditions might have distorted the accuracy of the census. If appropriate, evaluate the need to revisit the crossing at another time.

Table 3 Quick and 24 hour ‘manual count’ census data gathering

5.3 Identifying vulnerable users

5.3.1 Vulnerable user definition

Vulnerable level crossing users can be defined as people who, when compared with typical users:

- are likely to take an extended time to traverse due to disability or distraction; and/or
- might be at greater risk of harm due to their perception of risk.

5.3.2 Defining vulnerability

There are a number of factors that can result in people being at greater risk when using level crossings. These can include but are not limited to:

- Limitations in mobility (take into account not only the ability to walk, but also the ability to turn their bodies or heads and look for oncoming trains)
- Visual or hearing impairment
- Cognitive ability, e.g. making safety related decisions (very young and elderly people are more likely to make poor decisions on the distance and speed of large moving objects such as trains)
- Being encumbered, e.g. crossing with bags, pushchairs, cycles or dogs (consider if dogs are on or off a lead (including the use of extendable versions), and if owners are in charge of more than one dog; it becomes increasingly harder to control multiple animals)
- Inability to comprehend English, i.e. to read signage and / or speak to Signallers

5.3.3 Types of vulnerable users

Vulnerable users can include, but are not limited to:

- People with physical and/or mental disabilities or other impairments; incl. those using mobility scooters
- Young children; unaccompanied or in groups
- Elderly people
- Dog walkers
- Cyclists, e.g. where known not to dismount and considered ‘at risk’
- People carrying heavy bags or large objects, with pushchairs etc.
- Non-English language speakers, e.g. migrant workers

5.3.4 Identifying vulnerable users by location

The likelihood of a level crossing being used by vulnerable users can be influenced by its proximity to:

- Sheltered housing or care homes; residential and nursing
- Schools
- Stations
- Residential thoroughfares
- Busy high streets
- Parks, play areas, known walking areas
- Fixed local attractions, e.g. beaches, caravan sites

5.3.5 Means of identifying vulnerable users

Crossings that might have vulnerable users can be identified by:

- Observation; census
- Research into the crossing environment using intelligent sources of information
- Interviewing users in nearby businesses, residential dwellings etc.
- Near miss or other reporting of precursor events

Other influencing factors can include:

- Location and/or crossing type, e.g. field to field crossings with stiles are less likely to have a high proportion of vulnerable users than a gated footpath crossing in an urban area
- Condition of the asset which might influence user traverse speed further, e.g. skewed crossing, stepped approaches etc.

5.3.6 Higher than average

5.3.6.1 What is higher than average?

NOTE: The below illustrative example does not offer a ratio of application, nor does it take precedence over structured expert judgement where for example, an assessor considers it an essential requirement to protect a minority user group or single person.

If there is ambiguity or uncertainty then, additional research and/or extended census might be necessary to inform decision making.

Deciding on whether higher than average vulnerable usage is prevalent should always be based on structured expert judgement and assessor's acquired knowledge. Decisions should be supported by all available evidence gathered as part of the risk assessment; taking cognisance of physical on-site observation and

intelligent sources of information. As an illustrative means only, it might be appropriate to consider, if for every five users:

- only one in five is made by a vulnerable user, the 50% safeguard might not typically be applied
- two in five is made by a vulnerable user, it is especially important that a risk based decision is made
- three to five are made by vulnerable users, the 50% safeguard would always be applied

The table below can be used to help decide which groups are considered vulnerable; however, it remains the LCMs final decision to add the 50% safeguard

	Vulnerabilities	When users are not normally considered vulnerable
Physical or mental disability	Users with known or suspected disabilities should always be considered as vulnerable; records should support this	N/A
Children	Easily distracted	Observed to be using the crossing correctly and safely as an individual user
	Subject to peer group pressures	Observed to be using the crossing correctly and safely as part of a group of users
	Low cognitive ability to interpret risk	Older children who may not be considered to be vulnerable users
	Observed to be unaware of or ignoring safe crossing protocols	Observed using the crossing correctly and safely whilst dismounted from a bicycle, scooter or similar
	Very young children most susceptible to all of the above vulnerabilities	
	Unaccompanied	
	Mounted or pushing a bicycle, scooter or similar	

	Vulnerabilities	When users are not normally considered vulnerable
Elderly *Judgement is needed as not all elderly people are slow or less able to use a crossing safely. The elderly are often in less of a hurry and can equally take greater time and care when crossing.*	Observed using walking aids or other obvious signs of mobility impairment	Observed to be using the crossing correctly and safely as an individual user
	Encumbered with shopping trolleys or large heavy bags	Observed to be using the crossing correctly and safely as part of a group of users
	Slower cognitive ability and/or reaction times	Observed to be compensating for sensory loss by checking carefully and moving as quickly as possible
	Using a mobility scooter; risks associated with negotiating decked surface (including width considerations) or getting stuck on the flange-way at skewed crossings	Persons who display physical fitness such as ramblers and leisure walkers
	Mounted or pushing a bicycle	
	Have become complacent and overly familiar with the train timetable and safe crossing protocol	
Dog walkers	Distracted due to: • dogs off leads • multiple dogs on leads • dogs on extendable leads	Observed to be using the crossing correctly and safely whilst keeping dogs on leads and under control
	Users who put themselves in danger to recover dogs off leads who are lineside	
	Type of access, stile/gate, and relative position of safety which may import risk to users who are unduly focusing on their dogs rather than making a safe crossing	
Cyclists	Failing to dismount and cycling across the crossing	Individuals observed dismounted and using the crossing correctly and safely
	Groups observed riding over the crossing together	Observed negotiating the crossing from a position of safety when manoeuvring their bicycle through the access and egress points
	Families on outings with small, young children on bicycles	
	Cyclists with trailers	
	Cycling event routes which attract and encourage crossing use by mounted riders	
	Type of access, stile/gate, and relative position of safety which may import risk to users who are unduly focusing on their bicycles	

5.4 Pedestrian usage at public highway crossings

If undertaking a quick census at public highway crossings, in the absence of the availability of a nine day or extended traffic census, it is good practice to sense-check pedestrian count. Whilst vehicular traffic flow remains 'broadly' consistent, pedestrian moment can be much more volatile and subject to environmental influences. These same environmental factors will also dictate the 'typical' volume of pedestrian use of level crossings; generating peaks and troughs which could be missed by a quick census. For example, if an asset is located in close proximity to residential dwellings and/or community links such as shops or schools, the chances are that the pedestrian footfall is notable; i.e. you would expect to see pedestrian users. If a 30 minute quick census was undertaken mid-morning and resulted in very nominal numbers observed or no pedestrian users witnessed, this might not represent 'typical' pedestrian moment, but could be a rare lull in use. In addition, where users are witnessed, this might not represent the complete user demographic; schoolchildren, students etc. If uncertainty exists, a nine day or extended census might be needed. Utilisation of other intelligent sources, see 7, would be advisable and might also serve to substantiate concerns.

5.5 Nine day, extended or 24 hour census undertaken by external suppliers

There are companies that can be appointed to undertake 24 hour, nine day or extended census gathering activities. Research might be necessary to identify local companies with the capability to do this type of work or if appropriate and economical, national organisations might also be available for this purpose.

Funding for census data collection activity undertaken by external suppliers will need to be considered. Sources of funding for such work might incorporate use of the Route Safety Fund or additionally project funding, for example if census relates to a renewal or enhancement activity, might be available for this purpose.

It might also be necessary to undertake a formal tender process if the cost of work necessitates this. If in doubt, please confirm business protocol requirements.

Instructions to companies undertaking census data collection activities should include requirements for:

a) when the census is to be undertaken and its duration;

b) data to be recorded, e.g. types of users (vulnerability of users: persons encumbered, disabled, unaccompanied children, elderly, dog walkers, headphone wearing, texting etc…), vehicle types (HGV, tractors, buses, cars, vans etc…), and the date/time they are observed;

c) how the data is to be presented, e.g. hourly, daily, mean average per user type and/or hazardous event (e.g. children, elderly, texting, using mobile phone, hood up); and

d) when the data is required by

GRD007 Level Crossing Census Requirements contains further details on this.

5.6 Modelling of nine day or extended census activity

It is recommended that daily usage is recorded by respective user groups so as to enable an average to be taken per group for the census duration. In this way, the 24 hour entry in ALCRM represents the average daily moment per user group as opposed to overestimating or underestimating usage patterns by taking the highest or lowest daily figure witnessed during the census data collection activity.

5.7 Estimated census

As discussed in 4.1, estimated census is likely to be the least accurate of all census types and is the non-preferred approach. In all cases, actual census activity should be undertaken whenever practicable.

Where estimate census is used, it should only be applied to very lightly used crossings, such as field to field crossings in rural areas or private vehicular crossings with evidence of limited usage e.g. rusty padlock, overgrown approaches.

To estimate the usage of the crossing:

a) use information supplied by the authorised user(s) if applicable/available;

b) If applicable, interview the landowner or neighbouring landowners and ask how often the crossing is used, by whom and if applicable, by what type of vehicles. Ask whether or not there are particular periods which might generate use or greater use e.g. harvesting, holidays etc;

c) speak to owners of nearby dwellings or facilities that might use or witness use of the crossing;

d) look for evidence of use such as tracks or trodden paths, litter or other signs, analyse the extent of vegetation growth around the access points, take account of rust on padlocks (where fitted); and

e) utilise intelligent sources of information to help in the application of structured judgement; see 7.

6 Influencing factors affecting crossing usage

There are many factors that can influence usage patterns over level crossings. These factors might impact census flow daily, weekly, monthly or even annually.

It is important that such intense changes are evaluated when undertaking census gathering activity so as to avoid over or under inflating calculated risk. Where such usage patterns are identified, steps should be taken to provide a balanced census count. This might involve re-commissioning census or an extended census to better reflect accuracy and/or involve adding a second census in addition to the first so as to afford a more accurate representation of user moment.

Intelligent sources of information in addition to on-site observations can help assessors identify influencing factors; see 7.

The table below details a selection of factors that might influence user moment. The content is non-exhaustive.

	Asset Type		
Influencing factor	Public road	Footpath or bridleway	User worked crossing
Road network: full or partial closures, minor road works, diversionary routes in utilisation, road traffic accidents, road layout alterations under construction			
Asset located near to attractions: funfairs, leisure retreats, historical or tourist matters of interest, beaches, race courses, motor racing circuits, theatres, concert halls, proximity to 'night-life' – e.g. clubs, bars, restaurants etc…			
Proximity of schools, hospitals, health clinics, community centres, shops etc…			
Proximity of businesses, types of businesses and hours of operation			
Type of private asset: field to field access for tending to crops or cattle, residential access, entrance to private facility or business use			
Harvest: types of crops, seasonal variance, hours of crop management			

Table 4 Influencing factors affecting user moment

NOTE: *For further information on census at private vehicle crossings, please also see guidance document LCG12 – Intensive use at UWCs.*

7 Using in-house technology to collect census information

In-house technology is widely used by assessors to help gather census intelligence. Available technologies adopted include use of mobile cameras, gate counters, pressure pads and SmartCam fixed equipment.

Camera equipment offers the best intelligence gathering capability as it can be used not only to count users, but to identify user demographics, including the presence of vulnerable users, and capture the behavioural attitude of users of level crossings. Naturally cameras are suited to 24 hour, nine day and extended censuses.

Gate counters and pressure pads, although suited to similar census conditions, have weaknesses which limit their successful deployment and effectiveness. The primary shortcomings with these census solutions is their inability to differentiate between user groups, provide capability for assessors to interrogate behaviour and the uncertainty of activation; e.g. a counter could be triggered by wind moving a gate or an animal standing on a pressure pad.

7.1 Use of fixed or mobile camera solutions

7.1.1 General and pre-planning activity

Deploying camera technology for nine days or more or using fixed equipment (where available) offers the greatest opportunity for accurate census.

It is important to pre-plan this activity well in advance so as to maximise the accuracy of the census gathering opportunity. You should take account of the date of the planned risk assessment and the duration of the census needed to provide a robust census, so that sufficient time is allocated to deploy camera technology. This applies where a single census is proposed to portray annual usage or where a second census is needed to support a more balanced annual picture.

When using camera equipment for the purpose of census gathering data collection, there are other important things to consider and procedures to follow. These are discussed below.

7.1.2 Knowing the law and complying with our legal obligations

Network Rail is subject to various acts of legislation and codes of practice. In particular, information security and data protection acts apply to the use of camera technology where it is used for the purpose of gathering census information at level crossings.

It is important that these instructions are adhered to so as to prevent legal or reputational risks to the company or individuals within the company. This includes regulatory or other operational threats and financial penalties which might ensue.

7.1.2.1 Notifying the general public/private land owners

Before camera equipment is switched on and during its operational use, it is essential that a conspicuous notice is provided on each side of the crossing informing users of its operational status and purpose.

The wording of notices shall be:

"A CCTV recording system is operated at this level crossing for the purposes of safety and the prevention of crime. The organisation responsible for the management of the system is Network Rail, which can be contacted on 03457 114141".

These legal notices demonstrate that Network Rail is complying with the requirements of the Data Protection Act 1998. Specifically we must demonstrate that we are conforming to the following principles:

- Personal data shall be processed fairly and lawfully – *Organisations must be transparent about how they intend to use the data and give individuals appropriate privacy notices when collecting their personal data.*
- Personal data shall be obtained only for one or more specified and lawful purposes – *Organisations must be clear from the outset about why they are collecting personal data and what they intend to do with it.*

7.1.2.2 Data security

Data security is an important aspect of our company compliance with legislation and codes of practice. It is important that camera equipment is secured against vandalism or theft, and where equipment is mobile, that all practical steps are taken to reduce the temptation or likelihood of such acts.

The essential requirements that must be undertaken when deploying any camera technology are:

- Placing the camera equipment in a security box which is securely located and padlocked; and/or
- Encrypting the SD card prior to use.

In addition, locating equipment which will reduce attention, conspicuity or the likelihood of tampering is strongly advised.

7.1.2.3 Data retention/storage

Census data cannot be held indefinitely without good reason. A reason for retention of footage or an image might be necessary because it highlights a risk or bad practice that can be used to promote awareness and educate others. Before images are shared, whether externally or internally, it is essential that they are redacted so as to preserve a user's identity. Retention shall be by exception and a record should exist of any pictures held including where they are located.

In normal operation, data must be deleted once the census has been completed and intelligence analysed.

When making decisions about retention, consider the implications of the following principle of the Data Protection Act 1998:

- Personal data processed for any purpose or purposes shall not be kept longer than is necessary for that purpose or those purposes – *Organisations need to:*
  - *Review the length of time personal data is kept for;*
  - *Consider the purpose or purposes the information is held in deciding whether (and for how long) to retain it;*
  - *Securely delete information that is no longer needed for this purpose or these purposes; and*
  - *Update, archive or securely delete information if it goes out of date.*

7.1.2.4 Subject access requests (SARs)

So as to comply with SARs, a log of camera deployment, a record of data deletion and the location of any retained images or footage (as above 6.1.2.3) must be kept.

7.1.3 Positioning of mobile solutions

NOTE: *When deploying camera solutions always remember that your personal safety is essential – make sure you have arranged a safe system of work before you begin.*

It is important to position camera equipment so that it can record the very best footage and afford the very finest intelligence. In deciding on the location of equipment there are many things that need to be taken into consideration. These include, but are not limited to:

- The quality and capability of the technology; e.g. will the image quality be sufficiently robust to depict the user demographic and age profile if positioned remote from the asset.
- Optimal positioning so as to facilitate the identity of the user demographic, identify vulnerable, encumbered or obviously impaired users, whilst contextualising the user and the asset and helping to identify behaviours, hazards and risks.
- The likelihood that equipment may suffer from theft or vandalism.
- The possibility that the environment may trigger spurious activations where motion detection is in use due to vegetation, wildlife or passing trains.
- Battery life and data capacity; the greater the number of users/motion activated triggers, the greater the impact on battery drain and memory card capacity.
- The need to understand greater second train coming frequency.

There are a number of good practice indicators which have been identified within the Level Crossing Manager community in regard to camera deployment. Excerpts of these are shown below:

- When mounting census equipment within the railway boundary, ensure that it does not interfere with the safe operation of trains, crossing equipment or positioned so as to result in user distraction.
- Try to avoid installing equipment on the direct route a user will travel to minimise the likelihood that the camera might be subject to theft or tampering.
- Take cognisance of the trespass history of the crossing in determining the positioning or appropriateness of deploying camera technology.
- It is advisable to mount camera equipment at a height of between 2ft and 6ft from the ground to reduce the likelihood of spurious activations from vegetation or animals.
- Where camera equipment is located in close proximity to trees or other shrubbery, make sure that branches will not foul the field of vision during bouts of wind or rain.

- Be aware of positioning equipment in such a way that activity from roads or paths parallel to the railway might cause spurious activations and result in unanticipated battery drain and/or quickly fill capacity of memory cards.

7.2 Use of gate counters and pressure pads

Due to the limited capabilities of gate counters and pressure pads in comparison with camera technology, as discussed in 6, the value added ability of this equipment is to support census intelligence by validating user numbers. For example, the use of quick census combined with multiple intelligent sources might, in isolated cases, provide enough information on which to make a judgement regarding user demographic, vulnerable usage and user behaviour. Gate counter or pressure pad technologies, could therefore help assessors to determine usage numbers over a sustained period of time and in doing so validate the quantitative output of the quick census.

In addition and where equipment can record date and time of activations, gate counters or pressure pads might be used to provide intelligence relating to peaks and troughs and night-time quiet period usage for example.

In summary and as illustrative examples, these technologies can be used for confirming:

a) sleeping dog status;

b) night-time quiet period use or usage during darkness;

c) peaks and troughs: daily or weekly;

d) provide a numerical count to check the accuracy of a quick census or validate other intelligent sources of information; and

e) to gather generic data, i.e. not user type intelligence, in support of level crossing closures.

8 Identifying crossing use through intelligent sources of information

8.1 General

As discussed in 4.1, it is important in addition to on-site census activity, to make full use of all available intelligent sources when determining usage of level crossings.

The fatality at Frampton level crossing on 11th May 2014, involving unknown unauthorised use of the bridleway element of the crossing by trail bike riders, highlights the type of activity that takes place across our network. It is acknowledged even with extended census and the use of intelligent sources, that this type of event might still go undetected, but the broader the research and active data collection, the greater the opportunity to identify such practices.

It is therefore advocated that the combined use of census which is nine day or greater, with the proactive use of intelligent sources (internet searches, researching social media and local club sites), in addition to seeking visual cues when on-site

(tyre tread patterns or other clues); betters the opportunity for identifying the risk of unsafe or unauthorised activity than a quick, 24 hour or nine day census in isolation.

This is especially important so as to identify usage or patterns of use that might not be apparent even where nine day or extended census is undertaken. For example, organised groups promoting monthly or annual events which impact on the use of a level crossing could be missed from census activity alone, even where extended census is applied.

Utilisation of intelligent sources might also serve to identify vulnerable users or unauthorised use of level crossings. In this regard it can help assessors to identify organised groups so as to engage with them proactively and/or target risk mitigation appropriately.

8.2 Use of intelligent sources

Intelligent or smart-sources of information can take many forms. The information sources detailed below are not exhaustive, but they are a good source from which to build a portfolio of research material. Their sequence is also not representative of any hierarchical order of importance.

8.2.1 The internet

The world-wide web offers an abundance of opportunities to identify information to support census gathering intelligence. This rich smart-source may hold the key to significantly increasing assessor knowledge about the use of a level crossing and/or its users.

Detailed internet searches may yield information about the immediate environment, identify the promotion of rights of access or events and highlight use of level crossings by organisations or societies. When using the internet, consider:

- Local authority websites – might contain information on redevelopment proposals, road diversions, public attractions such as funfairs or other risk influencing intelligence.
- Rights of way maps and other mapping services – will highlight risk influencing factors within the immediate environment such as schools, businesses, public attractions, road layouts and afford understanding of how an asset serves the local community; e.g. provides a thoroughfare link, commuter route etc. The Definitive Map will help to identify if the route over a level crossing is publically promoted.
- Social media sites – intelligence relating to the use of level crossing might be available from social media channels such as: Facebook, YouTube, Twitter and Instagram. Individuals and organisations often promote activities via these network channels. Intelligence might include *posts* on forthcoming organised events within the locality, video footage or images of actual crossing use (including unauthorised or risk taking activity) and/or highlight

trends in use or frequencies of use including use by an unknown user demographic.

- Dedicated websites or chatroom forums – National groups such as the Ramblers or more localised groups such as off-road trail bike, 4x4 vehicle communities or regional scout groups often share or discuss experiences, social activity and promote events on their dedicated websites. A search for such communities and groups within the area of a level crossing may yield unknown intelligence about level crossing activity.

8.2.2 Highways authority traffic surveys

It is prudent to discuss with local authorities their programme of traffic surveys; both planned works and available footage or census data from completed activities. It might be possible to utilise this intelligence within risk assessments wholly or partially with agreement. Direct liaison with local authority contacts or through Road Rail Partnership Groups is advised.

8.2.3 Discuss the level crossing with the local experts

It might be that the best intelligence is accrued from the local community or those who interface with the asset directly. Often information may come to light through engaging with persons or groups that would otherwise reside unknown from census activity alone. Such intelligence might be obtained through discussion with people or groups such as:

- Local authority rights of way officers or community leads
- Council or Highways Agency officials
- Level crossing users
- Authorised users of private level crossings
- Local residents or businesses, schools or colleges
- Local user groups or clubs
- Signalling staff (Signallers or Crossing Keepers)
- Off-track, S&T, patrolling or other operational staff; e.g. MOMs
- Train operating companies (Drivers, Guards, station staff)
- British Transport Police

8.2.4 Operational records of crossing use

For private vehicle crossings equipped with telephones or automatic half barrier crossings (AHBs), record keeping in the form of occurrence books should exist to supplement intelligence for vehicle movements; albeit only for large or slow movements in the case of AHBs. In addition, in cases where the crossing provides

access to business premises, there might be separate registers or site visitor logs which could support intelligence regarding vehicle use.

Accuracy of records is unlikely to be such that numbers or intelligence can be considered to be 100% assured, but if information is combined with additional research, it might contribute toward a broader understanding of actual crossing usage.

8.2.5 Tagging

At very lightly used or perceived dormant crossings, tagging a gate can be a useful way to determine if the asset is actually used, by whom and at what frequency. There is no guarantee that a user will make contact if they break the tag to cross, but its presence might:

a) Promote contact, resulting in useful intelligence that would not otherwise be forthcoming; or

b) If removed to cross, but no contact is made, it will be apparent to the assessor during the next risk assessment or asset inspection; an obvious sign that the crossing has been used and that greater intelligence is needed.

If tagging a gate, the user instruction should be stored in a waterproof container with the tag in a conspicuous place. As a minimum its contents should include:

- Level crossing details; name, type, UID (ELR, miles, chains)
- Date tag was placed at the crossing and the reason for the tag
- Telephone number and/or email address of contact point (typically this might be a Control Centre to ensure a 24 hour response)

9 Intelligence driven response to census

9.1 General

The undertaking of active census in conjunction with the use of intelligent sources of information will often confirm ‘known’ or suspected patterns of use, substantiate risks or hazards and endorse the user demographic; including the presence of vulnerable users. In other cases it may highlight unknown threats, unauthorised use or unsafe practices which require immediate interim actions, in addition to long-term plans, to control.

As a prerequisite of risk management protocol, it is important that intelligence is acted upon to mitigate threats or hazards and manage safety. In no hierarchical order, actions or parallel actions might include:

- Redeploy camera equipment (if appropriate) to better identify usage, patterns of use, user groups or collate additional evidence to support intelligence.
- Work collaboratively with operations staff (OM, LOM, and MOM), BTP, train operators and other stakeholder partners. If regular patterns of use are identified and as appropriate, arrange for evening or weekend visits to the

crossing, so as to talk directly with users to re-educate them regarding unauthorised use and unsafe acts. A BTP presence might also serve to enforce key messages. Operations staff working on a shift basis, such as MOMs, may be best placed to support this approach, unless by agreement, a Level Crossing Manager volunteers to work 'out-of-hours'.

- Revisit the internet and make specific use of targeted user group searches; specifically this should include using social media and local community or club websites to identify groups or clubs that observed users may belong to.
- Make direct contact with relevant local organisations, such as trail bike, 4x4, equestrian or walking societies, so as to promote safe crossing protocols, highlighting the risks and hazards associated with level crossings and unauthorised use. Work collaboratively to address safety concerns.
- Make contact with any county or national organisations if it is possible that the group or organisation is broader than the immediacy of the parish. Contact the central level crossing team if there are national implications and transferrable risks. It is important and advantageous to engage with and promote safety within larger institutions.
- Work collaboratively with local authorities, highways agencies and rights of way officers to:
  - determine if public and private status is accurately represented in documentation such as the Definitive Map;
  - identify whether restrictions and prohibitions by vehicles or other groups is suitably recorded and visible in public documentation; and
  - understand what additional actions can be taken by local authority colleagues to support Network Rail in managing asset safety.
- Take practicable steps to improve safety through delivery of physical improvements and provision of mitigation:
  - Re-evaluate closure opportunities, diversionary access and downgrades in status (where applicable).
  - Evaluate the requirements to provide risk reducing mitigation such as MSL, POGO for example.
  - Signage: review optimal positioning and order of signs, clarity of instructions; are there too many leading to signage cluttering and ambiguity or confused information, is there unnecessary signage or duplication, if appropriate and safe to do so without resulting in distraction or dilution of safety critical information – is there scope to provide an additional safety information or trespass sign etc…
  - Take steps to improve the crossing layout and undertake general infrastructure improvements: channelling, user segregation, improving traverse, sighting etc…

10 Census protocol

10.1 General

Every effort should be made to undertake a new census when undertaking a new risk assessment. In this way data is kept current with latest intelligence and:

- recorded census is reflective of the most current position, taking account of environmental or other external influences and the user demographic;
- calculated risk is representative of the current threat; and
- it facilitates analysis of the trending risk profile of the asset.

Where a quick census is used, see 4.2, this should be undertaken at the time of the site visit. In exceptional circumstances, it might be necessary to undertake the census on a different day, for example, if weather conditions adversely affect the accuracy of census data on the planned day of collection. If the census needs to be taken on another day, it should be undertaken as close to the date of the original site visit as possible.

Where a 24 hour, nine day or extended census is used, pre-planning activity should facilitate a structured timeline to deploy census gathering equipment or arrange external support, so as to tie-in with the date of the risk assessment site visit.

Where additional census is needed, this should be undertaken during the most appropriate parameter; taking account of intelligence, the reason for the second census and all other pertinent factors.

10.2 Applying new census data to an existing risk assessment

10.2.1 Acceptable use

Sometimes, more recent census data than that used in the current risk assessment becomes available or a need for new census data is identified. For example:

- a Network Rail project might commission a nine day census as part of an asset renewal or re-signalling scheme;
- a developer might submit a current nine day census for comparison against projected usage;
- an authorised user might provide unsolicited census data;
- an additional census might have been undertaken to capture seasonal variations in use;
- a Highways Authority might undertake a traffic survey and share it directly with the Level Crossing Manager or through Road Rail Partnership Groups; or
- a third party report might be received which generates a requirement for a more recent census, for example, usage is identified during the night-time quiet period at a whistle board protected crossing.

The new census information can be applied to the existing risk assessment provided there is confidence that all other cumulative data remains fit for purpose. If there is any doubt or ambiguity over this or if an extended period has lapsed since this data was accrued, a complete new risk assessment might be necessary.

If there is a significant change in the ALCRM score as a result of using new census data:

a) evaluate the need to undertake a new risk assessment;

b) re-evaluate the need for new or additional risk control measures or the need to expedite planned mitigations or implement interim controls; and

c) review the impact of the change on the risk assessment frequency.

10.2.2 How to record this in ALCRM

When it has been established that it is appropriate to use new census data in an existing risk assessment (in place of existing data), this should be recorded in ALCRM as follows:

a) Create a new option below the current (LIVE) risk assessment and in the census tab enter the new census date;

b) Enter the name or source of the census taker/provider, duration and type for the census being used and the census data itself;

c) Add any pertinent information about the new census within the notes section and explain why the decision to use it has been made; and

d) Set the option to recommend, approved and implemented so that it becomes the LIVE risk assessment.

10.3 Using old census data in new risk assessments

10.3.1 Acceptable use

In exceptional circumstances it might be appropriate to use census data that pre-dates the risk assessment being undertaken. This is only appropriate where the census is believed to give greater accuracy than that completed during the site visit. Examples are shown in table 4.

Wherever possible, the old census data should be compared to the census completed during the site visit. This is important to establish if the old census continues to provide accurate data on crossing usage.

Old census	New census	Validation	Comments
Nine day or extended census or 24 hour census	Quick census	Compare the daily usage from the new quick census with the daily usage from the previous nine day, extended or 24 hour census.	If the data is broadly comparable, use the nine day, extended or 24 hour census. If there is significant variation, decide which census offers the greater accuracy using structured judgement and accounting for intelligent sources of information. If needed, undertake a new nine day, extended or 24 hour census.
Estimate provided by an authorised user	Quick or estimate census	Compare the daily usage from the new quick or estimate census with the data provided previously by the authorised user. *NOTE: A quick census might over or under estimate usage. The AU estimate might identify different patterns of use not identified by a quick or visual estimate.*	If the data is broadly comparable, use the estimate provided by the authorised user. If there is significant variation, decide which census offers the greater accuracy using structured judgement and accounting for intelligent sources of information.
Quick census, users witnessed	Quick census, no users witnessed and estimate made	Apply structured expert judgement to decide if either census is appropriate or if a new census is needed.	Use the old census data if it is believed to more closely reflect usage than the estimate made, making use of structured judgement and accounting for intelligent sources of information within decision making. If not satisfied that either census reflects crossing usage accurately, a new nine day or extended census should be undertaken.

Table 5 Examples of using old census data

10.3.2 How to record this in ALCRM

When it has been established that it is appropriate to use old census data in a new risk assessment, this should be recorded in ALCRM. The date of the old census should be recorded appropriately and any pertinent information about the old census, including the decisions taken to use it and any comparison or validation with new census data, should be documented within the notes section.

10.4 Comparing new census with historic census

10.4.1 General

It is good practice to compare new census information with historic census so as to:

a) identify when significant changes have taken place such as:
   - changes in user numbers;
   - changes in user demographic, e.g. increase in vulnerable and/or irregular users
   - changes in vehicle use or type, e.g. increase in or introduction of HGVs; and

b) take account of historic census activity so as to utilise all intelligence and remain consistent in the identification of vulnerable and irregular users or types of vehicles and patterns of use, SFAIRP;

c) consistently apply an appropriate traverse time applicable to the user demographic or vehicle moment;

d) apply the correct minimum sighting requirements appropriate to the user demographic or vehicle moment; and

e) reduce the likelihood of errors within census counts so as to increase the accuracy of modelled risk and the application of structured judgement within risk assessment.

A comparison of data between new and historic censuses can help to identify trends, highlight any potentially significant changes in risk or signpost errors in census data. It is good practice to make this comparison using more than the last census taken so as to comprehensively take account of all available information.

Changes to look for should include:

- significant movement in usage figures;
- alterations in use by vulnerable and irregular users; taking account of any broader demographic change; and
- peaks and troughs and seasonal variation.

Such transitions in use or by users can significantly impact on the risk controls in place, or those proposed. It might also serve to provide assessors with a true holistic understanding of the assets history and an insight into future risks.

10.4.2 Analysis and actions

Where significant changes are identified, it might be necessary to undertake further detailed analysis to validate new intelligence. This will enable assessors to determine the full impact on risk.

Examples of changes that might trigger further investigation include:

a) the new census does not identify vulnerable users when they have been identified previously;

b) previous census(es) indicate night-time quiet period use and the new census does not;

c) previous census(es) include vehicle types which import risk, e.g. tractors and trailers or HGVs, the new census does not;

d) there are significant changes in user numbers (vehicle and pedestrian);

e) previously identified irregular use is not recorded in the new census, e.g. irregular usage previously recorded due to: leisure attractions, seasonal variation (beach access, fruit farms) etc.

Where conflicting information between assessments exists, it is important to utilise intelligent sources of information, in addition to further census activity or site-visits, to determine the accurate position.

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (LEEDS TO MICKLEFIELD ENHANCEMENTS) ORDER

DOCUMENT CD.01.21.05

Appendix to Proof of Evidence of Jerry Greenwood, Head of Infrastructure Liability

On behalf of Network Rail Infrastructure Limited

Managing Public Money-May 2023

Date 06 February 2024

HM Treasury

Managing Public Money

May 2023

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Contents

Foreword

This document sets out the main principles for dealing with resources in public sector organisations in the UK. Some of the specifics, especially those in the annexes, relate to England rather than the devolved administrations, which have their own detailed rulebooks. But the same basic principles generally apply in all parts of the UK public sector, with adjustments for context.

The key themes remain unchanged from previous version of this document and its predecessors. They are the fiduciary duties of those handling public resources to work to high standards of probity; and the need for the public sector to work in harmony with Parliament.

These principles are invariant.

However, the law, business practices, and public expectations all change. Public sector organisations can and should innovate in carrying out their responsibilities, using new technology and adopting good business practice. Throughout, Parliament always expects the government and its public servants to meet the demanding standards set out in this document.

The Treasury stands ready to help anyone who needs help in thinking through the issues.

The Treasury will revise this document from time to time as the need arises. Where necessary, the Treasury will also issue “Dear Accounting Officer” letters, to provide specific advice on issues of accountability, regularity and propriety, value for money and annual accounting exercises. The content of those letters carries the same force as the material contained in this document.

Above all, nothing in this document should discourage the application of sheer common sense.

Chapter 1
Responsibilities

The relationship between the government, acting on behalf of the Crown, and Parliament, representing the public, is central to how public resources are managed. Ministers implement government policies, and deliver public services, through public servants; but are able to do so only where Parliament grants the right to raise, commit and spend resources. It falls to the Treasury to respect and secure the rights of both government and Parliament in this process.

1.1 Managing Public Money: Principles

1.1.1 The principles for managing public resources run through many diverse organisations delivering public services in the UK. The requirements for the different kinds of body reflect their duties, responsibilities and public expectations. The demanding standards expected of public services are set out in box 1.1.

Box 1.1: standards expected of all public services

The standards expected of all public services are *honesty*, *impartiality*, *openness*, *accountability*, *accuracy*, *fairness*, *integrity*, *transparency*, *objectivity* and *reliability*. All should be carried out in the spirit of, as well as to the letter of the law, in the public interest, to high ethical standards and achieving value for money.

1.1.2 The principles in this handbook complement the guidance on good governance in the *Corporate Governance Code*[1] applying to central government departments. Some of the detail applies to England only, or just to departments of state. There is separate guidance for the devolved administrations. Where restrictions apply, they are identified.

1.1.3 Much of this document is about meeting the expectations of Parliament. These disciplines also deliver accountability to the general public, on whose behalf Parliament operates. The methods of delivery used should evolve as technology permits. Public services should carry on their businesses and account for their stewardship of public resources in ways appropriate to their duties and context and conducive to efficiency.

1.2 Ministers

1.2.1 In the absence of a written constitution, the powers used to deploy public resources are a blend of common law, primary and secondary legislation, parliamentary procedure, the duties of ministers, and other long-standing practices and conventions. This mix may of course change from time to time.

[1] The Corporate Governance Code – see https://www.gov.uk/government/publications/corporate-governance-code-for-central-government-departments

1.2.2 As the Corporate Governance Code[1] makes clear, the minister in charge of a department is responsible for its policy and business as part of the broad sweep of government policy determined in Cabinet. They:

- determine the policies of the departmental group
- chair the departmental board
- allocate responsibilities among the ministers in the department
- choose which areas of business to delegate to officials, and on what conditions
- look to the department's accounting officer (see chapter 3) to delegate within the department to deliver the minister's decisions and to support the minister in making policy decisions and handling public funds
- also have general oversight of other bodies on whose behalf they may answer in Parliament, including the department's arms length bodies (ALBs).

1.2.3 The Ministerial Code[2] requires ministers to heed the advice of their accounting officers about the proper conduct of public business. See section 3.6 below for how the minister may direct the accounting officer to proceed with a policy if a point of this kind cannot be resolved.

1.2.4 The minister in charge of a department may delegate defined areas of its business, or of its parliamentary work, to their junior ministers. Ministers have wide powers to make policies and to instruct officials.

1.2.5 Only ministers can propose legislation to Parliament to raise public revenue through taxation, or to use public funds to pursue their policy objectives. Specific primary legislation is normally required to spend public funds (see section 2.1).

1.2.6 Similarly, taxes may be collected, and public funds may be drawn, only with parliamentary authority; and only as Parliament has authorised.

1.2.7 It is not normally acceptable for a private sector organisation to be granted powers to raise taxes, nor to distribute their proceeds. Parliament expects these responsibilities to fall to ministers, using public sector organisations.

1.3 Parliament

1.3.1 Parliament approves the legislation which empowers ministers to carry out their policies. It also allows finance for services when it approves each year's Estimates. See the Estimates Manual[3] for more.

1.3.2 From time to time Parliament may examine government activity. Select committees examine policies, expenditure, administration and service delivery in defined areas. The Committee of Public Accounts (PAC - see section 3.7) examines financial accounts, scrutinises value for money and generally holds the government and its public servants to account for the quality of their past administration.

1.3.3 To enable the effective scrutiny of the use of public funds, Parliament requires departments and public bodies to notify it of certain events or the publication of

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[2] https://www.gov.uk/government/publications/ministerial-code

[3] https://www.gov.uk/government/publications/supply-estimates-guidance-manual

material. Those notification requirements are set out in the relevant chapters of this document, but also brought together in Annex 1.1.

1.4 The Treasury

1.4.1 Parliament looks to the Treasury to make sure that:

- that departments use their powers only as it has intended
- revenue is raised, and the resources so raised spent, only within the agreed limits.

1.4.2 Hence it falls to the Treasury to:

- set the ground rules for the administration of public money
- account to Parliament for doing so

1.4.3 This document sets out how the Treasury seeks to meet these parliamentary expectations. The key requirements are regularity, propriety, value for money and feasibility (see box 3.2). The Treasury:

- designs and runs the financial planning system[4] and oversees the operation of the agreed multiyear budgets to meet ministers' fiscal policy objectives
- oversees the operation of the Estimates through which departments obtain authority to spend year by year
- sets the standards to which central government organisations publish annual reports and accounts in the Financial Reporting Manual (FReM). This adapts International Financial Reporting Standards (IFRS) to take account of the public sector context
- sets Accounts Directions for the different kinds of central government organisations whose accounts are laid in Parliament
- may also work through the Cabinet Office to set certain standards applicable across central government, for example functional standards[5].

1.5 Departments

1.5.1 Within the standards expected by Parliament, and subject to the overall control and direction of their ministers, departments have considerable freedom about how they organise, direct and manage the resources at their disposal. It is for the accounting officer in each department, acting within ministers' instructions, and supported by their boards, to control and account for the department's business.

1.5.2 A departmental board, chaired by the senior minister, leads each department. Boards can bring to bear skills and experiences from elsewhere in, and outside of, the public sector (see section 4.1).

1.5.3 Within each department, there shall be adequate delegations, controls and reporting arrangements to provide assurance to the board, the accounting officer[6] and ultimately ministers about what is being achieved, to what standards and with what

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[4] See the Consolidated Budgeting Guidance for more - https://www.gov.uk/government/collections/consolidated-budgeting-guidance

[5] See Functional Standards - https://www.gov.uk/government/collections/functional-standards

[6] If there is a change of Accounting Officer in the course of the year, the Accounting Officer in place at the year-end takes responsibility for the whole year's accounts, using assurances as necessary.

effect. These arrangements shall provide timely and prompt management information to enable plans to be adjusted as necessary. Similarly ministers should have enough evidence about the impact of their policies to decide whether to continue, modify or end them. This is discussed further in chapter 4.

1.5.4 In supporting ministers, civil servants should provide politically impartial advice. Should they be asked to carry out duties which appear incompatible with this obligation, the accounting officer should take the matter up with the minister concerned (see also the Civil Service Code[7]).

1.5.5 Departments often operate with, and through, a variety of partners to deliver their ministers' policies. It is important that these relationships operate in the public interest: see chapter 7.

1.6 The Comptroller and Auditor General

1.6.1 Supported by the National Audit Office (NAO), the Comptroller and Auditor General (C&AG) operates independently to help Parliament scrutinise how public funds have been used in practice. Further information about the role of the NAO is available on their website[8] and in annex 1.2.

1.6.2 The C&AG provides Parliament with two sorts of audit:

- financial audit of the accounts of departments and arms length bodies (ALBs), covering:
  - i. assurance that accounts have been properly prepared and are free of material misstatements[9]
  - ii. confirmation that the underlying transactions have appropriate parliamentary authority
- value for money reports assessing the economy, efficiency and effectiveness with which public money has been deployed in selected areas of public business. A programme of these reviews covers a variety of subjects over a period, taking account of the risks to value for money and Parliament's interests.

1.6.3 The C&AG has a general right to inspect the records of a wide variety of public organisations to further these investigations. When the NAO investigates any public sector organisation, it should get full cooperation in provision of papers and other information. It is good practice to draw the NAO's attention to the confidentiality of any sensitive documents provided in this process. It is then for the independent C&AG to judge what material can be published in the public interest.

1.6.4 In addition, the C&AG publishes other independent reports to Parliament. The PAC (see section 3.7) may hold hearings to examine evidence on any of these reports and on other related matters.

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[7] https://www.gov.uk/government/publications/civil-service-code/the-civil-service-code

[8] The NAO website address is http://www.nao.org.uk

[9] See Audit Practice Note 10 of the Audit Practices Board on the FRC website at Http://www.frc.org.uk

Chapter 2
Use of Public Funds

This chapter explains the process for parliamentary authorisation of public resources. Parliament consents in principle to the use of public funds through legislation to enable specified policies. It then approves use of public resources to carry out those policies year by year by approving Estimates. Only rarely can lesser authority suffice. At the close of each financial year, Parliament expects a clear account of the use of the public funds it has authorised. Parliament expects the Treasury to oversee the operation of these controls. The PAC may investigate specific issues further.

2.1 Introduction

2.1.1 Ministers have very broad powers to control and direct their departments. In general, they may do anything that legislation does not prohibit or limit, including using common law powers to administer their operations or continue business as usual.

2.1.2 Ministers also need parliamentary authority for use of public funds before each year's expenditure can take place. The full list of requirements is set out in box 2.1.

Box 2.1: requirements for use of public funds

- budget cover in the collectively agreed multi-year budgets
- with a few exceptions[10], parliamentary authorization for each year's drawdown of funds through an Estimate, which is then approved as a Supply and Appropriation Act (see section 2.2)
- adequate Treasury consents (see section 2.3)
- assurance that the proposed expenditure is regular and proper (see section 2.4)
- sufficient legal powers – though see section 2.5 for some limited exceptions

2.1.3 The Treasury runs the control process because Parliament expects the Treasury to control public expenditure as part of fiscal policy. The primary means through which the Treasury controls public expenditure is multi-year budgets, agreed collectively at spending reviews. The Consolidated Budgeting Guidance sets out the rules for their use. (See also chapter 4). Further, Parliament expects the statutory powers granted to be exercised in line with the wider spending framework set by the Treasury: for example, spending powers must be exercised in line with the delegations set by Treasury or a sponsor department, and powers to set remuneration must be exercised in line with central pay controls unless alternative delegations have been agreed.

[10] See section 5.3.

2.2 Using the Estimate

2.2.1 The requirements in box 2.1 are to some extent interrelated. The accounting officer of a department (see also chapter 3) is responsible for ensuring that:

- the Estimate(s) presented to Parliament for the department's annual expenditure (consolidating its ALBs) are within the statutory powers and within the government's expenditure plans
- use of resources is within the ambit of the vote and consistent with the Estimate(s)
- they answer to Parliament for stewardship of these responsibilities.

2.3 Treasury Consents

2.3.1 Departments must have Treasury consent before undertaking expenditure or making commitments which could lead to expenditure, or have other fiscal implications (this includes legislation with spending implications - see annex 2.1). Usually the Treasury agrees some general approvals delegating consent for each department subject to clear limits and/or exclusions.

2.3.2 Some common approaches to setting delegations are shown in box 2.2 and are discussed further in annex 2.2. It is good practice to review delegations from time to time to make sure that they remain up to date and appropriate. Delegations can be tightened or loosened at reviews, depending on experience.

Box 2.2: examples of approaches to delegated authorities

- A delegated limit, below which consent is delegated to the department, and above which spending proposals still require specific Treasury consent
- objective criteria for exceptions requiring specific Treasury scrutiny or approval
- a sampling mechanism to allow specimen cases to be examined

2.3.3 In turn departments should agree with each of their arm's length bodies (ALBs - the public sector organisations they sponsor or finance) a similar set of delegations appropriate to their business[11] (see also chapter 7).

2.3.4 There is an important category of expenditure commitments for which the Treasury cannot delegate responsibility. It is transactions which set precedents, are novel, contentious or could cause repercussions elsewhere in the public sector. Box 2.3 gives examples. Treasury consent to such transactions must always be obtained before proceeding, even if the amounts in question lie within the delegated limits.

2.3.5 It is improper for a public sector organisation to spend or make commitments outside the agreed delegations and if occurs will likely result in a finding that that spend is irregular. The Treasury may subsequently agree to give retrospective consent, but only if the expenditure in question would have been agreed if permission had been sought at the right time.

2.3.6 Sometimes legislation calls for explicit Treasury consent, e.g. for large or critical projects. There are also Whitehall wide controls on key progress points for the very

[11] Delegations to ALBs should never be greater than the delegated limits agreed between the Treasury and the sponsor department.

largest projects[12]. In such cases it is unlawful to proceed without Treasury consent - and Treasury consent cannot be given retrospectively.

Box 2.3: examples of transactions requiring explicit Treasury consent

- extra statutory payments similar to but outside statutory schemes
- ephemeral ex gratia payment schemes, e.g. payments to compensate for official errors
- extra statutory payments similar to but outside statutory schemes
- special severance payments, e.g. compromise agreements in excess of contractual commitments
- non-standard payments in kind
- unusual financial transactions, e.g. imposing lasting commitments or using tax avoidance
- unusual schemes or policies using novel techniques

2.3.7 Where proposals have public expenditure implications, the Treasury should be consulted before they are submitted for approval by collective agreement at cabinet level, either in person, by write-round or via a cabinet sub-committee. Where the department proposing the policy and the Treasury cannot agree in advance, any proposal for collective ministerial consideration should record the Treasury's position in terms which are acceptable to them. Policy proposals with public expenditure implications will not be agreed unless Treasury ministers are content.

2.4 Regularity and Propriety

2.4.1 The concepts of regularity and propriety, fundamental to the right use of public funds, are set out in box 2.4. The term regularity and propriety is often used to convey the idea of probity and ethics in the use of public funds – that is, delivering public sector values in the round, encompassing the qualities summarised in box 1.1. Supporting this concept are the Seven Principles of Public Life - the Nolan principles[13] - which apply to the public sector at large. In striving to meet these standards, central government departments should give a lead to the partners with which they work.

Box 2.4: regularity and propriety

Regularity: compliant with the relevant legislation and wider legal principles such as subsidy control and procurement law, delegated authorities and following the guidance in this document.

Propriety: meeting high standards of public conduct, including robust governance and the relevant parliamentary expectations, especially transparency.

[12] Through the Major Projects Authority, http://www.cabinetoffice.gov.uk/content/major-projects-authority] using powers delegated by the Treasury.

[13] http://www.public-standards.gov.uk/

2.4.2 Each departmental accounting officer shall make sure that ministers in their department appreciate:

- the importance of operating with regularity and propriety
- the need for efficiency, economy, effectiveness and prudence in the administration of public resources, to secure value for public money[14].

2.4.3 Should a minister seek a course of action which the accounting officer cannot reconcile with any individual aspect of these requirements, they should seek instructions in writing from the minister before proceeding (see chapter 3).

2.4.4 Should departments need to resolve an issue about regularity or propriety, they should consult the relevant Treasury spending team. Similarly, ALBs should consult their sponsor departments about such issues, and the department concerned may in turn consult the Treasury.

2.4.5 Neither improper nor irregular expenditure achieves the standards that Parliament expects. So any such expenditure must be noted in the department's annual report and accounts. If the discrepancy is material it can result in a qualification to the accounts. When any expenditure of this kind comes to light, it should be drawn to the attention of both the NAO and the Treasury. The immediate follow up action is to identify the source of any systematic problems so that there is no recurrence. The PAC may also call the accounting officer to explain the matter at a public hearing.

2.5 Securing adequate legal authority

2.5.1 Parliament usually authorises spending on a specific policy or service by approving bespoke legislation setting out in some detail how it should work. It is not normally acceptable to use a royal charter as an alternative to primary legislation, for this approach robs Parliament of its expected opportunity for control and accountability. Departments shall ensure that both they and their ALBs have adequate legal cover for any specific actions they undertake.

2.5.2 The Treasury takes this requirement seriously. It is fundamental to the trust and understanding between the government and Parliament on which management of the public finances is founded. In the Concordat of 1932 (see annex 2.3), the Treasury undertook that departments would not spend without adequate legal authority.

2.5.3 There are some general exceptions. These kinds of expenditure do not require specific legislation in order to avoid burdening parliamentary time:

- routine matters covered by common law (the main examples are in box 2.5)
- a very limited range of Consolidated Fund Standing Services (see section 5.3)
- projects or services which are modest or temporary (see box 2.6). This exception cannot be used to plug a gap in spending authority before specific legislation for an ongoing service is passed. The temporary services derogation only applies to initiatives lasting no more than two years in total, and it is therefore important to note that this does not provide a two-year grace period for spending on a new, ongoing service before specific legislation is required.

[14] 5 A more detailed description of value for money is at annex 4.4

Box 2.5: expenditure which may rely on a Supply and Appropriation Act

- routine administration costs: employment costs, rent, cleaning etc
- lease agreements, e.g. for photocopiers, lifts
- contractual obligations to purchase goods or services (e.g. where single year contracts might be bad value)
- expenditure using prerogative powers such as defence of the realm and international treaty obligations

2.5.4 In all the three cases in paragraph 2.5.3, departments may rely on the sole authority of a Supply and Appropriation Act (the culmination of the Estimates process) without the need for specific legal authority, provided that the other conditions in box 2.1 are met.

Box 2.6: modest or temporary expenditure which may rely on a Supply and Appropriation Act

Either services or initiatives lasting no more than two years, e.g. a pilot study or one off intervention

Or expenditure of no more than £1.75m a year (amount adjusted from time to time)

Provided that there is no specific legislation covering these matters before Parliament and existing statutory restrictions are respected.

These conditions are demanding. Treasury consent is required before they may be relied on.

2.6 New Services

2.6.1 When ministers decide on a new activity, all the conditions in box 2.1 must be met before it can begin. In practical terms this means that most significant new policies which are intended to persist require specific primary legislation.

2.6.2 Sometimes ministers want to start early on a new policy which is intended to continue but whose enabling legislation has not yet secured royal assent. It may be possible to make limited preparation for delivery of the new service before royal assent, but to do so it will usually be necessary to consider borrowing from the Contingencies Fund (see annex 2.4). Access to this Fund is controlled by the Treasury, subject to the conditions in box 2.7. Specific Treasury consent is always required.

Box 2.7: conditions for access to the contingencies fund (see also annex 2.4)

- the proposed expenditure must be urgent and in the public interest, i.e. with wider benefits to outweigh the convention of awaiting parliamentary authority (political imperative is not enough)

- the relevant bill must have successfully passed second reading in the House of Commons
- the legislation must be certain, or virtually certain, to pass into law with no substantive change in the near future, and usually within the financial year
- the department responsible must explain clearly to Parliament what is to take place, why, and by when matters should be placed on a normal footing

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Chapter 3
Accounting Officers

This chapter sets out the personal responsibilities of all accounting officers in central government. Essentially accounting officers must be able to assure Parliament and the public of high standards of probity in the management of public funds. This chapter is drawn to the attention of all accounting officers when they are appointed.

3.1 Introduction

3.1.1 Each organisation in central government – department, agency, trading fund, NHS body, non-departmental public body (NDPB) or arm's length body – must have an accounting officer. This person is usually its senior official. The accounting officer in an organisation shall be supported by a board structured in line with the Corporate Governance Code.

3.1.2 Formally the accounting officer in a public sector organisation is the person who Parliament calls to account for stewardship of its resources. The standards the accounting officer is expected to deliver are summarised in box 3.1. The equivalent senior business managers of other public sector organisations are expected to deliver equivalent standards.

3.2 Appointment of Accounting Officers

3.2.1 The Treasury appoints the permanent head of each central government department to be its accounting officer. Where there are several accounting officers in a department, the permanent head is the principal accounting officer.

3.2.2 Within departments, the Treasury also appoints the chief executive of each trading fund as its accounting officer.

3.2.3 In turn the principal accounting officer of each department normally appoints the permanent heads:

- of its executive agencies, as agency accounting officers for their agencies
- of other ALBs (including all NDPBs), as accounting officers for these bodies
- at their discretion, additional accounting officers for defined part(s) of the department's business.

3.2.4 In the case of appointment of principal accounting officers of departments and accounting officers of trading funds, the relevant department should send a draft letter of appointment directly to the Treasury Officer of Accounts team via TOAEnquiries@hmtreasury.gov.uk for the signature of the Treasury Permanent Secretary. This should be done at least fourteen calendar days before the accounting officer is due to take up their role.

3.2.5 In the case of appointment of an accounting officer for an arm's length body, the body should liaise with its sponsoring department to arrange a letter of

appointment from the principal accounting officer. Again, this should be done at least fourteen calendar days before the accounting officer is due to take up their role. The private office of the principal accounting officer should then promptly notify the TOA team.

3.2.6 These actions ensure that the register of accounting officers is kept up to date and that appropriate training can be arranged.

3.2.7 If the timeframes above cannot be met, or in the event of a temporary gap between the standing down of an accounting officer and the appointment of a new accounting officer, the department should contact the TOA team to discuss the appropriate mechanism to ensure accountability arrangements are maintained.

3.2.8 Template letters of appointment can be found on gov.uk. The TOA team is happy to assist in the preparation of these letters.

3.3 Special Responsibilities of Accounting Officers

3.3.1 It is important that each accounting officer takes personal responsibility for ensuring that the organisation they manage delivers the standards in box 3.1. In particular, the accounting officer must personally sign: the accounts; the annual report the governance statement (see annex 3.1); and having been satisfied that they have been properly prepared to reflect the business of the organisation, must personally approve: voted budget limits; and the associated Estimates Memorandum.

Box 3.1: standards expected of the accounting officer's organisation

Acting within the authority of the minister(s) to whom they are responsible, the accounting officer shall ensure that the organisation, and any ALBs it sponsors, operates effectively and to a high standard of probity. The organisation should:

Governance:

- have a governance structure which transmits, delegates, implements and enforces decisions
- have trustworthy internal controls to safeguard, channel and record resources as intended
- work cooperatively with partners in the public interest
- operate with propriety and regularity in all its transactions
- treat its customers and business counterparties fairly, honestly and with integrity
- offer appropriate redress for failure to meet agreed customer standards
- give timely, transparent and realistic accounts of its business and decisions, underpinning public confidence

Decision-making:

- support its ministers with clear, well-reasoned, timely and impartial advice

- make all its decisions in line with the strategy, aims and objectives of the organisation set by ministers and/or in legislation
- take a balanced view of the organisation's approach to managing opportunity and risk
- impose no more than proportionate and defensible burdens on business

Financial management:

- use its resources efficiently, economically and effectively, avoiding waste and extravagance
- plan to use its resources on an affordable and sustainable path, within agreed limits
- carry out procurement and project appraisal objectively and fairly, using cost benefit analysis and generally seeking good value for the Exchequer as a whole
- use management information systems to gain assurance about value for money and the quality of delivery and so make timely adjustments
- avoid over defining detail and imposing undue compliance costs, either internally or on its customers and stakeholders
- have practical documented arrangements for controlling or working in partnership with other organisations, as appropriate use internal and external audit to improve its internal controls and performance

3.3.2 The accounting officer of a corporate arm's length body shall arrange for a board member to sign the accounts as well as signing them himself or herself, if (unusually) they are not a member of the board.

3.3.3 There are several other areas where accounting officers shall take personal responsibility:

- Regularity and propriety (see box 2.4), including securing Treasury approval for any expenditure outside the normal delegations or outside the subheads of Estimates
- Affordability and sustainability: respecting agreed budgets and avoiding unaffordable longer-term commitments, taking a proportionate view about other demands for resources
- Value for money: ensuring that the organisation's procurement, projects and processes are systematically evaluated to provide confidence about suitability, effectiveness, prudence, quality, good value judged for the Exchequer as a whole, not just for the accounting officer's organisation (e.g. using the Green Book[15] to evaluate alternatives)
- Control: the accounting officer shall personally approve and confirm their agreement to all Cabinet Committee papers and major project or policy initiatives before they proceed

[15] https://www.gov.uk/government/collections/the-green-book-and-accompanying-guidance-and-documents

- Management of opportunity and risk to achieve the right balance commensurate with the institution's business and risk appetite
- Learning from experience, both using internal feedback (e.g. through managing projects and programmes using techniques such as PRINCE2), and from right across the public sector
- Accounting accurately for the organisation's financial position and transactions: to ensure that its published financial information is transparent and up to date; and that the organisation's efficiency in the use of resources is tracked and recorded.

3.3.4 In the case of principal accounting officers, these responsibilities apply to the business of the whole departmental group.

3.4 Accounting officer assessments

3.4.1 Accounting officers shall routinely scrutinise significant policy proposals or plans to start or vary major projects and then assess whether they measure up to the standards in box 3.2.

Box 3.2: the standards expected for projects and proposals

Regularity: the proposal has sufficient legal basis, parliamentary authority, and Treasury authorisation; and is compatible with the agreed spending budgets.

Propriety: the proposal meets the high standards of public conduct and relevant Parliamentary control procedures and expectations.

Value for money: in comparison to alternative proposals or doing nothing, the proposal delivers value for the Exchequer as a whole.

Feasibility: the proposal can be implemented accurately, sustainably, and to the intended timetable.

3.4.2 A systematic written accounting officer assessment helps to ensure good decision making and provides positive assurance that the four standards have been properly considered.

3.4.3 An accounting officer assessment shall be produced for projects or programmes which form part of the Government Major Projects Portfolio (GMPP):

- alongside the request for the accounting officer's approval of the Outline Business Case (or at the point when it enters the GMPP if this is later)
- at subsequent stages of the project if it departs from the four standards or the agreed plan – including any contingency – in terms of costs, benefits, timescales, or level of risk, which informed the accounting officer's previous approval
- if the Senior Responsible Owner (SRO) of the project decides one is merited at any other stage of the project.

3.4.4 In addition, it is good practice to prepare an accounting officer assessment for each significant novel and contentious transaction or proposal involving the use of public funds. This may be particularly useful where it is not possible to produce a fully developed business case, for example due to lack of time and/or data, or the risk environment is higher than usual. The Treasury often asks spending departments and

organisations for such analyses before clearing them to proceed, as will the National Audit Office (NAO) when conducting any review of the issue.

3.4.5 Beyond that, in many cases, the normal governance procedures, such as production and approval of business cases, should provide sufficient assurance against the accounting officer standards, without need for a bespoke accounting officer assessment.

3.4.6 All draft accounting officer assessments must be signed off by the organisation's senior officer for finance (usually Finance Director, Chief Financial Officer or Director General for Finance) or alternate senior member of the finance function within the department before being submitted to the accounting officer for final sign off.

3.4.7 Whenever an accounting officer assessment is produced for a GMPP project, a summary of the key points shall also be prepared and published.

3.4.8 Accounting officers may also choose to publish similar information from assessments made in other circumstances at their discretion.

3.4.9 When an accounting officer assessment for a GMPP project is completed, the summary assessment should be published promptly on the department's pages of gov.uk. The Treasury maintains a collection page titled 'Accounting Officer Assessments'[16] that links to these publications. Departments should ensure that their page is added to this collection page once they publish it.

3.4.10 Copies should be deposited in the Library of the House of Commons, and sent to the Chair of the PAC, the Comptroller and Auditor General and the Treasury Officer of Accounts. It should also be copied to the Principal Accounting Officer if prepared by another accounting officer in the department or one of its arm's length bodies.

3.4.11 Where an accounting officer decides the public interest is best served by delaying publication of a summary assessment, they should nevertheless share the summary on a confidential basis with the chairs of the PAC and the relevant departmental select committee, as well as the Comptroller & Auditor General and the Treasury Officer of Accounts[17].

3.4.12 Further guidance on producing and publishing accounting officer assessments can be found in Accounting Officer Assessments: guidance[18].

3.5 Working with other organisations

3.5.1 It often makes sense for two or more departments to work together to deliver public services. In such circumstances, each accounting officer remains personally responsible for the resources of their own organisation. It is good practice for participating bodies to document their respective responsibilities, for example by way of a memorandum of understanding. Further details are set out in Chapter 7.

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[16] https://www.gov.uk/government/collections/accounting-officer-assessments-collection

[17] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1090958/DAO_0422_Accounting_officer_assesments_and_framework_documents.pdf

[18] www.gov.uk/government/publications/accounting-officer-assessments

3.5.2 It may also be the case that, in assessing a project or proposal, the accounting officer will want to draw on expertise from another department or public body. Where this happens, the accounting officer may ask the organisation to provide written assurances of the robustness of the analysis and any underlying methodology. However, the ultimate judgement in each case lies with the accounting officer personally.

3.6 Directions

3.6.1 The accounting officer cannot simply accept the minister's aims or policy without examination. Each departmental accounting officer shall take care to bring to the attention of their minister(s) any conflict between the minister's instructions and the standards set out in box 3.2.

3.6.2 Where a departmental accounting officer determines that a proposal does not meet one or more of these standards, the best next step is to consider whether the policy or proposed course of action can be modified to make it fit. If not, and the minister decides it is nevertheless appropriate to continue with the proposal, the accounting officer shall ask their senior minister for a formal written direction to proceed. An oral direction shall be confirmed promptly in writing.

3.6.3 Before finalising a direction request, it is good practice for accounting officers to discuss the matter with the Treasury. Often, by their nature, issues that might call for a ministerial direction are novel, contentious, or repercussive, and therefore require explicit Treasury consent. Where this is the case, Treasury consent should be obtained before the direction request is finalised. Treasury consent does not remove the need for a direction if the requirements of box 3.2 are not met.

3.6.4 As always, the ultimate judgement in each case must lie with the accounting officer personally. The acid test is whether the accounting officer could justify the proposed activity if asked to defend it.

3.6.5 There is no set form for requesting a direction, though the accounting officer shall be specific about their nature and the standard or standards that is/are not satisfied.

3.6.6 When a direction is made, the Accounting Officer shall:

- follow the minster's direction without further ado
- promptly copy the direction request, the direction and other papers the accounting officer considers relevant to Public Accounts Committee, the Comptroller and Auditor General and the Treasury Officer of Accounts
- unless it is in the public interest that the matter is kept confidential, arrange for the direction request and direction itself to be published on the gov.uk website promptly, notifying the chairs of the PAC and the relevant departmental select committee as soon as this occurs
- where confidentiality is required, in addition to copying to the Comptroller and Auditor General and the Treasury Officer of Accounts as usual, share the direction request and the direction with the chairs of the PAC and the relevant departmental select committee, along with an explanation of when they expect the need for confidentiality to fall away and publication to take place

- if asked, explain the minister's course of action - this respects ministers' rights to frank advice, while protecting the quality of internal debate.

3.6.7 A direction on regularity or propriety ground does not change that position – that is it does not make the action regular or proper. It is important to note that a direction does not permit unlawful action and does not protect against a court finding unlawfulness.

3.6.8 Where a direction has been issued, this does not represent a continuing mandate to dispense with the accounting officer standards. The AO has a responsibility to ensure the standards set out in box 3.2 are met on an ongoing basis. The AO should seek to bring the policy in line with standards at the earliest opportunity if possible, and if circumstances change should consider whether the existing direction provides sufficient cover to justify the policy. It may be appropriate to revisit with the Minister if the direction is still supported at appropriate stages of policy implementation.

3.7 Public Accounts Committee

3.7.1 The PAC may hold public hearings on the accounts of central government organisations laid in Parliament (see section 1.6). In practice most PAC hearings focus on NAO value for money studies. The NAO seeks to agree the text of these reports with the accounting officer(s) concerned so there is a clear undisputed evidence base for PAC scrutiny.

3.7.2 Witnesses to PAC hearings sometimes find that there is supplementary material which would be helpful to the committee, in addition to the NAO report. When this happens it is good practice to submit it to the Committee with adequate time to consider it, clearing it first with the NAO. If time does not permit this, witnesses or their representatives should discuss the best approach with the Clerk to the Committee.

3.7.3 When a hearing is scheduled, the PAC normally invites the accounting officer(s) of the relevant institution(s) to attend as witness(es). An accounting officer may be accompanied by appropriate officials. Where it is appropriate, and the PAC agrees, an accounting officer may send a substitute. The PAC may also invite other witnesses who may not be public servants to give insight into the background of the subject in hand.

3.7.4 In answering questions, the accounting officer shall take responsibility for the organisation's business, even if it was delegated or if the events in question happened before they were appointed accounting officer. In response to specific PAC or Select Committee requests, previous accounting officers may also attend relevant PAC hearings. Recalls of this kind should be assessed case by case, depending on the circumstances. They are acceptable if the business in issue was recent, and where the former accounting officer has had an opportunity to comment before publication on any NAO report which the PAC is to investigate.

3.7.5 The PAC expects witnesses to give clear, accurate and complete evidence. If evidence is sensitive, witnesses may ask to give it in private. Witnesses may offer supplementary notes if the information sought is not to hand at the meeting. Any such notes should be provided within one week unless the PAC is willing to grant an extension. They should do so without delay.

3.7.6 The Treasury Officer of Accounts (or an alternate) attends all PAC hearings. This enables the PAC to explore any more general issues arising out of the hearing.

3.7.7 The evidence given by accounting officers at public hearings often feeds into reports published by the PAC. These reports detail its findings, conclusions and recommendations.

3.7.8 For each PAC report, the government responds to recommendations by means of Treasury Minutes presented to Parliament by a Treasury minister, indicating those the government accepts and those it does not accept. For those it accepts, Treasury Minutes will include target implementation dates. For those it does not accept, they will set out reasons for non-acceptance.

3.7.9 In addition, government departments and organisations are required to report twice annually to Parliament on progress in implementing Committee recommendations accepted by government. Treasury Minute Progress Reports are used for this purpose.

3.7.10 The PAC expects the government to respond promptly and transparently through both the initial Treasury Minute and subsequent Progress Reports. Accounting officers shall ensure the internal clearance processes within their organisation, including any ministerial clearances the accounting officer decides are needed, are arranged to fit with deadlines for responses.

3.7.11 In addition, if a department determines it is necessary to revise the target date for implementing an agreed recommendation, the accounting officer shall write immediately to the PAC, copied to the Treasury Officer of Accounts, and provide a detailed explanation for the deferral. Departments shall not leave notification of the delay in implementation until the publication of the next Treasury Minutes Progress Report.

3.8 When an accounting officer is not available

3.8.1 Each public sector organisation must have an accounting officer available for advice or decision as necessary at short notice. When the accounting officer is absent and cannot readily be contacted, another senior official should deputise.

3.8.2 If a significant absence is planned, the principal accounting officer may invite the Treasury to appoint a temporary acting accounting officer.

3.8.3 In these circumstances, a temporary acting accounting officer stands in the shoes of the principal accounting officer. They are not acting on behalf of the Principal Accounting Officer but are personally responsible to Parliament in their own right. Their decisions are not subject to ratification by the principal accounting officer and their role shall only be activated if the principal accounting officer is unable to fulfil their obligations. To all intents and purposes the temporary acting accounting officer replaces the principal accounting officer.

3.8.4 A similar logic can also apply for an accounting officer in an arm's length body (ALB), whereby the arrangement must be agreed and formalised between the department and the ALB.

3.9 Conflicts of interest

3.9.1 Sometimes an accounting officer faces an actual or potential conflict of interest. There must be no doubt that the accounting officer meets the standards described in box 3.1 without divided loyalties. Possible ways of managing this issue include:

- for a minor conflict, declaring the conflict and arranging for someone other than the accounting officer to make a decision on the issue(s) in question
- for a significant but temporary conflict, inviting the Treasury (or the sponsor department, as the case may be) to appoint an interim accounting officer for the period of the conflict of interest
- for serious and lasting conflicts, resignation.

3.10 Arm's length bodies

3.10.1 The responsibilities of accounting officers in departments and in arm's length bodies (ALBs) are essentially similar. Accounting officers in ALBs must also take account of their special responsibilities and powers. In particular, they must respect the legislation (or equivalent) establishing the organisation and terms of the framework document agreed with the sponsor department. See chapter 7 for more details.

3.10.2 The framework document (or equivalent) agreed between an ALB and its sponsor always provides for the sponsor department to exercise meaningful oversight of the ALB's strategy and performance, pay arrangements and/or major financial transactions, e.g. by monthly returns, standard delegations and exception reporting. The sponsor department's accounts consolidate those of its ALBs so its accounting officer must be satisfied that the consolidated accounts are accurate and not misleading.

3.10.3 Overall, the accounting officer of a sponsor department shall make arrangements to satisfy himself or herself that that the ALB has systems adequate to meet the standards in box 3.1. Similarly, the accounting officer of an ALB with a subsidiary shall have meaningful oversight of the subsidiary sufficient to exercise their AO responsibilities. It is not acceptable to establish ALBs, or subsidiaries to ALBs, in order to avoid or weaken parliamentary scrutiny. If an ALB does not possess this level of control, it will most likely be necessary for the sponsor department's PAO to appoint the chief executive of the subsidiary as an AO in their own right. In this case, the subsidiary's AO is directly responsible to the PAO, although the sponsor department may delegate some sponsorship functions to the original ALB. All AOs must be appointed by and responsible to the sponsor department's PAO.

3.10.4 Exceptionally, the accounting officer of a sponsor department may need to intervene if an ALB drifts significantly off track, e.g. if its budget is threatened, its systems are badly defective or it falls into disrepute. This may include replacing some or all of the leaders of the ALB, possibly even its accounting officer.

3.10.5 There are sensitivities about the role of the accounting officer in an ALB which is governed by an independent fiduciary board, e.g. a charity or company. The ALB's accounting officer, who will normally be a member of the board, must take care that their personal legal responsibilities do not conflict with their duties as a board member. In particular, the accounting officer shall vote against any proposal which appears to cause such a conflict; it is not sufficient to abstain.

3.10.6 Moreover, if the chair or board of such an ALB is contemplating a course of action that is inconsistent with the standards in box 3.1, then the accounting officer shall follow the procedure set out in the organisation's framework document. This process is similar to what happens in departments (see section 3.6), but will be tailored to reflect the position of the organisation's board, which is often appointed under statute.

3.11 In the round

3.11.1 It is not realistic to set firm rules for every aspect of the business with which an accounting officer may deal. Sometimes the accounting officer may need to take a principled decision on the facts in circumstances with no precedents. Should that happen, the accounting officer should be guided by the standards in box 3.1 in assessing whether there is a case for seeking a direction for any of the factors in box 3.2. It is essential that accounting officers seek good outcomes for the Exchequer as a whole, respecting the key principles of transparency and parliamentary approval for management of public resources.

3.11.2 In addition, there may be occasions where it is necessary to respond urgently to events, reducing the time available for analysis and requiring the accounting officer to make an assessment. In such circumstances, all available options may carry more uncertainty and more risk than would be acceptable in more normal times.

3.11.3 Here, in assessing value for money and feasibility, the accounting officer must assess the relative merits and costs of alternatives (including doing nothing).

3.11.4 Sometimes, it is possible to do no more than identify the scale of the problem to be tackled and then examine why the proposed action should both be effective and have tolerable cost. Wherever proposals or projects are taken forward, accounting officer shall identify and assess risks, and design and operate the most effective risk treatment activities (including controls) possible in the time available.

3.11.5 The Treasury stands ready to help accounting officers think such issues through.

Chapter 4
Governance and Management

Public sector organisations shall have good quality internal governance and sound financial management. Appropriate delegation of responsibilities and effective mechanisms for internal reporting should ensure that performance can be kept on track. Good practice should be followed in procuring and managing resources and assets; hiring and managing staff; and deterring waste, fraud and other malpractice. Central government departments have some specific responsibilities for reporting, including to Parliament.

4.1 Introduction

4.1.1 Each public sector organisation shall establish governance arrangements appropriate to its business, scale and culture. The structure shall combine efficient decision making with accountability and transparency.

4.1.2 In doing so, central government departments shall be guided by the Corporate Governance Code[19] . Each public sector organisation needs clear leadership, normally provided by a board. Box 4.1 sets out best practice for departmental boards.

Box 4.1: best practice for boards in central government departments

- chaired by the department's most senior minister, with junior ministers as members
- comparable numbers of official and non-executive members, including a lead non-executive and a professionally qualified finance director (see annex 4.1)
- meeting at least quarterly
- sets the department's strategy to implement ministers' policy decisions
- leads the department's business and determines its culture
- ensures good management of the department's resources – financial, assets, people
- decides risk appetite and monitors emerging threats and opportunities
- steers performance to keep it on track using regularly updated information about progress
- keeps an overview of its ALBs' activities

[19] https://www.gov.uk/government/publications/corporate-governance-code-for-central-government-departments for both the code and the good practice guidance.

4.1.3 It is good practice for ALBs to use similar principles. In many ALBs some structural features, such as board composition, derive from statute but considerable discretion may remain. In some organisations it is usual, or found valuable, for the board to include members with designated responsibility or expertise, e.g. for regional affairs or for specialist professional skills.

4.1.4 In order to carry out its responsibilities each board needs to decide, and document, how it will operate. Box 4.2 outlines the key decisions. It is not exhaustive. Once agreed, the working rules should be reviewed from time to time to keep them relevant. Boards should challenge themselves to improve their working methods, so that their processes can achieve and maintain good modern business practice.

Box 4.2: key decisions for boards

- mission and objectives
- delegations and arrangements for reporting performance
- procedures and processes for business decision making
- scrutiny, challenge and control of significant policies, initiatives and projects
- risk appetite and risk control procedures, e.g. maintaining and reviewing a risk register
- control and management of associated ALBs and other partnerships
- arrangements for refreshing the board
- arrangements for reviewing the board's own performance
- accountability – to the general public, to staff and other stakeholders (see section 4.13)
- how the insights of non-executives can be harnessed
- how often the board's working rules will be reviewed

4.2 Working methods

4.2.1 The accounting officer of each organisation is accountable to Parliament for the quality of the administration of the organisation that they lead. The administrative standards expected are set out in the Civil Service Code[20] and the Ombudsman's Principles of Public Administration[21]. They allow considerable flexibility to fit with each organisation's obligations and culture. It is against these standards that failure to deliver is assessed. Accounting officers shall also ensure they comply with the

[20] https://www.gov.uk/government/publications/civil-service-code/the-civil-service-code

[21] https://www.ombudsman.org.uk/about-us/our-principles

functional standards[22], which set expectations for the management of functional work and the functional model across government.

4.2.2 Another fundamental concept is the Treasury's leadership position in managing public expenditure, and setting the rules under which departments and their ALBs should deploy the assets, people and other resources under their control. In turn each public sector organisation shall have robust and effective systems for their internal management. Box 4.3 outlines the key decisions each organisation needs to make.

4.2.3 To help the Treasury carry out this task properly:

- departments shall provide the Treasury with accurate and timely information about in-year developments – their expenditure, performance against objectives and evolution of risk (e.g. serious unforeseen events or discovery of fraud)
- ALBs shall provide their sponsor departments with similar information
- the established mechanisms for controlling and reporting public expenditure, including Treasury support or approval where necessary, shall be respected.

4.2.4 In particular, departments shall consult the Treasury (and ALBs their sponsor departments) at an early stage about proposals to undertake unusual transactions or financing techniques. This applies especially to any transactions which may have wider implications elsewhere in the public sector (see paragraph 2.3.4 and box 2.3).

4.2.5 Working with the accounting officer, the finance director of each public sector organisation has special responsibility for seeing that the standards described in this chapter are respected. Annex 4.1 sets this out in more detail.

Box 4.3: essentials of effective internal decision making

Choice

- active management of the portfolio of risks and opportunities
- appraisal of alternative courses of action using the techniques in the Green Book, and including assessment of feasibility to achieve value for money
- where appropriate, use of models (see annex 4.2) or pilot studies to provide evidence on which to make decisions among policy or project choices
- active steering of initiatives, e.g. reviews to take stock at critical points of projects operation
- appropriate internal delegations, with a single senior responsible officer (SRO) for each significant project or initiative, and a single senior person leading each end to end

Process

- prompt, regular and meaningful management information on costs (including unit costs), efficiency, quality and performance against targets to track progress and value for money

[22] https://www.gov.uk/government/collections/functional-standards

- proportionate administration and enforcement mechanisms, without unnecessary complexity
- use of feedback from internal and external audit and elsewhere to improve performance
- regular risk monitoring, to track performance and experience and make adjustments in response

Afterwards

- mechanisms to evaluate policy, project and programme outputs and outcomes, including whether to continue, adjust or end any continuing activities
- arrangements to draw out and propagate lessons from experience

4.3 Opportunity and Risk

4.3.1 Embedded in each public sector organisation's internal systems there shall be arrangements for recognising, tracking and managing its opportunities and risks. Each organisation's governing body should make a considered choice about its desired risk appetite, taking account of its legal obligations, ministers' policy decisions, its business objectives, and public expectations of what it should deliver.

4.3.2 This can mean that different organisations take different approaches to the same opportunities or risks.

4.3.3 There should be a regular discipline of reappraising the opportunities and risks facing the organisation since both alter with time and circumstances, as indeed may the chosen responses. This process should avoid excessive caution, since it can be as damaging as unsuitable risk taking. The assessment should normally include:

- maintaining a risk register, covering identified risks and contingent risks from horizon scanning
- reputational risks, since poor performance could undermine the credibility, and ultimately the creditworthiness, of the Exchequer as a whole
- consideration of the dangers of maintaining the status quo
- plans for disaster recovery
- appraisal of end to end risks in critical processes and other significant activities.

4.3.4 In making decisions about how to manage and control opportunity and risk, audit evidence and other assurance processes can usefully inform choice. Audit, including internal audit, can provide specific, objective and well-informed assurance and insight to help an organisation evaluate its effectiveness in achieving its objectives. It is good practice for the audit committee to advise the governing board of a public sector organisation on its key decisions on governance and managing opportunities and risks. It is also a good discipline for this process to include evaluating progress in implementing PAC recommendations, where they have been accepted.

4.3.5 In turn the board shall support the accounting officer in drawing up the governance statement, which forms part of each organisation's annual accounts. See

annex 3.1. Further guidance about managing risks is in annex 4.3 and the Orange Book.

4.4 Insurance

4.4.1 In the private sector risk is often managed by taking out insurance. In central government it is generally not good value for money to do so. This is because the public sector has a wide and diverse asset portfolio; a reliable income through its ability to raise revenue through taxation; and access to borrowed funds more cheaply than any in the private sector. In addition commercial providers of insurance also have to meet their own costs and profit margins. Hence the public purse is uniquely able to finance restitution of damaged assets or deal with other risks, even very large ones. If the government insured risk, public services would cost more.

4.4.2 However, there are some limited circumstances in which it is appropriate for public sector organisations to insure. They include legal obligations[23], and occasions where commercial insurance would provide value for money[24]. Further information about insurance generally is in annex 4.4.

4.5 Control of Public Expenditure

4.5.1 The Treasury coordinates a system through which departments are allocated budget control totals for their public expenditure. Each department's allocation covers its own spending and that of its associated ALBs. Within the agreed totals, it has considerable discretion over setting priorities to deliver the public services for which it is responsible.

4.5.2 Each public sector organisation shall run efficient systems for managing payments (see box 4.4). It shall also keep its use of public resources within the agreed budgets, take the limits into account when entering into commitments, and generally ensure that its spending profile is sustainable.

4.5.3 Any major project, programme or initiative shall be led by a senior responsible owner (SRO). It is good practice to aim for continuity in such appointments[25].

Box 4.4: essentials of systems for committing and paying funds

- selection of projects after appraisal of the alternatives (see the Green Book), including the central clearance processes for larger commitments
- open competition to select suppliers from a diverse range, preferably specifying outcomes rather than specific products, to achieve value for money (see annexes 4.6 and 4.7)
- where feasible, procurement through multi-purchaser arrangements, shared services and/or standard contracts to drive down prices

[23] E.g. ALBs should insure vehicles where the Road Traffic Act requires it.

[24] E.g. where private sector contractors take out single-site insurance policies because they are cheaper than each individual party insuring themselves separately.

[25] See annex 4.5.

- effective internal controls to authorise acquisition of goods or services (including vetting new suppliers), within any legal constraints
- separation of authorisation and payment, with appropriate controls, including validation and recording, at each step to provide a clear audit trail
- checks that the goods or services acquired have been supplied in accordance with the relevant contract(s) or agreement(s) before paying for them.
- payment terms chosen or negotiated to provide good value
- accurate payment of invoices: once and on time, avoiding lateness penalties (see annex 4.8)
- a balance of preventive and detective controls to tackle and deter fraud, corruption and other malpractice (see annex 4.9)
- integrated systems to generate automatic audit trails which can be used to generate accounts and which both internal and external auditors can readily check.
- periodic reviews to benefit from experience, improve value for money or to implement developments in good practice

4.6 Receipts

4.6.1 Public sector organisations shall have arrangements for identifying, collecting and recording all amounts due to them promptly and in full. Outstanding amounts should be followed up diligently. Key features of internal systems of control are suggested in box 4.5.

4.6.2 Public sector organisations shall take care to track and enforce debts promptly. The presumption should be in favour of recovery unless it is uneconomic to do so.

Box 4.5: essential features of systems for collecting sums due

- adequate records to enable claims to be made and pursued in full.
- routines to prevent unauthorised deletions and amendments to claims.
- credit management systems to manage and pursue amounts outstanding.
- controls to prevent diversion of funds and other frauds.
- clear lines of responsibility for making decisions about pressing claims increasingly more firmly, and for deciding on any abatement or abandonment of claims which may be merited.
- arrangements for deciding upon and reporting any write-offs (see annex 4.10). Audit trails which can readily be checked and reported upon both internally and externally

4.7 Non-standard financial transactions

4.7.1 From time to time public sector organisations may find it makes sense to carry out transactions outside the usual planned range, e.g.:

- write-offs of unrecoverable debts or overpayments
- recognising losses of stocks or other assets
- long term loans or gifts of assets.

4.7.2 In each case it is important to deal with the issue in the public interest, with due regard for probity and value for money. Annexes 4.10 to 4.12 set out what is expected when such transactions take place in central government, including notifying Parliament.

4.7.3 Where an organisation discovers an underpayment, the deficit should be made good as soon as is practicable and in full. If there has been a lapse of time, for example caused by legal action to establish the correct position, it may be appropriate to consider paying interest, depending on the nature of the commitment to the payee and taking into account the reputation of the organisation and value for money for the Exchequer as a whole (see also section 4.11).

4.7.4 Similarly, public sector organisations may have reason to carry out current transactions which would not normally be planned for. These might be:

- extra contractual payments to service providers
- extra-statutory payments to claimants (where a similar statutory scheme exists)
- ex gratia payments to customers (where no established scheme exists)
- severance payments to employees leaving before retirement or before the end of their contract and involving payments above what the relevant pension scheme allows.

4.7.5 Again it is important that these payments are made in the public interest, objectively and without favouritism. The disciplines Parliament expects of central government entities are set out in annex 4.13, which explains the notification procedure to be followed for larger one-off transactions of this kind. The steps to be considered when setting up statutory or extra-statutory compensation schemes are discussed in annex 4.14.

4.8 Unusual circumstances

4.8.1 Sometimes public sector organisations face dilemmas in meeting their commitments. They may have a legal or business obligation which would be uneconomic or inappropriate to carry out assiduously to the letter. In such cases it can be justifiable to seek a pragmatic, just and transparent alternative approach, appropriately reported to Parliament in the organisation's annual accounts. One-off schemes of this kind are always novel and so require Treasury approval, not least because they may also require legislation or have to rest on the authority of a Supply and Appropriation Act (see section 2.5). Box 4.6 suggests precedented examples.

Box 4.6: examples of one-off pragmatic schemes

- a court ruling could mean that a public sector organisation owed each of a large number of people a very small sum of money. The cost of setting up and operating an accurate payment scheme might exceed the total amount due.

The organisation could instead make a one-off payment of equivalent value to a charity representing the recipient group.

- a dispute with a contractor might conclude that the contractor owed a public sector organisation an amount too big for it to meet in a single year while staying solvent. The customer might instead agree more favourable payment terms, with appropriate safeguards, if this arrangement provides better value for money.

4.9 Staff

4.9.1 Each public sector organisation should have sufficient staff with the skills and expertise to manage its business efficiently and effectively. The span of skills required should match the organisation's objectives, responsibilities and resources, balancing professional, practical or operational skills and policy makers, and recognising the value of each discipline. Succession and disaster planning should ensure that the organisation can cope robustly with changes in the resources available, including unforeseen disruption.

4.9.2 Public sector organisations should seek to be fair, honest and considerate employers. Some desirable characteristics are suggested in box 4.7.

4.9.3 Similarly public sector employers have a right to expect good standards of conduct from their employees. The qualities and standards expected of civil servants are set out in the Civil Service Code. Other public sector employees should strive for similar standards, appropriate to their context.

Box 4.7: public sector organisations as good employers

- selection designed to value and make good use of talent and potential of all kinds
- fairness, integrity, honesty, impartiality and objectivity
- professionalism in the relevant disciplines, always including finance
- arrangements to make sure that staff are loaded cost effectively
- management techniques balancing incentives to improve and disciplines for poor performance
- diversity valued and personal privacy respected
- mechanisms to support efficient working practices, both normally and under pressure
- arrangements for whistleblowers to identify problems privately without repercussions.

4.10 Assets

4.10.1 All public sector organisations own or use a range of assets. Each organisation needs to devise an appropriate asset management strategy to define how it acquires, maintains, tracks, deploys and disposes of the various kinds of assets it uses. Annex 4.15 discusses how to set up and use such a strategy.

4.10.2 It is good practice for public sector organisations to take stock of their assets from time to time and consider afresh whether they are being used efficiently and deliver value for public funds. If there is irreducible spare capacity there may be scope to use part of it for other government activities, or to exploit it commercially for non-statutory business.

4.11 Standards of service

4.11.1 Poor quality public services are not acceptable. Public sector organisations should define what their customers, business counterparties and other stakeholders can expect of them.

4.11.2 Standards can be expressed in a number of ways. Examples include guidelines (e.g. response times), targets (e.g. take-up rates) or a collection of customer rights in a charter. Even where standards are not set explicitly, they may sometimes be inferred from the way the provider organisation carries out its responsibilities; so it is normally better to express them directly.

4.11.3 Whatever standards are set, they should be defined in a measurable way, with plans for recording performance, so that delivery can be readily gauged. It is good practice to use customer feedback, including from complaints, to reassess from time to time whether standards or their proxies (milestones, targets, outcomes) remain appropriate and meaningful.

4.11.4 Where public sector organisations fail to meet their standards, or where they fall short of reasonable behaviour, it may be appropriate to consider offering remedies. These can take a variety of forms, including apologies, restitution (e.g. supplying a missing licence) or, in more serious cases, financial payments. Decisions about financial remedies – which should not be offered routinely - should include taking account of the legal rights of the other party or parties and the impact on the organisation's future business.

4.11.5 Any such payments, whether statutory or ex gratia, should follow good practice (see section 4.13). Since schemes of financial redress often set precedents or have implications elsewhere, they should be cleared with the Treasury before commitments are made, just as with any other public expenditure out of the normal pattern (see sections 2.1 to 2.4).

4.12 Complaints

4.12.1 Those public sector organisations which deal with customers directly should strive to achieve clear, accurate and reliable standards for the products and services they provide. It is good practice to arrange for complaints about performance to be reviewed by an independent organisation such as an ombudsman.

4.12.2 Often such review processes are statutory. The activities of central government departments and the NHS are open to review by the Parliamentary and Health Service

Ombudsman (PHSO)[26], whose Principles of Good Complaints Handling[27] sets out generic advice on complaints handling and administration of redress (see also annex 4.14). After investigation of cases of specific complaint, the PHSO can rule on whether injustice or hardship can be attributed to maladministration or service failure, and may recommend remedies, either for individual cases or for groups of similar cases. If departments decline to follow the PHSO's advice, they should lay a memorandum in Parliament explaining why.

4.13 Transparency

4.13.1 All public sector organisations shall operate as openly as is compatible shall the requirements of their business. In line with the statutory public rights[28], they should make available timely information about their services, standards and performance. This material shall strike a careful balance between protecting confidentiality and open disclosure in the public interest.

4.13.2 All public sector organisations shall adopt a publication scheme routinely offering information about the organisation's activities. They shall also publish regular information about their plans, performance and use of public resources.

4.13.3 The published information should be in sufficient detail, and be sufficiently regular, to enable users and other stakeholders to hold the organisation and its ministers to account. Benchmarks can help local users to evaluate local performance more easily.

4.13.4 The primary document of record for central government departments is the report and accounts, which shall consolidate information about the relevant ALBs. It shall include a governance statement (see annex 3.1).

4.13.5 In addition, the Treasury is responsible for publishing certain aggregate information about use of public resources, for example Whole of Government Accounts (WGA) consolidating all central and local government organisations' accounts and comparisons of outturn with budgets. The Office for National Statistics (ONS) also uses input from data gathered by the Treasury to publish the national accounts.

4.13.6 In certain areas of public business it is also important or desirable to provide adequate public access to physical assets. Unnecessary or disproportionate restrictions should be avoided. Managed properly, this can be a valuable mechanism to promote inclusion and enhance public accountability.

4.14 Dealing with initiatives

4.14.1 Public sector organisations need to integrate all the advice in this handbook when introducing new policies or planning projects. Each is unique and will need bespoke treatment. The checklist in box 4.8 brings the different factors together. It applies directly to central government organisations but the principles will be of value elsewhere.

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26 http://www.ombudsman.org.uk/

27 http://www.ombudsman.org.uk/improving-public-service/ombudsmansprinciples

28 E.g. Freedom of information act 2000, Data protection act 1998, Environment information regulations 2004 and the Re-use of public sector information regulations 2005

Box 4.8: factors to consider when planning policies or projects design

Design

- Has the proposal been evaluated against alternative options, including doing nothing?
- Should there be pilot testing before full roll out?
- Are the controls agreed and documented clearly? Have the risks and opportunities been considered systematically? Is the change process resilient to shocks? What contingencies might arise?
- Is the intended intervention proportionate to the identified need?
- What standards should be achieved? How will performance be tracked and assessed? Could the proposal be simplified without loss of function?
- If partner(s) are involved, is the allocation of responsibilities appropriate?
- Will the proposal be efficient, effective and offer good value for money?
- Is the policy sustainable in the broadest sense? Should it have a sunset clause?
- Does the planned activity meet high standards of probity, integrity and honesty?
- Will the proposal deliver the desired outcome to time and cost?
- Does the accounting officer assess the initiative as compatible with the public sector standards?

Control

- What prior agreement is required, if any?
- How will internal governance and delegation work? Will it be effective? Is it transparent? Should there be an SRO?
- Is there adequate legislation? If not, what is needed to make the action lawful?
- How will the proposal be financed? Is there budget and Estimate cover? Is it appropriate to charge to help finance the service? Are charges set within the law?
- Is the proposed action within the department's delegated authorities?
- What financial techniques will be used to manage rollout, implementation and operation?
- Are project and programme management techniques likely to be useful?
- How will the intended new arrangements be monitored and efficiency measured?
- How will feedback be used to improve outcomes?
- Does the design inhibit misuse and counter fraud? What safeguards are needed?

- Has the risk of fraud been assessed to help inform policy or project design?
- How will the associated risks be tracked and the responses adjusted?
- What intervention will be possible if things go off track?
- Would it be possible to recover from a disaster promptly?

Accountability

- How should Parliament be told of the proposal and kept informed of progress?
- What targets will be used? Are they sufficiently stretching?
- Is public access called for? How?
- Is the policy or service fair and impartial?
- Will its administration be open, transparent and accessible?
- Should there be customer standards? How are complaints used to improve performance?
- Should there be arrangements for redress after poor delivery?
- Is enforcement required? If so, is it proportionate?
- Is an appeal mechanism needed?
- Is regulation called for?
- Learning lessons
- What audit arrangements (internal and external) are intended?
- What information about the activity will be published? How and how often?
- When and how will the policy or project be evaluated to assess its cost and benefits and to determine whether it should continue, be adjusted, replaced or ceased?

Chapter 5
Funding

This chapter explores the means by which central government organisations may obtain funds in order to finance public expenditure. The Treasury operates disciplines to respect Parliament's concern to prevent unauthorised expenditure.

5.1 Introduction

5.1.1 Most public expenditure is financed from centrally agreed multi-year budgets administered by the Treasury, which oversees departments' use of their budget allocations. In the main, departments have considerable discretion about how they distribute these budget allocations, which are expressed net of relevant income. The main source of receipts to be netted off is fees and charges (see chapter 6).

5.1.2 The Treasury oversees and directs the rules that departments shall respect in managing their budgets. Departments are expected to live within their allocations for each financial year, with some limited exceptions, e.g. for certain demand led services. The budgeting framework is explained in the Consolidated Budgeting Guidance, which is refreshed each year.

5.2 Grants

5.2.1 Each central government department decides how much of its budget provision it should cascade to its ALBs in each year of the multi-year agreement. Departments may pay them grants (for specific purposes) and grants-in-aid (non-specific support) to finance their spending; though it is the net spending of the ALB that scores in the departmental budget. Annex 5.1 explains more about grants.

5.2.2 Budgets and Estimates plan net spending and include all spending of ALBs however it is financed. In general it is sensible to consider arrangements for protecting the Exchequer interest through clawback of specific grants should the purposes for which they are agreed not materialise (annex 5.2).

5.3 Estimates

5.3.1 The multiyear departmental budgets agreed collectively among ministers do not of themselves confer authority to spend or commit resources. Parliamentary agreement, usually through the Supply Estimate process, is also essential (see box 2.1).

5.3.2 Departmental Estimates are put to Parliament covering one financial year at a time, in the spring. Each covers the net expenditure of a department and its ALBs (i.e. all spending in budgets and any voted spend outside of budgets) for the year ahead. The provision sought shall be taut and realistic, without padding. The Supply Estimates Guidance Manual has more detail.

5.3.3 Before the summer recess, the provision sought in the Estimate is formally authorised in a Supply and Appropriation Act, which sets net expenditure limits for the year. The Act is then the legal authority for public expenditure within the ambit of the

Estimate. The ambit itemises a specific range of permitted activities and income streams for the year.

5.3.4 Within a financial year, there is some scope for transferring (through virement) provision from one section or subhead to another within any of the control limits in the same Estimate. There is scope for adjusting Estimate provision through a Supplementary Estimate late in the year if circumstances change. A Supplementary Estimate shall show all movements between sections, even if they would otherwise have been dealt with through virement.

5.3.5 Departmental Select Committees may examine departmental witnesses on the plans contained in Estimates. Usually such hearings take place after Estimates are laid in Parliament but before they are voted into law.

5.3.6 If there is underspending against Estimate provision in one year, it cannot automatically be carried forward to a later year. If a department wants to spend resources it did not consume in a previous year, it needs Treasury approval and must also obtain fresh parliamentary authority to spend in the year(s) concerned.

5.3.7 Like budgets, Estimates are set net of income. But Parliament needs to be made aware of receipts since Estimates authorise gross expenditure, normally using statutory powers. Annex 5.3 explains more about of types of receipt. Chapter 6 contains guidance about setting and adjusting fees and charges.

5.3.8 Occasionally an Estimate sets a negative limit for permitted resources. This happens if income is expected to exceed the relevant gross expenditure. Similarly a Supplementary Estimate can be negative if provision for spending is to fall within a given year.

5.3.9 A department's Estimate for a year includes all spending within its agreed budget for that year, as well as any voted non-budget spending. Not all of this amount requires voted parliamentary approval since some items, such as Consolidated Fund Standing Services, are paid direct from the Consolidated Fund. Hence only the voted parts of the Estimate requiring parliamentary approval appear in the Supply and Appropriation Act. Of course the disciplines on public funds (box 3.1) apply to all the activities described in the Estimate and accounts whether within the Act or not.

5.4 Excess Votes

5.4.1 Accounting officers have an important role in overseeing the integrity of the Estimates for which they are responsible. In particular, accounting officers are responsible for ensuring that Estimates are in good order (see section 2.2).

5.4.2 The Treasury presents Parliament each year with a Statement of Excesses to request retrospective authority for any unauthorised resources consumed above the relevant limits or outside the ambit of the Estimate. Parliament takes these excesses seriously. The PAC or departmental select committee may call witnesses to account in person or ask for a written explanation.

5.4.3 The Statement of Excesses includes two kinds of excess:

- spending above the amount provided in an Estimate
- irregular expenditure outside the ambit, e.g. on an unauthorised service.

5.4.4 Parliament usually regards the latter as particularly unsatisfactory because it means that the department concerned has flouted Parliament's intentions[29] and may have defective systems of control. The auditor may identify such excesses as spending not covered by statutory powers, even if the total amount spent does not exceed the voted limit.

5.4.5 Expenditure in excess of provision on an activity agreed by Parliament is also to be avoided since the authority of a Supply and Appropriation Act is just as essential as specific statutory authority (box 2.1). It is possible, with Treasury agreement, to raise the amount in an Estimate during the course of the year in a Supplementary. But otherwise accounting officers should reduce, reprioritise or postpone use of resources to keep within the provision Parliament has agreed for the year.

5.5 Commitments

5.5.1 Parliament is not bound[30] to honour ministers' commitments unless and until there are statutory powers to meet them and it authorises public funds to finance them (through an Estimate) in a given year. This discipline is especially important when ministers plan a new service.

5.5.2 Because commitments can evolve into spending, they shall always be scrutinised and appraised as stringently as proposals for consumption (box 4.8 may help). Some departments may agree with the Treasury blanket authority for defined and limited ranges of non-statutory commitments, e.g. indemnities for board members and commitments taken on the normal course of business. All other non statutory commitments are novel, contentious or repercussive, so Treasury approval is always essential before they are undertaken.

Box 5.1: contingent liabilities: notifying Parliament

- Parliament shall be notified of uncertain liabilities in a meaningful way without spurious accuracy. This shall be done by Ministerial Statement and departmental Minutes to the House of Commons, drawn directly to the attention of the chairs of the PAC and relevant departmental committee.
- If a contingent liability affects several departments but cannot confidently be allocated among them, the relevant ministers shall inform Parliament in a pragmatic way. A single statement may well suffice.
- If, exceptionally, a new liability needs to remain confidential, the minister shall inform the chairs of the relevant select committee and the PAC; then inform Parliament openly when the need for confidentiality lifts.
- Ministers shall inform Parliament if an ALB assumes a contingent liability which it could not absorb within its own resources, since the risk ultimately lies with the sponsor department's budget.

5.5.3 Public sector organisations shall give Parliament prompt and timely notice of any significant new commitments, whether using existing statutory powers or to be

[29] I.e. has breached the Concordat – see annex 2.3

[30] Under the Concordat.

honoured through future legislation. Non statutory contingent liabilities (above a specified threshold) shall always be notified in this way. The process is set out in annex 5.4.

5.5.4 The general rule is to err on the side of caution in keeping Parliament informed of emerging contingent liabilities. It is impossible to generalise about every possible set of circumstances but some guidance is in box 5.1.

5.6 Tax

5.6.1 Public sector organisations shall not engage in, or connive at, tax evasion, tax avoidance or tax planning. If a public sector organisation were to obtain financial advantage by moderating the tax paid by a contractor, supplier or other counterparty, it would usually mean that the Exchequer as a whole would be worse off – thus conflicting with the accounting officer's duties (section 3.3). Thus artificial tax avoidance schemes shall normally be rejected. It shall be standard practice to consult HMRC[31] about transactions involving non-standard approaches to tax before going ahead.

5.6.2 There is of course no problem with using tax advisers to help meet normal legitimate requirements of carrying on public business. These include administration of VAT, PAYE and NICs, where expert help can be useful and efficient.

5.6.3 Proposals to create new taxes in order to assign their proceeds to new spending proposals are rarely acceptable. Decisions on tax are for Treasury ministers, who are reluctant to compromise their future fiscal freedom to make decisions.

5.7 Public Dividend Capital

5.7.1 Certain public sector businesses, notably trading funds and certain Health Trusts, are set up with public dividend capital (PDC) in lieu of equity. Like equity, PDC should be serviced, though not necessarily at a constant rate.

5.7.2 PDC is not a soft option. In view of the risk it carries, it should deliver a rate of return comparable to commercial equity investments carrying a similar level of risk. There is scope for the return to vary to reflect market conditions and investment patterns; but persistent underperformance against the agreed rate of return should not be tolerated.

5.7.3 A department needs specific statutory power to issue PDC, together with supply cover to pay it out of the Consolidated Fund. Sometimes instead of a specific issue of PDC, the legislation establishing (or financially reconstructing) a public sector business deems an issue of PDC to the new business. Dividends on PDC, and any repayments of PDC, are paid to the sponsor department of the business.

5.7.4 Further information about the use of PDC can be found in Consolidated Budgeting guidance[32].

5.8 Borrowing by public sector organisations

5.8.1 Some public sector organisations, e.g. certain trading funds, are partly financed through loans provided through the sponsor department's Estimate; or from the

[31] HMRC customer relationship manager or customer co-ordinator.

[32] https://www.gov.uk/government/collections/consolidated-budgeting-guidance

National Loans Fund (NLF). In these cases Treasury consent and specific legal powers are always required. Limits and other conditions are common. See annex 5.5 for more.

5.8.2 NLF and Voted loans can only be made if there is reasonable expectation that the loan will be serviced and repaid promptly. Similarly, when ALBs borrow, their sponsor departments explicitly stand behind them and so shall scrutinise borrowers' creditworthiness, not just relying on their track records, in order to satisfy themselves that such loans are sound. For NLF loans, if timely repayment could not realistically be expected, the loan would be unlawful.

5.8.3 Should a department become aware of concerns about the security of outstanding loans (either its own or an ALB's), it should warn the Treasury promptly and consider what action it can take to reduce or otherwise mitigate any potential loss. If a loan becomes irrecoverable, remedial treatment shall be agreed with the Treasury and then notified to Parliament.

5.8.4 The NLF cannot make a loss. So the interest rates charged on NLF loans, whether fixed or variable, must be higher than the rates at which the NLF could raise funds for a similar period. Early repayment is sometimes possible, e.g. if the borrower has windfall receipts, but never simply to refinance on terms more favourable to the borrower because a fee is charged to match the Exchequer costs when a loan ends early. This is because the NLF finances the amount outstanding using money market instruments sold at the time the loan was made, and must continue to service those instruments. So the Exchequer as a whole would make a loss if the NLF offered cheaper replacement loans.

5.8.5 While NLF loans are repaid to the NLF, voted loans are repaid to the Consolidated Fund. The treatment of repayments and interest payments in Estimates and accounts is discussed in the Consolidated Budgeting Guidance, the Estimate Manual and the FReM. The Treasury accounts for NLF transactions in the NLF's accounts. Any proposed write-offs must be notified to Parliament after obtaining Treasury agreement: see annex 5.5.

5.9 External borrowing

5.9.1 Public sector organisations may borrow from private sector sources only if the transaction delivers better value for money for the Exchequer as a whole. Because non-government lenders face higher costs, in practice it is usually difficult to satisfy this condition unless efficiency gains arise in the delivery of a project (e.g. PFI). Treasury agreement to any such borrowing, including by ALBs, is also essential. Nevertheless it can sometimes be expedient for public sector bodies to borrow short term, for example by overdraft.

5.9.2 When a sponsor department's ALB borrows, the department shall normally arrange to guarantee the loan to secure a fine rate. This is not always possible, e.g. when a guarantee would rank as a state aid (see annex 4.7). A department which guarantees a loan normally[33]needs a specific statutory power as well as Estimate provision. On exceptional occasions temporary non-statutory loans may be possible.

5.9.3 The case for a guarantee shall be scrutinised as thoroughly as if indeed a loan were made. Since guarantees always entail entering into contingent liabilities,

[33] The Concordat applies here in just the same way as to spending – see annex 2.3.

Parliament must be notified when a loan guarantee is given, using the reporting procedures in annex 5.4.

5.9.4 Occasionally there is a case for an ALB to borrow in foreign currency in its own name rather than the government's. Because this can affect the credit standing of the government as a sovereign borrower, and may well cost more, it is essential to consult the Treasury beforehand. The same principles apply to the borrowing of any bodies, such as subsidiaries, for which a department's ALBs are responsible.

5.10 Multiple sources of funding

5.10.1 Sometimes public sector organisations derive funding from more than one source. Examples of funding other than voted funds include national insurance contributions (which are dedicated to the National Insurance Fund), lottery funding and charitable funding. All of these alternatives usually come with specific conditions attached.

5.10.2 Organisations in this position shall segregate and account separately for the different streams of funding so that they can apply the relevant terms and conditions to each. In particular, where a source of funding is designated to a particular purpose, it is rarely appropriate to use another instead. In those circumstances switching is novel and contentious and thus requires Treasury approval.

5.10.3 When there is doubt about how to handle multiple streams of funding, it is good practice to consult the Treasury.

5.11 Cash management

5.11.1 The various organisations in central government together handle very large flows of public funds. At the end of each working day, the Exchequer must either borrow from the money market or place funds on deposit with the money market, depending on the net position reached after balancing outflows to finance expenditure against inflows from taxes and other sources.

5.11.2 So there is considerable advantage to be gained for the Exchequer as a whole by minimising this net position. In practice this means gathering balances together at the end of each working day. In aggregate all these accounts make up the Exchequer Pyramid, managed by the Treasury. Most funds are held with the Government Banking Service.

5.11.3 It is essential for central government organisations to minimise the balances in their own accounts with commercial banks. Were each to retain a significant sum in its own account with such banks, the amount of net government borrowing outstanding on any given day would be appreciably higher, adding to interest costs and hence worsening the fiscal balance.

5.11.4 Each central government organisation shall establish a policy for its use of banking services. See annex 5.6 for guidance. Sponsor departments shall also make sure that their ALBs are aware of the importance of managing this aspect of their business efficiently and effectively.[34]

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[34] Further details on ALB's cash management arrangements can be found within the Framework Document Guidance and Framework Document Templates available on gov.uk - https://www.gov.uk/government/publications/managing-public-money-framework-documents

5.12 Other financing techniques, including hedging instruments and forward contracts

5.12.1 Depending on its circumstances, purposes and risk profile, a public sector organisation may, with appropriate Treasury consents, consider using financial instruments provided by the financial markets. Accounting officers must ensure there is a clear rationale evidencing the overall benefit before using these instruments.

5.12.2 Simpler examples of this type of activity are the use of credit and debit cards in order to secure faster settlements, or fixed price energy contracts for supply in public sector buildings. These simpler forms can be considered as being in the normal course of business.

5.12.3 The use of more complex types of financial instruments is only permitted with the explicit consent of the Treasury. The most common examples of this being the use of forward contracts for foreign currency transactions or commodities. Other examples include swap contracts and derivatives.

5.12.4 Accounting officers should be aware that the use of these more complex financing instruments to hedge might not be the cheapest option for the Exchequer as a whole, compared to departments and ALBs absorbing volatility risk within their budgets, which remains the default approach.

5.12.5 However, such transactions can support the accounting officer in ensuring the regularity of spending, by ensuring they do not need to absorb significant volatility (e.g. from foreign exchange value fluctuations) within their control totals.

5.12.6 For example: if a department or arm's length body were committed to pay an amount of foreign currency in the future that represented a significant proportion of the department or ALB's budget, which would be subject to high levels of foreign exchange volatility, it might enter a simple forward via the Bank of England – as agent for the Treasury under arrangements entered into through Government Banking to give certainty that the final cost (in sterling) would be known and within its control totals.

5.12.7 All use of such instruments should be carefully evaluated and will require Treasury consent, save those examples in the normal course of business such as those mentioned in 5.12.2. Treasury will always refuse proposals to speculate. Offers which appear too good to be true usually are.

5.12.8 Any organisation using these instruments shall ensure that it has the competence to manage, control and track its use and any resulting financial exposures, which may vary with time. In particular, departments and their ALBs shall consult the Treasury before using derivatives for the first time. Annex 5.6 contains further detail.

5.12.9 Departments should only enter into such financing instruments via centralised expertise and frameworks. For example, through the Bank of England – as agent for the Treasury, who can provide departments with vanilla instruments such as forward contracts and swaps for foreign exchange transactions, and Crown Commercial Services for energy and commodities purchases.

5.12.10 Commercial providers also offer forwards, options and non-foreign currency derivatives (e.g. commodities, interest rates, inflation), these are always novel, contentious and repercussive and will always require explicit Treasury consent.

Treasury will normally be sceptical, as financial hedging generally incurs costs, private providers can have a higher cost of finance than the Government and intend to profit from their business, making them poor value for money.

5.12.11 As with managing other business, Parliament may ask accounting officers to justify any decisions about use of financial transactions, especially if with hindsight they have not achieved good value for money.

5.12.12 Departments should ensure that financing instruments are appropriately scored in line with Consolidated Budgeting Guidance, and that the Treasury is consulted regarding losses in line with Annex 4.10, and the department's delegated authority letter.

Chapter 6

Fees, charges and levies

Charges for services provided by public sector organisations normally pass on the full cost of providing them. There is scope for charging more or less than this provided that ministers choose to do so, Parliament consents and there is full disclosure. Public sector organisations may also supply commercial services on commercial terms designed to work in fair competition with private sector providers. Parliament expects proper controls over how, when and at what level charges may be levied

6.1 Introduction

6.1.1 Certain public goods and services are financed by charges rather than from general taxation. This can be a rational way to allocate resources because it signals to consumers that public services have real economic costs. Charging can thus help prevent waste through badly targeted consumption. It can also make comparisons with private sector services easier, promote competition, develop markets and generally promote financially sound behaviour in the public sector.

6.1.2 There are unavoidable reasons why policy on charging is important:

- charges substitute for taxation (or, in the short term, borrowing) as a means of government finance. Decisions on charging policy shall therefore be made with the same care, and to similar standards, as those on taxation
- for this reason, Parliament expects to consider legislation on whether charges shall be levied; how they should be structured; and on charge levels
- international standards[35] determine how income from charges is classified in the national accounts. Certain charges are treated as taxes.

6.1.3 As in other areas of managing public funds, Parliament expects the Treasury to make sure that its interests are respected, including pursuit of efficiency and avoidance of waste or extravagance. Because Estimates and budgets are shown net of income, special effort is required to give Parliament information about both gross and net costs, and about the sources and amounts of income.

6.2 Basic principle

6.2.1 The standard approach is to set charges to recover full costs. Cost shall be calculated on an accruals basis, including overheads, depreciation (e.g. for start up or improvement costs) and the cost of capital. Annex 6.1 sets out how to do this.

6.2.2 This approach is simply intended to make sure that the government neither profits at the expense of consumers nor makes a loss for taxpayers to subsidise. It

[35] The Treasury and public accounts follow classification decisions taken by the Office for National Statistics, an independent organisation which is guided by the international standards set out in the European System of Accounts.

requires honesty about the policy objectives and rigorous transparency in the public interest.

6.2.3 As elsewhere, organisations supplying public services should always seek to control their costs so that public money is used efficiently and effectively. The impact of lower costs should normally be passed on to consumers in lower charges. Success in reducing costs is no excuse for avoiding the principles in this guidance.

6.2.4 This chapter applies to all fees and charges set by ministers and by an extensive range of public bodies: departments, trading funds, NDPBs, the NHS, non-devolved services in Scotland, Wales and Northern Ireland, and most public corporations. Departments should be able to satisfy themselves that their ALBs can deliver the financial objectives for the services they charge for. This chapter also applies when one public organisation supplies another with goods or services; and to certain statutory local authority charges set by ministers.

6.3 Setting a charge: standard practice

6.3.1 When a charge for a public service is to be made, it is normally necessary to rely on powers in primary legislation. The legislation should be designed so that ministers decide, or have significant influence over, both the structure of the charge and its level. It is common to frame primary legislation in general terms, using secondary legislation to settle detail.

6.3.2 Treasury consent is required for all proposals to extend or vary charging schemes. This holds even if the primary legislation does not call for it, or the delegated authorities within which the organisation operates would otherwise allow it.

6.3.3 It is sometimes possible to rely on secondary legislation rather than primary to determine charges:

- an order under s56 of the Finance Act 1973
- restructuring of charges can sometimes be achieved by an order under s102 of the Finance (no 2) Act 1987 (see box 6.1).

Box 6.1: restructuring charges using S.102

- A s102 order can extend or vary powers in existing primary legislation.
- It can permit restructuring by specifying factors to be taken into account when setting fees.
- Explicit prior Treasury consent is always essential.

But...

- A s102 order cannot create a power for new charges where no primary legislation exists.
- Nor can it lift restrictions in (or in any other way undermine) primary legislation.
- Parliament is usually sceptical because s102 substitutes secondary for primary legislation.

6.3.4 When deciding the level of a charge, it is important to define:

- the range(s) of services for which a charge is to be made
- how any categories of service are to be differentiated, if at all, in setting charges.

6.3.5 The standard approach is that the same charge shall apply to all users of a defined category of service, so recovering full costs for that category of service. Different charges may be set for objectively different categories of service costing different amounts to provide. Box 6.2 shows how this can work.

Box 6.2: how different charges can apply to different categories of service

Different categories could be recognised by:

- distinguishing supply differences, e.g. in person, by post or online
- priorities, e.g. where a quicker service costs more
- quality, e.g. charging more for a premium service with more features
- recognising structural differences, where it costs more to supply some consumers

However, different groups of customers should not be charged different amounts for a service costing the same, e.g. charging firms more than individuals. Similarly, cross subsidies are not standard practice, e.g. charging large businesses more than small ones where the cost of supply is the same.

6.3.6 Charges within and among central government organisations shall normally also be at full cost, including the standard cost of capital. Any different approach would cause one party to make a profit or loss not planned in budgets agreed by ministers collectively; while the customer organisation(s) would conversely face charges higher or lower than full costs. A number of objectionable consequences might flow from this. For instance, a question of state aid could arise; or private sector consumers of the customer organisation might be charged distorted fees.

6.3.7 Shared services (box 6.3) are a special case of charging within the public sector.

Box 6.3: shared services

- It is often possible to make economies of scale by arranging for several public service organisations to join together to deliver services cheaper, e.g. by using their joint purchasing power. One organisation supplies the other(s). Since all the parties should lower their costs, the accounting officer of each organisation should have no difficulty in recognising improved value for money for the Exchequer as a whole and so justify going ahead.
- Public sector organisations supplying (or improving) shared services should consult the Treasury at an early stage of planning. Typically, supplier organisations face the cost of setting up provision on a larger scale than they need for their own use. As with setting up any new service, plans in budgets should amortise initial costs so that they can be recovered over an appropriate

period from the start of the service. More detail on shared services is in section 7.5.

- It is not acceptable for supplier organisations to plan to profit from, or subsidise, supply to customer organisations in the public sector. Nor is it acceptable for accounting officers to resist shared services just because the impact on their own organisation is not perceived to be favourable.

6.4 Setting a charge: non-standard approaches

6.4.1 Ministers' policy objectives for a service where a charge is levied may not fit the standard model in section 6.3. In such cases it may be possible to deliver the policy objective in another way. Some ways of doing this are described below.

6.4.2 Explicit Treasury consent, and often formal legal authority, is always required for such variations. It is desirable to consult the Treasury at an early stage to make sure that the intended strategy can be delivered.

6.5 Charging below cost

6.5.1 Where ministers decide to charge less than full cost, there should be an agreed plan to achieve full cost recovery within a reasonable period. Each case needs to be evaluated on its merits and obtain Treasury clearance. If the subsidy is intended to last, this decision should be documented and periodically reconsidered.

6.6 Charging above cost

6.6.1 ONS normally classifies charges higher than the cost of provision, or not clearly related to a service to the charge payer, as taxes. Such charges always call for explicit ministerial decision as well as specific statutory authority. The Treasury does not automatically allow departments to budget for net expenditure associated with above cost charges. Netting off, or netting off up to full costs, may be agreed in certain instances, considering each case on its merits.

6.6.2 Sometimes when a change of this kind is classified as a tax, departments also propose to assign its revenue. The Treasury always treat such proposals with caution (see 5.6.3).

6.7 Cross subsidies

6.7.1 Cross subsidies always involve a mixture of overcharging and undercharging, even if the net effect is to recover full costs for the service as a whole. So cross subsidised charges are normally classified as taxes. They always call for explicit ministerial decision and parliamentary approval through either primary legislation or a s102 order.

6.8 Information services

6.8.1 In the public interest, information may be provided free or at low charge. This approach recognises the value of helping the general public obtain the data they require to function in the modern world. There are some exceptions - see annex 6.2.

6.9 Levies

6.9.1 Compulsory levies, e.g. payments for licences awarded by statutory regulators, or duties to finance industry specific research foundations, are normally classified as taxation. Such levies may be justified in the wider public interest, not because they provide a direct beneficial service to those who pay them. Depending on the circumstances, the Treasury may allow regulators to retain the fees charged if this approach is efficient and in the public interest.

6.9.2 As with other fees and charges, levies shall be designed to recover full costs. If the legislation permits, the charge can cover the costs of the statutory body, e.g. a regulator could recover the cost of registration to provide a licence and of associated supervision. It may be appropriate to charge different levies to different kinds of licensees, depending on the cost of providing different kinds of licences (see box 6.2).

6.10 Commercial services

6.10.1 Some public sector services are discretionary, i.e. no statute underpins them. Services of this kind are often supplied into competitive markets, though sometimes the public sector supplier has a monopoly or other natural advantage.

6.10.2 Charges for these services shall be set at a commercial rate. The rate shall deliver a commercial return on the use of the public resources deployed in supplying the service. So the financial target shall be in line with market practice, using a risk weighted rate of return on capital relevant to the sector concerned. The rate of return used in pricing calculations for sales into commercial markets shall be:

- for sales into commercial markets, in line with competitors' assessment of their business risk, rising to higher rates for more risky activities
- where a public sector body supplies another, or operates in a market without competitors, the standard rate for the cost of capital (see annex 6.1)

6.10.3 If a publicly provided commercial service does not deliver its target rate of return, outstanding deficits shall be recovered, e.g. by adjusting charges. Any objective short of achieving the target rate of return calls for ministerial agreement, and shall be cleared with the Treasury. But discretionary services should never undermine the supplier organisation's public duties, including its financial objective(s).

6.10.4 It is important for public suppliers of commercial services to respect competition law. Otherwise public services using resources acquired with public funds might disturb or distort the fair operation of the market, especially where the public sector provider might be in a dominant position: see annex 6.3.

6.11 Disclosure

6.11.1 It is important that Parliament is fully informed about use of charges. Each year the annual report of the charging organisation shall give:

- the amounts charged
- full costs and unit costs
- total income received
- the nature and extent of any subsidies and/or overcharging

- the financial objectives and how far they have been met.

6.11.2 To keep Parliament properly informed, Estimates should display details of expected income from charges. The Estimates Manual explains how the controls work.

6.11.3 The FReM sets out the information public sector organisations should publish in their accounts. It should include analysis of income.

6.12 Taking stock

6.12.1 As with any other use of public resources, it is important to monitor performance so that the undertaking can be adjusted as necessary to stay on track. It is good practice to review the service routinely at least once a year, to check, and if appropriate revise, the charging level. At intervals, a more fundamental review is usually appropriate, e.g. on a timetable compatible with the dynamics of the service. Box 6.4 suggests some issues to examine.

Box 6.4: reviewing a public service for which a charge is made

- Is it still right for a public sector body to use public resources to supply the service?
- Are there any related services for which there might be a case for charging?
- Does the business structure still make sense? Are the assets used for the service adequate?
- How can efficiency and effectiveness be improved so that charges can be lower or offer better value?
- Is the financial objective right?
- For a statutory (or other public sector) service, if full costs are not recovered, why not?
- For a commercial service, does the target rate of return still reflect market rates?
- Is it still appropriate to net off against costs any agreed charges above cost?
- Is there scope to secure economies of scale by developing a shared service?
- What developments might change the business climate?
- Do any discretionary services remain a good fit for the business model and wider objectives?
- Should any underused assets be redeployed, used to make a commercial return, or sold?
- Would another business model (e.g. licensing, contracting out, privatising) be better?

Chapter 7
Working with others

It often makes sense for public sector organisations to work with partners to deliver public services. This chapter outlines how sponsor departments shall keep track of their ALBs, and where necessary control their activities. It is important that the public interest and the need to keep Parliament informed are given priority in setting up and operating these relationships.

7.1 The case for working in partnership

7.1.1 Public sector organisations may be able to deliver public services more successfully if they work with another body. Central government departments may find it advantageous to delegate certain functions to ALBs that can be free to concentrate on them without conflict of interest. Or it may be helpful to harness the expertise of a commercial or civil society sector organisation with skills and leverage not available to the public sector.

7.1.2 Any such relationship inevitably entails tensions as well as opportunities. The autonomy of each organisation needs to be buttressed by sufficient accountability to give Parliament and the public confidence that public resources are used wisely.

7.1.3 It can be important that an ALB is demonstrably independent. This in itself does not determine the ALB's form or structure. Independence is achieved by specifying how the ALB is to operate. Functional or policy independence is compatible with financial oversight by the ALB's parent department and with accountability for the use of public resources.

7.1.4 It is generally helpful to deal with any potential conflicts head on by deciding at the outset how the relationship(s) between the parties should work. The key issues to tackle are set out in box 7.1.

Box 7.1: issues for partnerships with public sector members

- The decision to engage with a partner should rest on evaluation of a business case assessed against a number of alternatives, including doing nothing.
- Conflicts of interest should be identified so that handling strategies can be agreed, e.g. by establishing early warning processes or safeguards.
- The cultural fit of the partners should be close enough to give each confidence to trust the other.
- Accountability for use of public funds should not be weakened.
- The terms of engagement, including governance, should be documented in a framework agreement or equivalent (see box 7.2).

7.2 Setting up new arm's length bodies

7.2.1 When a sponsor department sets up a new ALB, the nature of the new body shall be decided early in the process. It is sensible for the functions of the new body to help determine this choice. Annex 7.1 offers advice and sources of guidance on setting up a new ALB and compares the characteristics of agencies, non-departmental public bodies (NDPBs) and non-ministerial departments (NMDs). Departments shall consult the Treasury and the Cabinet Office about making the choice.

7.2.2 In general, each new ALB should have a specific purpose, distinct from its parent department. There should be clear perceived advantage in establishing a new organisation, such as separating implementation from policy making; demonstrating the integrity of independent assessment; establishing a specialist identity for a professional skill; or introducing a measure of commercial discipline. It is sensible to be sceptical about setting up a new ALB, since it will often add to costs.

7.2.3 ALBs cannot be given authority to make decisions proper to ministers, nor to perform functions proper to sponsor departments. Only rarely is a non-ministerial department the right choice as NMDs have limited accountability to Parliament[36].

7.2.4 Nor is it acceptable to use a royal charter to establish a public sector body since such arrangements deny Parliament control and accountability.

7.2.5 A sponsor department cannot relinquish all responsibility for the business of its ALBs by delegation. It should have oversight arrangements appropriate to the importance, quality and range of the ALB's business. Normally new, large, experimental or innovative ALBs need more attention from the sponsor than established or small ALBs doing familiar or low risk business. And the sponsor department always needs sufficient reserve powers to reconstitute the management of each ALB should events require it (see section 3.8).

7.2.6 The sponsor department should plan carefully to make sure that its oversight arrangements and the internal governance of any new ALB are designed to work together harmoniously without unnecessary intrusion. The ALB also needs effective internal controls and budgetary discipline so that it can live within its budget allocation and deliver its objectives. And the sponsor department must have sufficient assurance to be able to consolidate its ALBs' accounts with its own.

7.2.7 There is a good deal of flexibility about form and structure. It may be expedient, for example, to set up an organisation which is eventually to be sold as a Companies Act company. Or certain NDPBs may operate most effectively when constituted as charities. Mutual structures can also be attractive. Innovation often makes sense. The standard models are all capable of a good deal of customisation.

7.2.8 If the PAC decides to investigate an ALB, the accounting officers of both the ALB and its sponsor department should expect to be called as witnesses. The PAC will seek to be satisfied that the sponsor's oversight is adequate.

[36] The sponsor department also has less control as each NMD has its own budget, Estimate and annual accounts. So if a ministerial department transfers work to an NMD, there is a greater risk of excess votes in each.

7.3 What to clarify

7.3.1 When documenting an agreement with a partner, public sector organisations should analyse the relationship and consider how it might evolve. The framework document (or equivalent) shall then be kept up to date as the partnership develops.

7.3.2 Framework document templates are available on gov.uk alongside the Framework documents guidance[37] and further information is provided in Annex 7.2

7.3.3 In framing founding documentation, the partners should adopt a proportionate approach. Parliament expects that public funds will be used in a way that gives reasonable assurance that public resources will be used to deliver the intended objectives.

7.3.4 In this process the aim should be to put the accounting officers of the parties in a position to take a well informed view on the current status of the relationship, enabling timely adjustments to be made as necessary. It is good practice to develop structured arrangements for regular dialogue between the parties to avoid misunderstandings and surprises.

7.4 Agencies

7.4.1 Each agency is either part of a central government department or a department in its own right. Agencies are intended to bring professionalism and customer focus to the management and delivery of central government services, operating with a degree of independence from the centre of their home departments. Some are also trading funds (see section 7.8).

7.4.2 Each agency is established with a framework document on the lines set out in the framework documents guidance. With the exception of those agencies which are trading funds (see section 7.8), they are normally funded through public expenditure supplied by Estimates. Departments should consult the Treasury and Cabinet Office about the preparation of their framework documents.

7.5 Shared services and departments pooling resources

7.5.1 To promote better delivery and enhance efficiency, departments often find it useful to work with other government departments (or ALBs). This can make sense where responsibilities overlap, or both operate in the same geographical areas or with the same client groups. Such arrangements can offer opportunities for departments to reduce costs overall while each partner plays to its strengths.

7.5.2 Such relationships can be constituted in a number of different ways. Some models are sketched in box 7.2. The list is not exhaustive.

7.5.3 Shared services often need funding to set up infrastructure, e.g. to procure IT. This could be agreed in a spending review, or customers could buy in to the partnership by transferring budget provision to the lead provider. Each of the accounting officers involved shall be satisfied that the project offers value for money for the Exchequer as a whole. The provider's charges should be at cost, following the standard fees and charges rules (see chapter 6).

[37] https://www.gov.uk/government/publications/managing-public-money-framework-documents

Box 7.2: examples of joined up activities in central government

- one partner can act as lead provider selling services (such as IT, HR, finance functions) to other(s) as customers, operating under service level agreement(s)
- cost sharing arrangements for common services (e.g. in a single building), allocated in line with an indicator such as numbers of staff employed or areas of office space occupied
- joint procurement using a collaborative protocol
- a joint venture project with its own governance, e.g. an agency or wholly owned company, selling services to a number of organisations, some or all of which may be public sector
- an outsourced service, delivering to several public sector customers

7.5.4 In any joint activity, there must be a single accounting officer so that the lines of responsibility are clear. If the PAC decides to investigate, the accounting officers of each of the participants should expect to be summoned as witnesses.

7.6 Joint working and delivering cross-cutting programmes

7.6.1 Sometimes an accounting officer decision involves several public sector organisations. There are a number of different potential models for joint working, as set out below.

7.6.2 It is good practice for participating bodies to document their respective responsibilities via a memorandum of understanding[38].

Box 7.4: models for joint working

Model 1: Collaboration

- departments may collaborate in the development of policy in which they respectively have an interest
- accounting officer responsibilities rest personally with the accounting officer whose department's resources are being used

Model 2: One department leads, whilst formally accessing the expertise of other government departments or ALBs

- the accounting officer responsibilities rest personally with the accounting officer whose department's resources are being used
- however, the accounting officer may require expertise, analysis or insights from another department or public body, in order to support their decision making

[38] https://www.gov.uk/government/publications/accounting-officer-assessments

- the accounting officer may require the supporting organisation to provide written assurances of the robustness of any analysis provided and underlying methodologies
- the ultimate judgement and accountability lies with the accounting officer incurring expenditure against their resources

Model 3: Departments individually fund elements of a joint project or plan

- departments individually contribute funding from their own Estimate and ambits to their own individual projects which make up the overarching plan
- accounting officer responsibilities rest personally with the accounting officer of the department whose resources are being used for each element of the cross-cutting project or programme
- joint governance processes may be established (e.g. joint governance boards) to oversee co-ordination and delivery of the overarching plan
- as in model two, accounting officers may rely upon expertise provided by other departments
- ministerial responsibility for the overarching plan is shared, with each minister having responsibility for their respective policy area

Model 4: One department leads at programme level, with accountability and responsibility for individual projects sitting with different departments and ALBs

- an overall Senior Responsible Owner (SRO)[39] at the programme level is responsible for the delivery of the programme as a whole
- individual project SROs are accountable to both the accounting officer of their department and the programme level SRO
- accounting officer responsibilities rest personally with the accounting officer of the department whose resources are being used for each element of the cross-cutting project or programme (as with Model 3)
- timely and high-quality information flows between the SROs and accounting officers are required to ensure the accounting officer can consider value for money of their projects in the context of the programme and Exchequer as a whole

Model 5: Support via budget cover transfers

- one department with an aim in common with another may transfer budget cover to the other department, in order to undertake activities that align with their respective objectives
- the accounting officer transferring the budget cover cannot abdicate all their accounting officer responsibilities. The transferring AO must be confident that the budget cover will be used in line with Parliament's expectations and the intent of the joint policy, and in compliance with the rules set out in MPM. This

[39] See Annex 4.5

can be achieved through the use of memoranda of understanding or other governance documents between AOs.

- More elaborate governance structures may be appropriate if these transfers occur as part of a joint programme (as per Model 4 above).
- accounting officer responsibilities ultimately rest personally with the accounting officer of the department receiving the budget cover who incurs the spending,
- the recipient department must have appropriate ambit and vires to undertake the work

Model 6: Machinery of government change

- policy responsibility and funding transfer from one department to another by order of the prime minister in exercise of the royal prerogative
- accounting officer responsibilities rest with the accounting officer of the department receiving the policy responsibility, who will use their resources
- in order to meet the requirements of regularity and propriety it may be necessary for the receiving department to:
    - amend their ambit to ensure they have parliamentary authority to incur spending on the new activity[40]
    - bring forward primary legislation to ensure compliance with the new services rule[41]

7.7 Non-departmental public bodies

7.7.1 Non-departmental public bodies (NDPBs) may take a number of legal forms, including companies and charities. Most executive NDPBs have a bespoke structure set out in legislation or its equivalent (e.g. a Royal Charter[42]). This may specify in some detail what task(s) the NDPB is to perform, what its powers are, and how it should be financed. Sometimes primary legislation contains powers for secondary legislation to set or vary the detail of the NDPB's structure. Annex 7.1 has links to more about NDPBs.

7.7.2 Each NDPB is a special purpose body charged with responsibility for part of the process of government. Each has a sponsor department with general oversight of its activity. The sponsor department's report and accounts consolidates its NDPBs' financial performance.

7.7.3 NDPBs show considerable variety of structures and working methods, with scope for innovation and customisation. Some NDPBs may also need to work with other organisations as well as with their sponsor. All this shall be documented in the framework document (see annex 7.2).

7.7.4 NDPBs' sources of finance vary according to their constitution and function.

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[40] See 2.2.

[41] See 2.6.

[42] This route is no longer used - see Section 2.5.

7.7.5 Box 7.4 shows the main options available.

Box 7.5: sources of finance for NDPBs

- one partner can act as lead provider selling services (such as IT, HR, finance functions) to other(s) as customers, operating under service level agreement(s)
- specific conditional grant(s) from the sponsor department (and/or other departments)
- general (less conditional) grant-in-aid from the sponsor department
- income from charges for any goods or services the NDPB may sell
- income from other dedicated sources, e.g. lottery funding
- public dividend capital

7.7.6 In practice NDPBs always operate with some independence and are not under day-to-day ministerial control. Nevertheless, ministers are ultimately accountable to Parliament for NDPBs' efficiency and effectiveness. This is because ministers: are responsible for NDPBs' founding legislation; have influence over NDPBs' strategic direction; (usually) appoint their boards; and retain the ultimate sanction of winding up unsatisfactory NDPBs.

7.8 Public corporations

7.8.1 Some departments own controlling shareholdings in public corporations or Companies Act companies, perhaps (but not necessarily) as a step toward disposal. Public corporations' powers are usually defined in statute; but otherwise all the disciplines of corporate legislation apply. UK Government Investments (UKGI), which specialises in strategic management of corporates, may be a good way of managing departments' responsibilities as shareholders.

7.8.2 Sponsor departments should define any contractual relationship with a corporate in a framework document adapted to suit the corporate context while delivering public sector disciplines. The financial performance expected should give the shareholder department a fair return on the public funds invested in the business. Box 7.5 offers suggestions. This approach may also be appropriate for a trading fund, especially if it is to become a Companies Act company in time.

7.8.3 A shareholder department may also use a company it owns as a contractor or supplier of goods or services. It is a good discipline to separate decisions about the company's commercial performance from its contractual commitments, so avoiding confusion about objectives. So there should be clear arm's length contracts between the company and its customer departments defining the customer-supplier relationship(s).

Box 7.6: outline terms for a relationship with a public corporation

- the shareholder's strategic vision for the business, including the rationale for public ownership and the public sector remit of the business
- the capital structure of the business and the agreed dividend regime, with suitable incentives for business performance
- the business objectives the enterprise is expected to meet, balancing policy, customer, shareholder and any regulatory interests
- the department's rights and duties as shareholder, including:
    - governance of the business
    - procedure for appointments (and disappointments)
    - financial and performance monitoring
    - any necessary approvals processes
    - the circumstances of, and rights upon, intervention
- details of any other relationships with any other parts of government

7.9 Trading funds

7.9.1 All trading funds are established under the Trading Funds Act 1973. Their activities are not consolidated with their sponsor departments' business. They must finance their operations from trading activity.

7.9.2 Each trading fund is set up through an order subject to affirmative resolution. Before an order can be laid in Parliament, the Treasury needs to be satisfied that a proposed trading fund can satisfy the statutory requirement that its business plan is sustainable without additional funding in the medium term. A period of shadow operation as a pilot trading fund may help inform this assessment.

7.9.3 Each trading fund must be financed primarily from its trading income. In particular, each trading fund is expected to generate a financial return commensurate with the risk of the business in which it is engaged. In practice this means the target rate of return should be no lower than its cost of capital. The actual return achieved may vary a little from one year to the next, reflecting the market in which the trading fund operates.

7.9.4 The possible sources of capital for trading funds are shown in box 7.6. They are designed to give trading funds freedom from the discipline of annual Estimate funding. The actual mix for a given trading fund must be agreed with the sponsor department (if there is one) and with the Treasury, subject to any agreed limits, e.g. on borrowing.

7.9.5 7.8.5 Further detail about trading funds is in annex 7.3. Guidance on setting charges for the goods and services trading funds sell is in chapter 6.

Box 7.7: sources of capital for trading funds

- public dividend capital (equivalent to equity, bearing dividends - see annex 7.4)
- reserves built up from trading surpluses
- long- or short-term borrowing (either voted from a sponsor department or borrowed from the National Loans Fund if the trading fund is a department in its own right)
- temporary subsidy from a sponsor department, voted in Estimates
- finance leases

7.10 Non-ministerial departments

7.10.1 A very few central government organisations are non-ministerial departments (NMDs). It is important that there is some clear rationale for this status in each case.

7.10.2 NMDs do not answer directly to any government minister. They have their own accounting officers, their own Estimates and annual reports, and settle their budgets directly with the Treasury. However, some ministerial department must maintain a watching brief over each NMD so that a minister of that department can answer for the NMD's business in Parliament; and if necessary take action to adjust the legislation under which it operates. A framework document shall define such a relationship.

7.10.3 This limited degree of parliamentary accountability must be carefully justified. It can be suitable for a public sector organisation with professional duties where ministerial input would be inappropriate or detrimental to its integrity. But the need for independence is rarely enough to justify NMD status. It is possible to craft arrangements for NDPBs which confer robust independence. Where this is possible it provides better parliamentary accountability, and so is to be preferred.

7.11 Local government

7.11.1 A number of central government departments make significant grants to local authorities. Some of these are specific (ring fenced). Most are not, allowing local authorities to set out their own priorities.

7.11.2 Nevertheless Parliament expects assurances that such decentralised funds are used appropriately, i.e. that they are spent with economy, efficiency and effectiveness, and not wasted nor misused. The quality of the assurance available differs from that expected of central government organisations because local authorities' prime accountability is to their electorates.

7.11.3 For these relationships a framework document is not usually the most fruitful approach. Instead. Central government departments shall draw up an annual account of how their accounting officers assure themselves that grants to local government are distributed and spent appropriately; and how underperformance can be dealt with. This account forms part of the governance statement in the report and accounts of each department affected (see annex 3.1).

7.11.4 Similar considerations apply to the NHS and centrally funded schools.

7.12 Innovative structures

7.12.1 Sometimes central government departments have objectives which more easily fit into bespoke structures suited to the business in hand, or to longer range plans for the future of the business. Such structures might, for example, include various types of mutual or partnership.

7.12.2 Proposals of this kind are by definition novel and thus require explicit Treasury consent. In each case, proposals are judged on their merits against the standard public sector principles after examining the alternatives, taking account of any relevant experience. The Treasury will always need to understand why one of the existing structures will not serve: e.g. the NDPB format has considerable elasticity in practice. Box 4.8 and the framework document guidance may help with this analysis.

7.13 Outsourcing

7.13.1 Public sector organisations often find it satisfactory and cost effective to outsource some services or functions rather than provide them internally. Candidates have included cleaning, security, catering and IT support. A wider range of services is potentially suitable for this treatment. Innovative approaches should be explored constructively.

7.13.2 The first step in setting up any outsourcing agreement should be to specify the service(s) to be provided and the length of contract to be sought. At that stage it is usually desirable to draw up an outline business case to help evaluate whether outsourcing makes financial and operational sense. Any decision to outsource should then be made to achieve value for money for the Exchequer as a whole.

7.13.3 It is good practice to arrange some form of competition for all outsourcing, as for other kinds of procurement. If services are likely to be required at short notice for example legal services for advice on opportunities, threats or other business pressures which emerge with little warning - it is good practice to arrange a competition to establish a standing panel of providers whose members can be called upon to deal with rapidly emerging needs.

7.13.4 Contracting out does not dissolve responsibility. Public sector organisations using a contractor should set in place systems to track and manage performance under the contract. It may be appropriate to plan for penalties for disruption and/or failure if the contractor cannot deliver. The PAC may need to be satisfied that the arrangements for contracting out entail sufficient accountability for the use of public funds.

7.14 Private finance

7.14.1 Where properly constructed and managed, public sector organisations can use private finance arrangements to construct assets and/or deliver services with good value for money. Structured arrangements where the private sector puts its own funds at risk can help deliver projects on time and within budget.

7.14.2 It is important to carry out a rigorous value for money analysis to determine whether these benefits are likely to exceed the additional cost of using private finance. Contracting organisations should also make sure that they are able to afford such arrangements over their working lifetimes, taking account, as far as possible, of the risk of difficult future financial environments. It is not good practice to embark on a private

finance arrangement if it is dependent on other separate financial transactions taking place during the project's lifetime.

7.14.3 Procurement using private finance is a flexible, versatile and often effective technique, so it should be considered carefully as a procurement option. Contracts should normally be built up using standard terms and guidance published by the Treasury (see Annex 7.4). Departure from standard guidance needs to be approved by the Treasury.

7.15 Commercial activity

7.15.1 When public bodies have assets which are not fully used but are to be retained, it is good practice to consider exploiting the spare capacity to generate a commercial return in the public interest. This is essentially part of good asset management.

7.15.2 Any kind of public sector asset can and should be considered. Candidates include both physical and intangible assets, for example land, buildings, equipment, software and intellectual property (see annex 4.15). A great variety of business models is possible.

7.15.3 Such commercial services always go beyond the public sector supplier's core duties. Because these assets concerned have been acquired with public funds, it is important that services are priced fairly: see chapter 6. It is also important to respect the rules on state aids: see annex 4.7. Central government organisations should work through the checklist at box 7.8.

Box 7.8: planning commercial exploitation of existing assets

- define the service to be provided
- establish that any necessary vires and (if necessary) Estimate provision exist
- identify any prospective business partners and run a selection process
- if the proposed activity is novel, contentious, or likely to set a precedent elsewhere, obtain Treasury approval
- take account of the normal requirements for propriety, regularity and value for money

7.15.4 While it makes sense to make full use of assets acquired with public resources, such activity should not squeeze out, or risk damaging, a public sector organisation's main objectives and activities. Similarly, it is not acceptable to acquire assets just for the purpose of engaging in, or extending, commercial activity. If a public sector supplier's commercial activity demands further investment to keep it viable, reappraisal is usually appropriate. This should consider alternatives such as selling the business, licensing it, bringing in private sector capital, or seeking other way(s) of exploiting the underused potential in the assets or business.

7.15.5 It is a matter of judgement when departments should inform Parliament of the existence, or growth, of significant commercial ventures. It is good practice to consult the Treasury in good time on this point so that Parliament can be kept properly informed and not misled.

7.16 Working with civil society bodies

7.16.1 Central government organisations may find they can deliver their objectives effectively through relationships with civil society bodies: i.e. charities, social, voluntary or community institutions, mutual organisation, social enterprises or other not-for-profit organisations. Such partnerships can achieve more than either the public or the civil society sector can deliver alone. For example, using a civil society sector organisation can provide better insight into demand for, and suitable means of delivery of public services.

7.16.2 It is good practice to plan relationships with civil society partners through a framework document, as with other partnerships. Some guidelines on how these relationships can work well in harmony with policy and spending decisions are in the Civil Society Compact[43].

7.16.3 In this kind of relationship a public sector organisation may fund activities, make grants, lend assets, or arrange other transfers to a civil society sector body performing or facilitating delivery of services. It is desirable to build in safeguards to ensure that resources are used as intended (see annex 5.2). This gives Parliament confidence that voted resources are used for the purposes it has approved.

7.16.4 The safeguards to be applied should be agreed at the start of the relationship. Customisation in nearly always essential. It is often right to require clawback, i.e. to agree terms in which public sector donors reclaim the proceeds if former publicly owned assets are sold.

[43] https://www.gov.uk/government/publications/compact-the-agreement-between-government-and-the-voluntary-community-sector

HM Treasury contacts

This document can be downloaded from www.gov.uk

If you require this information in an alternative format or have general enquiries about HM Treasury and its work, contact:

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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (LEEDS TO MICKLEFIELD ENHANCEMENTS) ORDER

DOCUMENT CD.01.21.06

Appendix to Proof of Evidence of Jerry Greenwood, Head of Infrastructure Liability

On behalf of Network Rail Infrastructure Limited

Level Crossing Digest Issue 4 (2022)

Date 06 February 2024

RSSB A Better, Safer Railway

Level crossing digest

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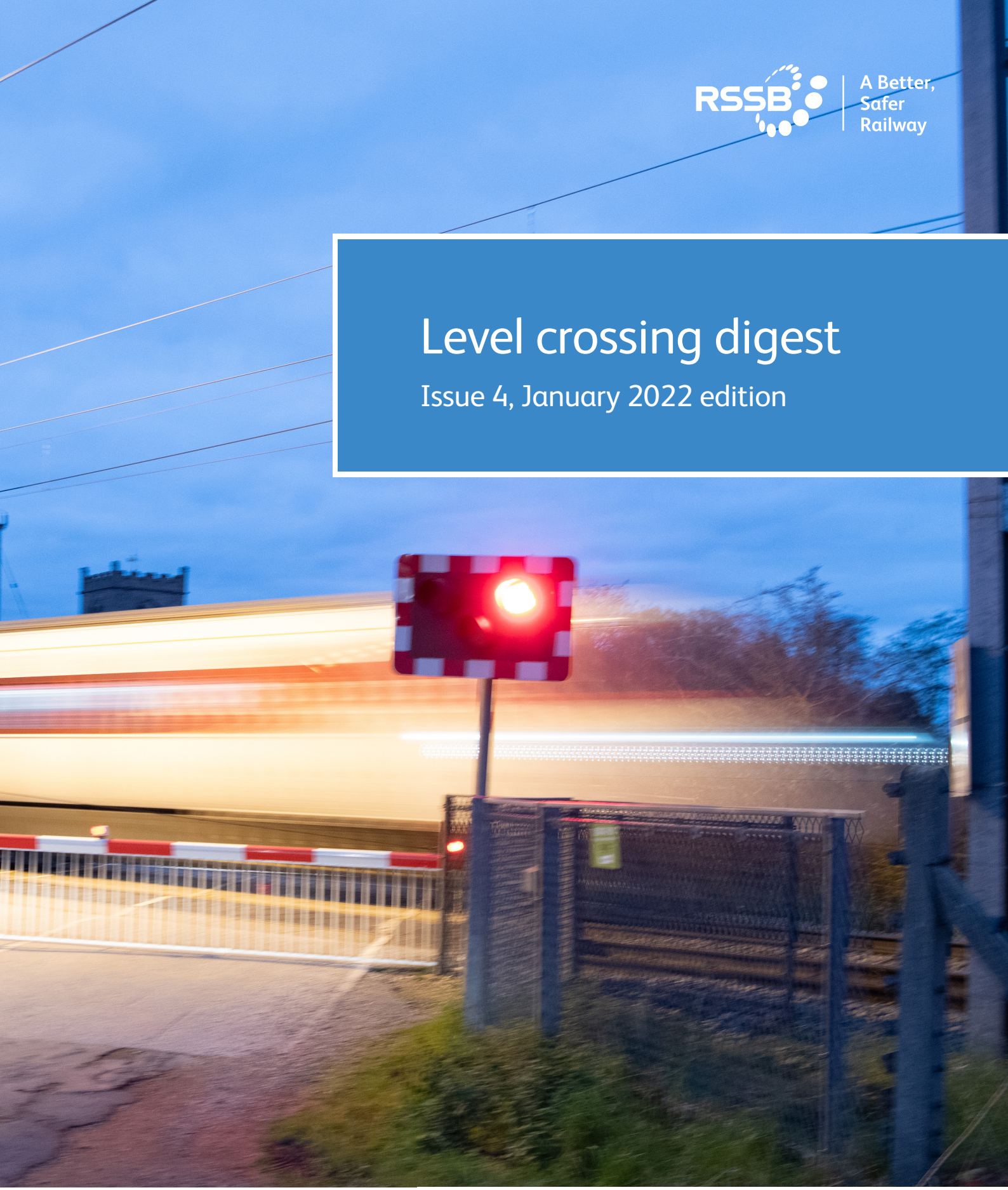

Leading Health and Safety on Britain's Railways
Safertogether Healthiertogether

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Foreword

Since railways began, there have been level crossings and a corresponding operational safety risk to passengers, staff, road users, and footpath users. The accidents, incidents, and near misses of the past have allowed us to identify mistakes, misjudgements and misunderstandings and learn from them—ultimately reducing the risks associated with the road-rail interface. However, as time passes, memories fade and those responsible for managing the risk may change. This can create gaps in our knowledge of why level crossings are designed and operate as they do, and can threaten to undermine the progress in risk reduction.

This digest aims to help plug these gaps through documenting and sharing lessons learnt in the past. It is intended for anyone with an interest in level crossing safety, both as a reminder or an introduction.

The industry is learning all the time, so this document will be updated as the further examples are identified.

Images

The following photographs appear courtesy of RAIB, and originally featured in their investigation reports:

- Hixon p11 (Trinity Mirror / Mirrorpix / Alamy Stock Photo)
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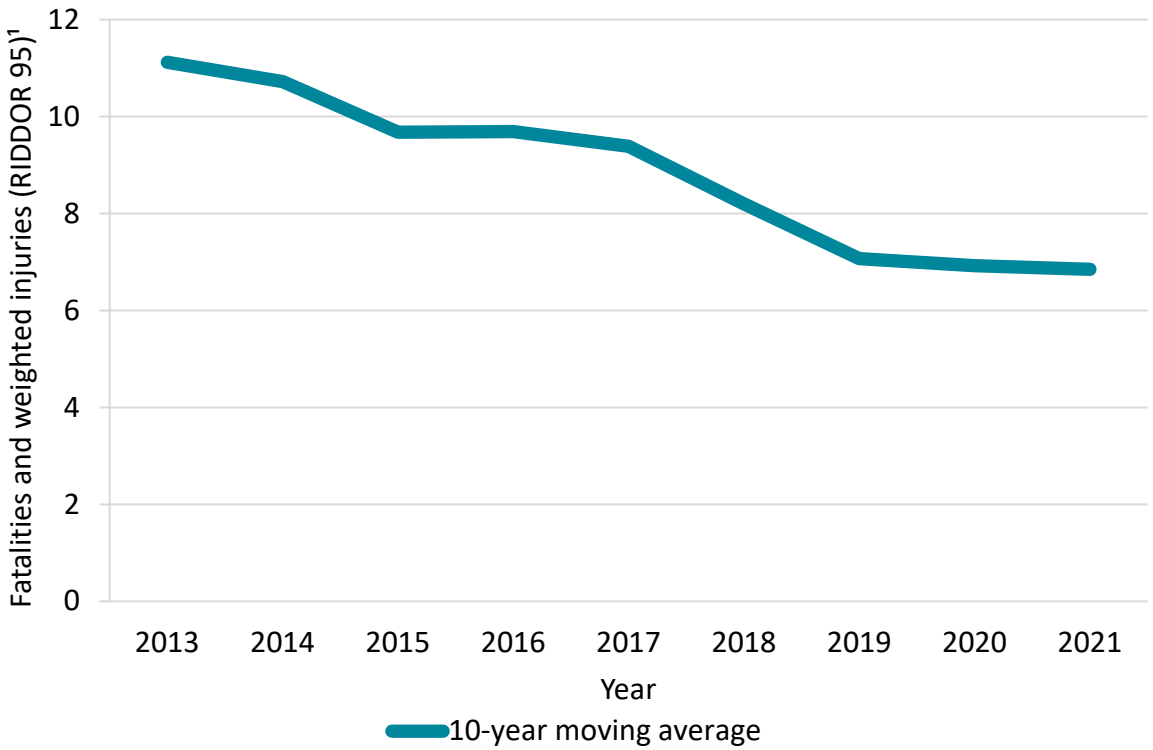
- Oakwood Farm p13
- Moreton p19
- Hockham Road p21
- Sewage Works Lane p23

Contents

1 Statistical context

If you've read our Annual Health and Safety Report, you'll doubtless know that Britain has one of the safest railway networks in Europe. You'll know too that most of the risk at level crossings 'arises from user behaviour'. You'll also know that Network Rail 'continues to make improvements in level crossing safety'. The chart[1] below shows how that resource, that work, is leading to improving levels of safety. This document shows how that journey began, how it progressed and how it continues to do so.



Source: SMIS and SIDB

[1] The weightings for fatalities and weighted injuries applied here are those that were aligned with the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995, rather than the current 2013 weightings. This is to allow consistent comparison across the period considered (2004-2021).

2 In the beginning

Level crossings link parts of the country severed by railways while keeping road[2] and rail users safe where one crosses the other 'on the flat'. That said, they actually predate the railway as we know it. The earliest examples existed where tramroads crossed the highway, while Tyneside's wooden wagonways—like the Whickham (1645) and Tanfield Moor (1772)—had gated crossing points. Originally, these gates were kept closed across the line and were in some cases used to protect animals crossing from field to field. In 1834, however, the Liverpool and Manchester Railway started to block the road during the day.

RSSB statistics show level crossing risk to comprise 6% of the total mainline system risk. Most of the risk is borne by members of the public, rather than railway users or staff, with most casualties occurring to road vehicle occupants and pedestrians.

Bells were provided to allow an attendant to open the way to passers-by.[3] This clearly recognised the greater speeds—and stopping distances—of the train, a fundamental point about crossings that we carry forward today.

Another point we carry through to today is that users need to be warned of approaching trains. Indeed, it was a collision between a train and a farmer's cart at Bagworth in 1833 that probably led to the invention of the steam whistle.[4]

The Highways Act of 1839 required level crossings on turnpikes and highways to have gates attended by 'good and proper persons', adding that said 'gates shall be kept constantly closed across the railway except during the time when carriages or engines passing along the railway shall have to cross such turnpike or other road'. The Railway Regulation Act of 1842, however, noted that experience had shown it to be 'more conducive to safety' that such gates be kept closed across the road. This was duly enacted[5], 'except during the time when horses, cattle, carts or carriages passing along such turnpike or other road shall have to cross such railway'.

Level crossing construction was generally allowed only if the inaugural Act clarified that the railway owner was obliged to replicate existing road access points. This is why most public level crossings have been in place since the 19th century—the boom time for rail construction. They are especially prevalent in flatter parts of Britain and where the expense of bridging or tunnelling was found to be too great for the line's original promoters.

Key points:

- Level crossings are meant to keep road and rail users safe where one crosses the other 'on the flat'.
- Safe use requires reliable technology and responsible behaviour.
- Crossings formed part of the Act that brought a railway into existence.

[2] And those using bridleways and footpaths.
[3] *The Oxford Companion to British Railway History*, ed By Jack Simmons and Gordon Biddle, 3rd edn (Oxford: Oxford University Press, 2003), p. 261.
[4] The modern equivalent of which is of course the train horn.
[5] Unless the Board of Trade authorised otherwise.

3 Crossing types

There are two broad level crossing groups in use in Britain:

- **Active crossings**—the road vehicle or pedestrian is warned of an approaching train through closure of gates or barriers and/or by warning lights and/or alarms.
- **Passive crossings**—no warning of a train's approach is given, or the only warning is the use of the train horn. The onus is on the road vehicle user or pedestrian to determine whether it is safe to cross or not. Instructions for use are provided at each location, along with other appropriate signs.

These two groups are divided further in the table shown below – see here for the full set of definitions:

Crossing type				Number
Passive		UWC-T	User-worked crossing with telephone	1576
		UWC	User-worked crossing	384
		OC	Open crossing	41
		FP	Footpath crossing	1855
		SBC	Station Barrow Crossing	86
Active	Manual	MCG	Manually controlled gate	109
		MCB	Manually controlled barrier	169
		MCB-OD	Manually controlled barrier with obstacle detection	118
		MCB-CCTV	MCB monitored by closed-circuit television	438
	Automatic	AHB	Automatic half-barrier	411
		AFBCL	Automatic full barrier crossing locally monitored	3
		ABCL	Automatic half barrier crossing locally monitored	61
		AOCL+B	Automatic open crossing locally monitored with barrier	63
		AOCL/R	Automatic open crossing locally or remotely monitored	23
		UWC-MSL	User-worked crossing with miniature stop lights	177
		FP-MSL	Footpath crossing with miniature stop lights	77
		SBC-WL	Station Barrow Crossings with lights	18
Total				**5609**

Source: Network Rail (ALCRM), May 2021

No new automatic open crossings are likely to be created and there are very few open crossings on public roads. Following recent research, Network Rail has developed a concept new for Britain, but used widely in Germany, Italy and Japan: full barrier crossings controlled by obstacle detectors (MCB-OD and AFBCL).[6] Work has also started on developing a new type of crossing, using an overlay extra barrier solution for **automatic half barrier** (AHB) crossings. This is the **automatic full barrier locally monitored** (AFBCL), of which there are three on the network at the time of writing (September 2020).

[6] RSSB research report T522, *Research into obstacle detection at level crossings*

3.1 Open crossings

These are located on minor roads with little road or rail traffic. They provide road traffic signs but do not have barriers or road traffic light signals. At the crossings, road users are required to give way to trains, so it's important that they are able to see approaching trains with enough time to cross or stop safely. Open crossings have approach warning signs for train drivers, who have a duty to stop their train if the crossing is not clear and must sound the train horn in the daytime. Additionally, appropriate permanent speed restrictions will be in place, trains being required to approach the crossing at a 'steady speed', typically 10 mph (16 km/h). These are the only 'passive' crossings normally in use on public roads.

3.2 Staffed crossings

As noted above, gates across the railway, physically controlled by hand, wheel or other mechanism, are the traditional type of road crossing in Britain. By 1960, there were some 2,500 of them. In most cases, especially in recent years, they have been interlocked with railway signals. However, due to a lengthy gate closure time, they aren't suitable for busy roads that cross busy lines.

By 1960, permission had been obtained to replace gates with lifting barriers controlled locally by electric or hydraulic operation. In some cases, motorised boom gates or barriers were provided, although these are increasingly rare nowadays.

There is no fundamental difference between staffed barriers and staffed gates (though the former can usually be operated more quickly than the latter).

The 1970s saw the development of technology which allowed activities to be observed remotely via a camera located at the crossing. These interfaces have a number of features which have, collectively, made them a popular choice when existing crossing equipment has required an upgraded or replacement. For example:

- The road is completely closed to traffic, providing complete separation.
- Existing staff at each location can be replaced by fewer staff at a central location, with supervision of several crossings by one person being possible (or combined with signalling tasks).
- Rail traffic is not impeded unduly, but controlled by signals until the crossing is closed and checked.
- Train speeds of up to 125 mph (200 km/h) can be permitted.

That said, equipment costs (especially cabling) can be considerable, and only a limited number of crossings can be grouped together because of signaller workload concerns. Furthermore, the time that a crossing is closed to the road can be significantly longer (as much as three or four minutes for a single train movement) compared to automatic half-barrier crossings (which are usually closed for less than a minute).

3.3 Automatic crossings

Under the Railways Clauses Consolidation Act of 1845, the railway was legally obliged to maintain attendance at all public level crossings. However, it proved to be expensive—and increasingly difficult—particularly after World War II, when near full employment made it hard for British Railways (BR) to find staff for what was a responsible, but poorly paid and often dull job.

Furthermore, by 1955, there were over three million cars on British roads, and the number was rising. Many crossings took time to operate, caused heavy delays and offered insufficient protection for such an increase in usage. Clearly the situation was only going to get worse. Something had to be done, and the answer seemed to lie on the Continent.

The Railway Inspectorate (RI)—along with representatives from BR and the Ministry of Transport—reviewed European automatic level crossings in detail the following year.[7] The group's findings led to the creation of the attendant-free AHB. This type of crossing allows barriers to block oncoming traffic (leaving the exits clear for trapped occupants), and has a closing sequence activated by an approaching train via a treadle attached to the rail.

Resident crossing keepers (RCKs) at crossings which were not block posts and might not have protecting signals, and at which the gates were normally closed to the road, had to work 24 hours a day and only had 12 hours off a week. Usually there would not be any night road traffic, but if a local resident liked to be out late and the local farmer had to be up early, there might not be much of a gap.

Resident keepers were often women. If they went out, older children could be left to operate the equipment. At East Shalford (near Guildford), the RCK was the local ganger's wife. The wife became ill and her younger sister came to look after her. When she later died, the sister was employed to operate the crossing, which had the advantage that the ganger did not lose his home. However, following a fatal accident after she had persuaded the signaller to give her permission to open the gates despite there being a train on each line in the section, the station manager was then informed by the police that she was under-age for such a responsible position.

Though there was some opposition to these 'Continental crossings', which many feared were not safe, the first AHB came into use at Spath, near Uttoxeter, on 5 February 1961.[8]

By the end of 1967, there were 207, with plans for many more. Then came an accident that highlighted the shortcomings of both the design itself, and the way it had been introduced.

Key points:

- Increasing car use and post-war recruitment problems exacerbated the need for automation.
- The first AHB came into use in 1961.

Hixon and Lockington

6 January 1968 and, its police escort already across, a colossal road transporter carrying a 120-ton transformer was crawling carefully over Hixon AHB in Staffordshire. At around 12:30 pm, the red lights started to flash, and the barriers began to lower. The vehicle driver had failed to phone the signalman; the vehicle failed to get clear. It was struck by an express train at around 75 mph. Eleven

[7] See *Level crossing protection: report by officers of the Ministry of Transport and Civil Aviation and of the British Transport Commission* (HMSO, 1957) – known as the McMullen Report.
[8] Spath AHB ceased to exist when the Uttoxeter–Leek line was closed in 1965.

people were killed, 120 yards of track were damaged, and the overhead power lines were brought down.

Realising that the RI's involvement in the AHB's development compromised its independence, the government chose to hold a Court of Inquiry under the Regulation of Railways Act 1871, appointing Mr E B Gibbens QC as chair. In the first such inquiry since Tay Bridge[9], the Court found that the haulage company had failed to inform BR that it intended to take the transporter over the crossing, which in turn prevented BR from taking appropriate precautions.

The report highlighted poor communications between railway and police, and railway and haulier, about telephoning the signaller when large, slow-moving vehicles were being routed. It also cited inadequate signs and poor police training as part of the causal chain. However, the report found the 'origin of the accident' to be 'the failure of officers of both the Ministry and British Railways in collaboration to appreciate the measures necessary to deal with a hazard of which they were aware'.

A book published in 2018 also refers to the 'arrogance' of the (then) RI in its belief that telephones should not be supplied at AHBs at all, lest their use interfere with the operation of the (then) newly electrified 'high-speed' West Coast Main Line. This belief was not shared by BR, and demonstrates the difficulties that can arise when many different bodies are involved in the management of change (particularly in the introduction of new technologies).[10] Such unclear accountabilities were further resolved with the demise of the approval of new works legislation in 2006.

[9] On 28 December 1879, the central 'high girder' section of the Tay Bridge collapsed, taking a mail train with it and claiming 75 lives.

[10] See Richard Westwood, *The Hixon Railway Disaster* (Pen and Sword, 2018).

The Hixon inquiry found that 'level crossings protected by automatic half barriers are a valuable answer to the needs of modern transport and […] are reasonably safe'.[11] Despite this, the management failings the inquiry unearthed led it to recommend additional safety measures, whose cost stalled the automation policy severely. Indeed, although better signage and warning lights (known as 'wigwags') were introduced from 1969, little progress would be made until 1977, when another working party visited Europe[12] and agreed to relax the recommendation requirements.[13] This made it slightly easier to create AHB crossings, of which there are now around 430 in use on lines where the speed of trains is 100 mph (160 km/h) or less.[14]

The working party's findings also endorsed an automatic crossing that had warning lights, but no barriers. These are known as **automatic 'open' crossings locally monitored** (AOCL); 44 were in use by 1986. Though cheap to install and maintain, they depend wholly on the road user seeing and obeying the red flashing warning lights.[15] The dangers of open crossings were demonstrated at Lockington on 26 July that same year, when eight rail passengers and a boy travelling in a van were killed when the van driver missed the lights and drove into the path of a train. In response, a review – led by Professor P F Stott – was published during 1987.

The Lockington crossing was an AOCR—an **automatic open crossing remotely monitored**. An AOCR is equipped with road traffic signals and audible warnings only: there are no barriers. It is operated automatically by approaching trains. Telephones are provided for the public to contact the signaller in an emergency.

The Stott report concluded that no more AOCRs should be installed and that those already in place should be converted to AOCLs or AHBs. As it happened, a new kind of level crossing—the **automatic barrier crossing, locally monitored** (ABCL)—was introduced. The first ABCL to be commissioned was at Beccles on the East Suffolk Line in 1988.

The ABCL is essentially an AOCL equipped with half barriers. From the point of view of road users, it appears the same as an AHB. The difference is that train drivers must ensure the crossing is clear before passing over it. The maximum permitted speed for trains is no more than 55 mph.

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[11] *Report of the Public Inquiry into the Accident at Hixon Level Crossing*, HMSO July 1968, and ibid.

[12] French level crossings usually have a single red light on a circle backboard, bells and automatic half barriers. When activated, the red light flashes, the bells ring, and the barriers close. Those with more than one track have a sign saying "un train peut en cacher un autre" (one train can hide another train).

[13] See *Report on level crossing protection, including visits to the Netherlands, French, West German and Swiss railways by officers of the Department of Transport and the British Railways Board* ('Townsend-Rose Report') (HMSO, 1978).

[14] Where an AHB is to be installed on a railway line with low train speeds (or where train speeds can be reduced without adversely affecting the service) a variant of the design is permitted. Here, the operation of the crossing equipment is proved by the operation of a white light facing the train driver, who has to be able to stop the train at the crossing if required. There are only a limited number of locations where this approach is practical. Fifty-nine of these crossings have been installed since the late 1980s.

[15] The warning sequence at an AOCL is initiated by the approach of a train, which will normally have to stop short of the crossing unless the driver is sure that the warning devices are operating, and the crossing is clear. Telephones for road users are not normally supplied, but signs giving details of the supervising point are provided for emergency contact. The accident at Halkirk in 2009 hastened plans to add barriers to AOCLs (thus turning them into AOCL+Bs).

Only one AOCR now remains on GB rail, at Rosarie in the Scottish Highlands, which remains because special site circumstances have made its replacement very difficult.

Key points:

- Automation introduces new types of risk.
- Automation heightens the need for emergency communications between road users and the railway.

4 Themes

The previous sections showed how level crossings came into existence, and how they were shaped during the twentieth century. The remainder of this document will delve into some of the themes that have emerged from level crossing accidents, not all of which relate to user behaviour, despite the emphasis shown in the figures.

4.1 Crossing design

Ufton, Berkshire, 2004

No level crossing can be absolutely safe, but all are intended to be safe if used correctly. Sometimes, however, the way new designs are introduced can lead to problems. This was evident at Hixon. In the years following Lockington, the most serious level crossing collision occurred at Ufton AHB on 6 November 2004.

That afternoon, a car had been deliberately driven onto the crossing by a suicidal motorist. It was struck by a High Speed Train (HST), which resulted in the leading wheelset of the train derailing. Normally, it would have braked to a stand, but less than 100 metres ahead was a set of points leading to a loop. The derailed wheelset started to turn towards this loop, causing the train's leading vehicles to overturn. Seven people—including the car driver and train driver—were killed.

Following RSSB's report into the accident, the industry's level crossing risk assessment process (All Level Crossing Risk Model (ALCRM)), was enhanced to include the consideration of post-collision potential at each level crossing.

As a result of Ufton, RSSB also launched research into obstacle detection, which recommended the adoption of technologies that would enable their use.[16] In 2012, an MCB in Filey, North Yorkshire,

[16] RSSB research report T522, *Research into obstacle detection at level crossings*

was fitted with Light Detection and Ranging (LIDAR)[17] equipment, radar and cameras to detect blockages by vehicles.[18]

These crossings are becoming common on some lines, like the East Coastway and Peterborough–Lincoln routes. The systems have also been trialed with the new 'S60' barriers, which are similar to those found in America, and which use electrics as opposed to hydraulics. The crossings are triggered automatically via a treadle or track circuit, although the signaller still has the facility to operate them manually. As well as providing a practical safe alternative to CCTV crossings, they provide a major enabler for the creation of Network Rail's Rail Operating Centres (ROCs) and its wider signalling control strategy. If CCTV monitoring stations had to be transferred to these ROCs in large numbers, their size and footprints would have had to be substantially increased, with more signalling staff.

Key points:

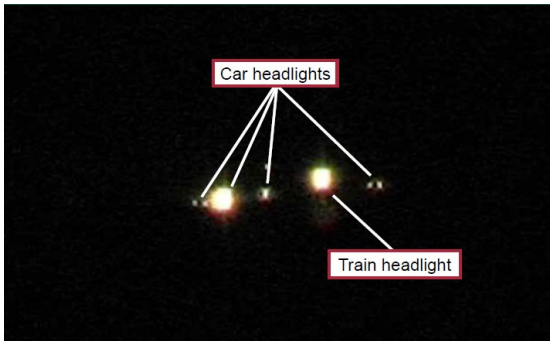
- Pointwork situated near crossings can increase the risk from post-collision derailment.
- Obstacle detection is a vital tool to help combat the problem of vehicles on crossings.

West Lodge, Haltwhistle, 2008

On 22 January 2008, a freight train struck and killed a person using West Lodge UWC to deliver coal on foot.

Shortly after 17:00, a delivery driver parked his vehicle across the approach to West Lodge. The two coalmen then carried a sack of coal each over the crossing. The driver made out the delivery paperwork at his vehicle while his colleague delivered a third sack and walked back towards the lorry. At this time, the train was on the approach.

At 17:13, the train driver confirmed seeing a person appear from trackside vegetation to his left. Despite the driver having sounded the warning horn immediately and continuously, the person continued to walk the few steps from the crossing onto the line.



darkness

The Rail Accident Investigation Branch (RAIB) said the user had been unaware of the approaching train, possibly because the sighting distance and warning time were less than required at the West Lodge side of the crossing.

The fact the user was not required to contact the signaller also had an effect. Furthermore, he would be unlikely to recognise a train's headlights among those of road vehicles until it was within a second or two of the crossing (see photo, right). Traffic noise

[17] At least initially, LIDAR was found to be susceptible to snow and horse manure. The equipment was first fitted to Everton crossing on the East Coast Main Line. However, it was later moved to Filey, the site of its first successful use.
[18] Lasers and reflectors can also be used to scan the crossing and see if it is blocked.

and wind would have impaired his ability to hear clearly and would have masked the sounds of the approaching train. Similarly, the train driver could not sound the warning horn earlier than he did, because he did not see the person until the train was close to the crossing.

RAIB also said it was 'feasible that the person was unaware of the approaching train because he was unaware that he was on the track at the time of the accident'. The warning signs were not at the decision point and he may not have discerned them (and the track) from their surroundings in darkness.

For RAIB, the underlying factor was that Network Rail's management systems did not acknowledge the findings of local inspections and assessments. As a result, it did not act to reduce the identified risks. Furthermore, Network Rail's methods of level crossing inspection and assessment did not consider foreseeable environmental conditions that resulted in users being unable to recognise a train's headlights among those of road vehicles, and its sounds masked by traffic noise and wind.

Key point: the crossing type should be appropriate to the local environment and patterns of use in all conditions.

Oakwood Farm, Knaresborough, 2015

On 14 May 2015, a passenger train collided with a tractor at Oakwood Farm UWC, near Knaresborough. The train, which was travelling at 65 mph, did not derail, but the impact caused the front of the tractor to become detached from its cab. The tractor driver suffered minor injuries; the train driver was treated for shock. In different circumstances, the consequences could have been much worse.

The tractor driver began crossing the railway after the illuminated warning at the crossing started to display a red light. This was probably because he was unfamiliar with the crossing's operation, it being one of a small number in the country fitted with power-operated gate opening (POGO), which is designed to reduce the number of traverses a UWC vehicle user has to take and increase the desired behaviour of closing the gates behind them.

RAIB reported that the tractor driver probably did not recheck the warning lights after first stopping on the approach to press a button to open the gates. This button had not originally been intended to open the gates (it should only have been capable of being used to close them). It was situated at such a distance from the crossing that the time it took for the tractor driver to stop, open the gates and drive on to the crossing was greater than the time between the warning light turning red and the arrival of the train.

There was no sign at the button to warn the driver to recheck the warning light before going over the crossing, and the warning light was not conspicuous among the many signs present. The risks at Oakwood Farm were not adequately mitigated, and the process for the introduction of the bespoke gate operating equipment was not adequately managed.

A similar incident occurred at Frognal Farm UWC on 23 October 2017. In this case, a van driver was delivering a parcel to a property on the far side of the crossing. He initially went to an incorrect address, where he was given directions which involved traversing the interfaces. Being unfamiliar with UWCs, the van driver did not notice the telephone and pressed the button to operate the gates. They opened, and so he returned to his van to drive across the crossing, believing it was safe to cross.

Retention of records relating to the acceptance of the POGO equipment did not sufficiently demonstrate the basis on which decisions were made during the history of the trials. Furthermore, it was not in accordance with the company standard.[19]

The tractor driver pleaded guilty to endangering safety on the railway. After the accident, Network Rail and the authorised user further discussed legal responsibilities for invited crossing users and how risks could be better managed. A briefing pack now helps the authorised user to brief visitors. In addition, other options for this closure were considered, the crossing signs were reviewed, and the POGO equipment replaced.

Key points:

- Processes for accepting new equipment and technology must be robust.
- Sufficient records must be kept to allow informed decisions to be made.

Stainforth Road AHB, Doncaster, 2018

On 11 January 2018, a car collided with the rear-most wagon of a stationary freight train at Stainforth Road AHB. The crossing's warning equipment was not operating and its half-barriers were raised when the car approached. The car driver suffered only scratches and bruises, but their vehicle was damaged beyond repair.

The train was at a stand because its brakes had been applied by the locomotive's vigilance device. This occurred because its driver did not respond to the device's audible alarm in the time period permitted, probably due to the high level of ambient noise in the cab. The car driver was not alerted to the presence of the train by the crossing's warning devices because the design of the level crossing's control circuits had permitted it to re-open to road traffic while it was still occupied by the train. The car driver did not see the wagon with enough time to take effective avoiding action, given her speed of approach. This was because the train's side was unlit and unreflective and also because there was no ambient light near the crossing.

The crossing's control circuits dated back to its original installation in 1974. They had not been modified to incorporate later features which prove that trains are clear of a crossing before it re-opens. This was because a retrospective modification of this type was not mandated by relevant standards and guidance. And because, for other reasons, the crossing's circuits had not required modification during the life of the crossing. The crossing had not been renewed or replaced prior to the accident, because Network Rail had assessed it as still having useful working life left. The level crossing risk assessment process used by Network Rail did not identify and address the risk of the original design of control circuit remaining in service without it having later design features intended to improve safety.

Key points:

- Equipment needs to be updated in line with later improvements.
- Risk assessments need to take all factors affecting safety into account.

[19] NR/L2/RSE/100/05 (*Product introduction and change*).

4.2 Train speed

Variations in train speeds can lull crossing users into thinking they have more time to cross than may actually be the case. Problems can arise on mixed traffic lines, where fast expresses and slower freight services share the same line of route, or on routes where trains either stop or don't stop at nearby stations. The latter is likely to have been exemplified on 5 October 2016.

Alice Holt footpath crossing, Hampshire

At 16:20 that afternoon, a mobility scooter user was killed when their vehicle was struck by a train at Alice Holt footpath crossing in Bentley, Hampshire.

Users of Alice Holt crossing are required to look and listen for approaching trains before deciding whether it is safe to cross the line. It is uncertain why the user decided to cross when it was unsafe to do so, as CCTV images suggest he had previously crossed in a safe manner. It is probable that the user did not see the train or misjudged when it would arrive at the crossing, perhaps due to sun glare, when deciding to cross. It may also have been the case that he incorrectly believed it would stop at Bentley station (just before reaching the crossing), as most trains did.

4.3 Another train coming

When AHBs were first introduced to Britain's railway, they were provided with audible warnings (originally bells, later replaced by solid state devices), with trains sounding whistles or horns continuously on approach. Both audible warnings were intended for the benefit of pedestrians. In the event of two trains passing during a single crossing activation, the bells were sounded until the barriers lowered, and two whistles were sounded (one from each train as they passed the relevant whistle board).

A review of the audible warnings in 1978 suggested that, with the move to solid state devices, the audible warnings provided at the crossing would suffice and recommended that the associated whistle boards be removed. The review also recommended that the audible warning should emit 'a more urgent tone' when the mini-Another Train Coming lamp was activated, although at the time of the review it was unclear how this was to be achieved.

A further review of audible warnings at these crossings in 1983[20] led to a recommendation that those provided at AHBs should be like those provided at AOCLs, which operate continuously until a train has passed, and change tone if a second one is on its way. This change was made to AHBs during renewals. But it was not a guarantee of success...

Elsenham, Cambridgeshire, 2005

On 3 December 2005, a train struck and killed two teenage girls on the pedestrian crossing at Elsenham. The crossing is next to a manually operated road level crossing, between the staggered platforms at the station. Although red lights were flashing and a klaxon was sounding to herald the arrival of another train, it is likely the girls thought they applied to the train they wanted to catch, which was just pulling in.

The curvature of the line is such that there are only three seconds' visibility of an approaching non-stop train in the other direction. Previous risk assessments (2002) had identified the potential

[20] See *Pedestrian safety at public road level crossings* (HMSO, 1983).

dangers and recommended installing crossing gates that lock automatically as trains approach. This, however, was not acted upon.

In 2012, Network Rail was prosecuted for breaching health and safety law and fined £1m in relation to the accident, since which it has fitted locking gates and erected a footbridge across the line.

As RAIB noted in its report on station crossings in general, including this accident, RSSB had published a research project to investigate methods of warning level crossing users of the approach of a second train.[21] The research found that ATC accidents tended to involve pedestrians, rather than vehicles, with the majority of victims being teenagers. Accidents also tended to occur at AHB and miniature stop light (MSL) crossings. It made the point that the annualised risk from accidents involving a second train at AHBs and MSLs was around 0.25 Fatalities and Weighted Injuries (FWI) a year. Provision of new warnings would reduce, but not eliminate, the risk associated with ATC, principally because users can still violate the warning regardless of its clarity. As such, the achievable safety benefit would be *less than* 0.25 FWI per year.

The risk from ATC is recognised in other countries; some have already implemented ATC-specific warnings. In general, there are three main types: static signs, dynamic signs and audible warnings, which can be used individually or in combination, though different approaches have been taken in different countries. Some are specifically targeted towards pedestrian users (such as in Australia and USA), others are more general (Canada and Japan). However, there is no hard evidence as to the safety benefits of the different ATC warnings.

The research also showed that the arrival of more than one train is a difficult concept to convey simply, as it cannot be certain when the user arrived at the crossing, or what the user can see and has understood of the situation. The challenge is to provide a warning that is perfectly clear and not open to misinterpretation in any way (as this could result in an increase in risk).

The effectiveness of any warning system is dependent on several factors, like the warning's ability to get a user's attention and how well users recognise it. The effectiveness of the warning is also dependent on certain crossing characteristics. In some cases, the way in which the signalling works would mean that ATC warnings would not activate for certain trains, or at all. This could mislead users.

Analysis showed that it may be reasonably practicable to fit ATC at the 14 stations that have MSL crossings and that it is worth exploring these locations more. No other strategy that was considered could be justified on the grounds of cost-benefit analysis. However, since the research was undertaken the majority of these crossings have been closed—reducing the risk yet further.

Crossing immediately behind one train, unwittingly into the path of a second on the other line, is a common factor in fatalities on passive crossings too.

Key points:

- Most ATC-related incidents involve teenage pedestrians.
- The arrival of more than one train is a difficult concept to convey simply.

[21] RSSB research report T652, *Examining the benefits of 'another train coming' warnings at level crossings*. See also T332, *Understanding the risk at station and barrow crossings*.

4.4 Risk assessment

The All Level Crossing Risk Model (ALCRM) was rolled out across Network Rail in 2007, and has subsequently been populated with a great deal of data. The current version represents the culmination of nearly eighteen years' research, modelling, calibration, upgrades, and related activities. A need was identified to capture the history of the model's development since the first version was designed in the mid-1990s. A 'history' document was duly published early in 2008, but has since been updated to include more recent developments. The ALCRM configuration management team has access to an 'Enhanced Specification', which provides references for all variables and algorithms, with narrative sections that provide explanations of the main steps in the algorithms.

In August 2014, Network Rail introduced narrative risk assessment (NRA) as a measure to improve its assessments of level crossing safety. NRA has both the quantitative output from ALCRM and the professional judgement of level crossing manager providing a balanced and thorough assessment of risk for each level crossing on the network. NRAs enable Network Rail to make informed decisions about the safety of its level crossings and help target investment wisely. They tell the 'story' of risk at each site and enable Network Rail to demonstrate compliance with the Management of Health and Safety at Work Regulations 1999, Reg 3.

A new version of ALCRM went live in April 2021. It includes many risk algorithm enhancements, which will enable greater resolution of crossing level risk distribution and inform better decision making.

Key point: A report documenting the history of level crossing risk assessment (from 1993) may be found on RSSB's SPARK website.

4.5 User type

Most level crossing risk (95%) relates to the behaviour of those using it. There are recorded cases of cars trying to race trains, people running after dogs in front of trains, and even instances of satellite navigation systems guiding car drivers to turn onto the railway instead of keeping to the road.

Grimston Lane, Suffolk, 2016

A case in point may have occurred at around 12:25 on 23 February 2016, when a pedestrian was struck and killed by a train on Grimston Lane footpath crossing. RAIB said the user was not aware of the approaching train when he decided to cross, either because the skew of the crossing resulted in him not looking in the direction of the train, or because he was not at the best viewing position when he made the decision to start to cross and the approaching train was obscured.

As a result, RAIB highlighted this learning point:

The pedestrian may have looked for approaching trains before he reached the point at which he had the best safe view of them. This may have considerably reduced his sighting distance. RSSB research project T984 recognised that there are many factors that affect where a user of a passive level crossing makes a decision to cross the railway and that, in some cases, the concept of the decision point being at a single defined location is unrealistic. The adoption of findings from project T984, including the use of markings to highlight danger zones rather than designated decision points, may encourage users to make decisions when they have adequate information about approaching trains and, therefore, whether it is safe for them to cross. Network Rail has since installed new yellow

crossing surfaces at a large number of locations to highlight danger zones as recommended by the research.

The age and health of the pedestrian in this case also meant that he fell into the category of people considered, by Network Rail's guidance, to be 'vulnerable'. Network Rail's assessment of the user group for the crossing did not identify the need to make an additional time allowance for vulnerable users. However, as the sighting time for approaching trains was sufficient even if such an allowance had been made, this was not causal to the accident.

Key points:

- The effects of skewed alignment at passive level crossings on user behaviour, including the sighting of approaching trains, must be identified.
- Guiding users to the correct decision point helps reduce risk.

4.5.1 Heavy goods vehicles

One area of concern involves heavy goods vehicles (HGVs). A case in point occurred on 14 May 1998, when a passenger train struck a petrol tanker at Sutton Forest AHB. There were no reported injuries, and no spillages. A fire that broke out in the cab of the lorry was soon brought under control. The lorry driver claimed that the brakes had failed as the vehicle approached the crossing, and that the barrier came down between the cab and the trailer as it began to traverse.

This incident was largely a mechanical matter, but RAIB reported on an incident in 2019 that involved the driver of a lorry, and the handsignaller of the same occupying a 'bubble' that included their own work but not that of the railway.

Mucking, Essex, 2019

Shortly before noon on 13 March 2019, a passenger train passed over Mucking AHB a few seconds after a partially loaded concrete delivery lorry had reversed clear as part of a manoeuvre to enter an adjacent Network Rail construction site. The lorry driver was following handsignals from a railway worker and drove onto the crossing after it had been automatically activated by the approaching train and the red stop lights had begun flashing. A lowering crossing barrier came down on the lorry and was manually lifted by site staff, before the lorry reversed off the crossing.

RAIB said the incident occurred because staff involved in the work planning, and staff on site, did not recognise and manage risk associated with working near level crossings. As a result, one of its four learning points read as follows:

Irrespective of any signals provided by banksmen or other people, drivers of road vehicles must always comply with all Highway Code requirements relating to the use of level crossings. All vehicle drivers must obey the flashing red stop lights.

More recently (October 2021), there have been reported cases of crossing failures caused by collisions between HGVs and barriers or lights, further examples of barriers lowering between cabs and loads and HGV drivers ignoring red lights and warning signs. There is concern that the need for more delivery drivers, due to a shortage at the time of writing, will result in a less-experienced user group, which may lead to an increase in incidents.

Key point: Heavy goods vehicle operation remains an area of concern.

4.5.2 Horses

Network Rail's advice to riders is to dismount, stop and call the signaller when using level crossings. However, The British Horse Society's advice is that horses should be *ridden* across level crossings, as the rider has more aids to control their mount. The problem is that a led horse can easily jerk the reins free and put the person—and others—in danger.

However, the Society recognises that, in some instances, dismounting and leading may be the only way to use the crossing. It advises that, if the rider does choose to dismount and lead, they must exercise extra care and use a trackside telephone if one is available.

Key point: The British Horse Society's level crossing guidance may be found on its website.

4.6 Distraction

4.6.1 Dogs

After concern was raised over the frequency at which dogs were involved in level crossing incidents, the Safety Risk Model was modified. Version 6 (SRMv6) set out to separate risk precursors specific to risks involving dogs. For example, such as a dog pulling an owner on a lead into the path of a train, or as a source of distraction.

Fairfield, Wiltshire, 2009

At about 17:30 on 6 May 2009, a passenger train struck a pedestrian on Fairfield footpath crossing, near Little Bedwyn in Wiltshire. The pedestrian, who was crossing from the north-west side of the railway, was fatally injured. RAIB's report noted that, 'although there is no direct evidence […], the pedestrian may have been distracted when making her decision to cross the line by the presence of her dogs'. It also noted there may have been sighting issues at the interface and that the absence of whistle boards may have been a factor.

Another possible contributory factor was the absence of an adequate risk assessment. Network Rail was prosecuted under Section 3 of Health & Safety at Work Etc Act 1974, pleaded guilty and was fined around £300,000.

RAIB also considered an underlying factor to be the difficulty in closing the crossing, and its availability to members of the public as a footpath. Following the accident, the footpath over the crossing was temporarily closed by Wiltshire County Council and the gates were padlocked by Network Rail. In 2010, following local consultation, Network Rail gave special authorisation for whistle boards to be provided more than 400 metres away in both directions on the approaches. A site inspection by the then Office of Rail Regulation (ORR)[22] on 15 March 2010 found that the crossing had been re-opened, and that the whistle boards appeared to be having the desired effect.

RSSB did some further research with Network Rail: T936: *Enhancing the accuracy and functionality of the All Level Crossing Risk Model*.

Key point: A user guide for dog walkers has been developed in association with the Dogs Trust.

[22] Later the Office of Rail and Road.

4.6.2 Mobile phones and devices

There can be no doubt that mobile phones have revolutionised how we communicate with each other. Indeed, they've become so vital to modern life that few of us would want to leave home without the means to chat 'on the go', listen to music, watch videos or surf the net.

Within a safety critical environment like the railway, it's not always safe to yield to the natural reflex to answer a phone or reply to a text, in fact, it can be fatal, as was illustrated all-too-clearly in the USA on 12 September 2008, when a Metrolink commuter service passed a protecting signal at danger and collided head-on with a freight train in Chatsworth, California. Twenty-five people lost their lives, including the Metrolink driver himself. On the day of the accident, he had sent and received several text messages while on duty, the last of which occurred just 22 seconds before the collision.

Mobile devices can be a distraction for level crossing users, a number of near misses have been recorded involving (often) young people. To combat this, Network Rail and the British Transport Police (BTP) have used geo-targeting at a number of level crossings where phone distraction has been flagged as high-risk. The system is designed to alert young people using their phones near level crossings to put them away.

As mobile technology becomes ever more integrated with our daily lives, the risks caused by their distractions increases. Distraction or disorientation while using headphones is also a common factor in fatalities on Britain's passive level crossings. In America, the prominent 'One ear out' campaign was borne from the tragic death of a young woman using earbuds.

4.7 Signalling error

Although the daily incident logs show instances of pedestrians being trapped between gates or barriers at CCTV crossings – usually because of sighting issues – to date no fatalities have occurred from this cause. Often, those trapped have chosen to enter the crossing after the signal sequence has started. Indeed, it is rare for a signaller to make a mistake that leads to a loss of life. Over time, with lessons learnt, not only has our understanding of keeping trains a safe distance apart improved, but so has the technology designed to help us do it.

Occasionally, however, there can be instances when controls break down, and when 'the holes in the cheese slices' align.[23]

[23] Professor James Reason modelled a company or industry's defence mechanisms against failure as a series of barriers, which he represented by slices of Swiss cheese. The holes in the slices signify weaknesses in parts of the system. When all of the holes in each of the slices align, it creates a 'trajectory of opportunity', so that a hazard can pass through all the holes in all the defences, leading to a failure – or accident., or accident. See (for example) James Reason, *Managing the Risks of Organizational Accidents* (Ashgate Publishing Ltd, 2002).

Moreton-on-Lugg, Hereford, 2010

Such was the case on 16 January 2010, when a collision occurred between a passenger train and two cars on the level crossing at Moreton-on-Lugg, near Hereford. A passenger in one of the cars was killed.

The signaller raised the barriers in error when the train was too close to be able to stop before reaching the crossing. He'd just been involved in a telephone call from another crossing (about the movement of sheep to a field in an area where this did not normally happen), which interrupted his normal task of monitoring the passage of the train. As a result, he believed that the train had already gone.

There was no safeguard in the signalling system to prevent this from happening. There was no plan to fit such a safeguard, and no industry requirement to consider the safety benefits of one.

RAIB noted that, as well as being put off by the telephone call, the signaller probably also lost his normal cues, because he was not standing in the optimal position in the box to monitor the situation, and also felt a degree of pressure to re-open the barriers at Moreton-on-Lugg.

RAIB also suggested that, while an engineered safeguard was provided in the form of interlocked signals, this was not enough to prevent a signaller mistakenly replacing the protecting signal and then raising the barriers when a train was near. At the time, there was no government requirement for approach locking, an engineered safeguard that provides this protection, when the crossing was converted to manual barrier operation in the mid-1970s. Although there have been a number of other incidents involving errors made by signallers and level crossing keepers in recent years, Network Rail had neither fitted it nor undertaken a formal risk assessment to quantify the safety benefit.

RAIB noted that a 'possible underlying factor was the lack of regular liaison between Network Rail's operational risk team and signalling engineers'. This 'made it less likely that the risk associated with signaller error, and the potential mitigation, would be considered'.

Based on two recommendations from its own formal investigation into the incident, Network Rail planned to undertake reviews of:

- improvements to interlocking arrangements to mitigate the risk of operator error at MCB level crossings in semaphore signal areas
- the effectiveness of the follow up of employees who score low on confidence in online tests.

A working group was set up to implement the first recommendation, and work was done to determine the status of engineering safeguards fitted to other level crossings. The review was later expanded to cover all level crossings with interlocked protecting signals (not only in semaphore signal areas like Moreton-on-Lugg).

At the time of the review the group identified that including Moreton-on-Lugg, there were 54 MCB level crossings without approach locking, or with only partial protection. Network Rail has since established a means of prioritising the risk at the identified interfaces and a programme of site visits to review the potential engineering and operational control measures.

Network Rail has also reported that it is undertaking a review of its level crossing risk management process, which will include how the risk of signaller error should be taken into consideration.

In addition, RAIB recommended:

- Identifying level crossings operated by railway staff where a single human error could result in the road being opened to the railway when a train is approaching.
- Enhancing level crossing risk management processes.
- Developing and implementing criteria for when it is necessary to formally assess the need to bring existing signalling and level crossing assets in line with latest design standards; and a process to record the findings of such assessments.
- Assessing the risk associated with the use of TRUST, and similar information systems, by signallers when undertaking safety critical activities, and implement appropriate mitigation measures.

The Narrative Risk Assessments now used for every level crossing and enhanced engineering criteria have addressed many of these issues. Progress in modifying some of the similar but low risk crossings has been slowed due to deferred renewal schemes during CP5[24] but all Network Rail Routes retain the accountability for finalising the action.

Hockham Road, Norfolk, 2016

At 12:30 on Sunday 10 April 2016 a Norwich–Cambridge service collided with a tractor and trailer at Hockham Road level crossing. The tractor driver was seriously injured; the train driver and several passengers received minor injuries. The tractor was destroyed, and the train was badly damaged.

Hockham Road crossing, which is on a private road near Thetford, also carries a public footpath. Vehicle users must open and close the gates themselves and, at the time of the accident, had to use the telephone to obtain permission from a signaller at Cambridge before crossing.

The tractor driver was given permission to traverse, and had got half-way across when his vehicle was struck by the train, which was travelling at 84 mph.

The trailer separated from the tractor and struck the side of the unit several times, breaking windows and puncturing the outer body, before coming to rest at the lineside. The cab of the train was severely deformed by the impact, and the driver's door had broken away.

RAIB determined that the signaller had given the tractor driver permission to cross when there was insufficient time to do so before the arrival of the train. This was because the signaller had lost his awareness of the position of the train because his levels of concentration may have lapsed due to a combination of fatigue and a lack of engagement with the signalling task. His competence to operate the workstation safely and effectively had also not been adequately monitored.

The 'EBI Gate 200' system that had been installed at the crossing in 2012—intended to display green or red lights to warn crossing users whether it was safe to cross—was not working at the time of the accident. It had been decommissioned by Network Rail while the design was modified to improve

[24] Network Rail control period covering 2015-2019.

the safety integrity of the system. This meant users had to telephone the signaller for permission to cross. RAIB found that Network Rail had not come to a clear understanding with the manufacturer of the system about how the equipment met the required safety integrity level. Having assessed the risks during a routine design modification, they had decided to turn off the system while improvements were made.

An underlying factor was that the arrangements in Cambridge signal box for managing fatigue among signalling staff were inadequate. Furthermore, Network Rail did not adequately define the minimum experience requirements necessary for signallers to maintain their competence to work safely and effectively on the Thetford workstation.

Trenos footpath crossing, South Wales, 2017

On 1 June 2017, a pedestrian was killed at Trenos footpath crossing, near Llanharan in South Wales. The pedestrian walked onto the interface and did not move even when the driver of an approaching train repeatedly sounded the horn and applied the emergency brake.

Around 20 minutes before, another train had stopped at Trenos when its driver saw the same person walking slowly over the crossing. The guard on this service had a short conversation with her and, concerned about her state of mind, asked his driver to contact the signaller by radio. The call was made. The call was answered by a signaller at Cardiff, who relayed the message to a signaller at Port Talbot, the latter being responsible for the Trenos area. As a result, the signaller was asked to stop trains at signals before the crossing and instruct drivers to proceed at caution when approaching.

Whatever the person's reasons for remaining on the crossing, RAIB noted that the accident could have been avoided. Specifically, if the signaller's display screen hadn't been based on out-of-date and misleading information. As a result, the train involved in the incident was not cautioned correctly and thus approached the crossing at speed. RAIB also added that the Port Talbot signaller's decision making may have been influenced by fatigue.

Key points:

- Signalling display screens need to reflect the reality of the railway at all times.
- Signaller fatigue and error can arise from low as well as excessive workload, lifestyle and nutrition.

Worlingham UWC, Suffolk, 2020

On 8 June 2020, the driver of a passenger train applied the emergency brake after observing a vehicle towing a trailer cross Worlingham UWC. The train was about 350 metres from the crossing and was travelling at 55 mph, equivalent to 14 seconds' running time. A second road vehicle was about to drive across behind the first, but reversed away as the train approached. No collision occurred and there were no reported injuries.

In the ten minutes before giving permission to the driver of the road vehicle at Worlingham crossing at 13:17, the signaller had taken six telephone calls from other UWCs; two of these had been after the departure of the incident train from Oulton Broad South four minutes before. The signaller did not realise how much time had passed since this move occurred.

In May 2020, Network Rail had introduced additional axle counters to subdivide some of the long signal sections controlled by Saxmundham. A table provided to the signallers as part of the project indicated that permission should not be given for Worlingham crossing to be used after a train approaching from Oulton Broad South had occupied a specific axle counter section. The signaller

involved in the incident had not been trained in the use of this additional information provided on the display, or the associated table. Had he been trained and assessed as competent, it is possible that he would have chosen not to give permission for the use of the crossing when the incident train was as close as it was.

A national programme of workload assessments to assess task-demand on signallers from crossing requests at UWCs had only recently been carried out in response to the near miss at Dock Lane on 14 June 2016. Recommendation 3[25] of that report required (*inter alia*) the development of action plans to reduce signaller task-demand for locations with high volumes of crossing requests from UWC-T crossings. In the case of Saxmundham, the project to introduce additional axle counters was one such agreed improvement action:

"The provision of improved train position information to assist the signaller with decision making when giving permission to cross at UWCs should reduce the cognitive demand on the signaller resulting from the complexity of maintaining awareness of train locations using the limited information available."

Key point:

- Signallers must be briefed when changes are made to safety related information that affects them.
- Signallers should not rely on a perception of elapsed time when making safety critical decisions, as this can be affected by distractions.
- There should be continued management focus on reducing the risk from signaller errors at user-worked crossings.

4.8 Sighting

Often, if the railway is at fault in a level crossing accident, the issues centre on sighting at the crossing. In some cases, vegetation obscures, signage is inadequate, or the sun shines low (which is pleasantly poetic, but not much use for safety).

4.8.1 Vegetation

Bratts Blackhouse, Suffolk, 2006

On 22 May 2006, a freight train conveying a discharged nuclear flask from Willesden Brent Yard to Sizewell struck a road vehicle on Bratts Blackhouse No 1 UWC. There were no reported injuries, but both train and vehicle sustained minor damage.

RAIB found the immediate cause of the accident to be that motorist did not stop at the designated Stop Board and drove directly into the path of the approaching train without checking the line first.

[25] Recommendation 3 says: 'Network Rail should identify signal boxes, and other locations, where signallers, or similar, are responsible for giving permission to cross at multiple high usage telephone crossings. It should reassess the risks associated with the work demand on the signallers at each such location, using all the relevant assessment tools that it has available, to understand whether the signaller's workload is being managed effectively. Where this is not the case, it should develop prioritised, time-bound plans for implementing any necessary improvements.'

Causal to the event was the gates at the crossing had been left open for some time and could not be closed. This was due to overgrown vegetation, the inadequate maintenance of the gates and the non-implementation of the findings of previous crossing inspections.[26]

At Bratts Blackhouse No 1 UWC, there is insufficient warning time to safely cross unless a driver stops (and looks), with the bonnet of the car within 2.5 metres of the track (ie at the final decision point). This problem had been exacerbated by the inadequate control of vegetation in proximity to sightlines. Network Rail later removed several large trees on the north side between 30-60 metres from the crossing.

Key point: Vegetation can pose risks at level crossings and must be routinely cut back.

4.8.2 Signage

The Hixon inquiry highlighted inadequate signage as being in the causal chain of that most tragic of accidents. However, it has been a causal factor in many other cases.

Halkirk, Caithness, 2009

At 14:09 on Tuesday 29 September 2009, a passenger train struck a car on Halkirk AOCL in Caithness. The car's three occupants were killed.

RAIB's report on the accident commented (*inter alia*) on the conspicuity of the road traffic signals, which were less than optimal. In particular, reference was made to their faded backboards (see photo), which would have given rise to 'a greater susceptibility to glare in a road vehicle driver with sub-standard eyesight' (as was the case in this incident).

Network Rail's investigation also found that low sun, which was positioned behind the car driver and shining towards the crossing at the time of the accident, may have affected the car driver's view of the signals and signs as his vehicle approached the interface.

As a result, Network Rail fitted LED road traffic light signals, including new backboards and chequered surrounds, at Halkirk AOCL. When flashing, these are more conspicuous to an approaching road user than the 50-Watt halogen lamps previously used.

The accident also hastened plans to add barriers to AOCLs (thus turning them into AOCL+Bs).

Network Rail also established road-rail partnerships with local authorities in many parts of the country, including the Highland Council. These partnerships provide a forum in which matters concerning the road-rail interface may be discussed and the progress of improvement measures may be monitored.

The red and white background to the level crossing wigwag seen in the photo above dates back to the Stott report, which refers to a need 'to increase the conspicuity and visual impact of both the crossing itself and the signal head'. Stott suggested 'that the back board of the signal head be somewhat increased in size and its conspicuity increased by the additions of a prominent border (say of red and white chequers) whilst some of the associated signs (visual clutter) be removed'. Prior to this, the backboard had a purely white border.

The wigwag signals are covered by the Traffic Signs Regulations and General Directions (TSRGD) and are used at level crossings, swing or lifting bridges, tunnels, airfields and in the vicinity of premises regularly used by fire, police, or ambulance service vehicles. TSRGD also stipulates the need for retroreflecting material.

[26] Note that the road vehicle driver did not look for approaching trains because he had never encountered a train at the crossing before.

Sewage Works Lane, Suffolk, 2010

At around 17:35 on 17 August 2010, a passenger train collided with a loaded 44-tonne articulated road tanker on Sewage Works Lane UWC (a private railway crossing), near Sudbury in Suffolk. The collision caused the train to derail. Several passengers and the conductor were injured; four passengers and the train driver were seriously injured.

RAIB found that the driver of the road tanker did not use the telephone provided before driving onto the crossing, although it was a requirement to do so.

The company employing the road tanker driver had not been briefed by Anglian Water (to whom they were contracted) on how staff should use the crossing safely. Among other causes, however, was the fact that the signs at Sewage Works Lane UWC presented information to road users in an unclear manner. Nevertheless, the lorry driver, did know what he should do and had used the telephone on previous occasions. He was prosecuted for his failings in this instance.

As a result of this and other incidents, RSSB commissioned research into signs at private railway crossings, some of which Network Rail has implemented (see T983, *Research into signs at private level crossings*).

4.8.3 Low sun

Beech Hill, Doncaster, 2012

At 12:31 on Tuesday 4 December 2012 a collision occurred between a passenger train and a car at Beech Hill AHB, near Finningley. One of the occupants of the car, a young child, was seriously injured and later died in hospital.

The crossing's data logger showed that the crossing had been operating normally at the time of the accident, the barriers being down as the car approached.

However, the car driver said she did not see that the wigwags were flashing as she approached and only noticed the lights and barriers when she was very close to the interface. The weather was sunny at the time of the collision, but there had been rain showers earlier and the road surface was wet, leading to glare from the low winter sun.

RAIB took the wigwag units and arranged for testing in an optical laboratory. It was found that they were fitted with 36-watt lamps and an obsolete design of red lens unit. Their light output was measured to be well below the specification for lights of this type.

Network Rail used the learning from Beech Hill to modify almost 500 level crossings, eradicating 1960s 36-watt filament bulb lights from its level crossings nationwide.

Key points:

- Level crossing risk assessments should take sunlight into account.
- As new technology becomes available, determining what is a reasonably practicable control measure has to keep pace.

4.9 Adhesion

Exeter St David's, Devon, 2010

At around 19:25 on 4 January 2010, a passenger train from Barnstaple struck the rear of another train waiting in the same platform at Exeter St David's. Six passengers and three members of staff were injured. RAIB listed one of the causal factors of the incident as being low adhesion. Although it was a frosty day, swab samples taken also identified that 'high levels of chlorine were present' on the train's leading wheels, the rails within the platform area and the rails at the nearby Red Cow level crossing.

The report noted that '[a] possible source of chlorine was from corrosion of the rails, due to their reaction with the salt used by local authorities to treat road surfaces'. The road on the approach to Red Cow crossing had been treated with road salt shortly before the arrival of the incident train.

As statistical analysis showed no correlation between gritting in the area and reports of low adhesion from train drivers, RAIB concluded that it was 'unlikely that road salt drawn onto the level crossing and along the railway caused low adhesion on the evening of 4 January 2010'.

But of course, low adhesion at level crossings isn't only a problem for rail traffic, it can be a very real problem for road traffic too. A tragic case in point came when a car driver was killed at South Drove crossing, Lincolnshire, in January 2009. The car had been involved in a rear-end collision with a van, but the slippery conditions caused it to become stuck on the interface as a train approached.

RSSB was asked to consider researching the balance of risk between local highway authorities gritting roads approaching or actually on the railway at level crossings.[27] However, analysis of all the data suggested that there was no direct evidence of this. Indeed, failure to grit level crossings created a bigger risk for road users than rail and was not to be encouraged.

Key point: Preventing the gritting of roads at level crossings increases the risk for road users, but does not necessarily reduce the risk to rail.

[27] R461, *Research into treating snow and ice on public road level crossings*.

4.10 Whistle boards and night time quiet period

Mexico footpath crossing, Cornwall, 2011

At around 15:50 on 3 October 2011, a pedestrian was struck and killed by a train on Mexico footpath crossing, near Penzance.

On approaching the crossing round a curve, the train driver saw a person standing to the side of the line and sounded the warning horn. However, the pedestrian then tried to cross, and was struck and killed instantaneously.

Although RAIB could not be certain why the pedestrian tried to cross, it considers that she either misjudged the speed of the approaching train or misjudged her position in relation to it. She probably saw the train too late to make a reasoned judgement about whether or not she should cross.

The driver had also sounded the train's horn as required by a whistle board when the train was approximately 15-16 seconds from the crossing, and out of sight. If the pedestrian had heard and responded to the sounding of the horn at this stage, it's likely that she would not have passed through the gate and onto the crossing until the train had passed. RAIB considers that the sounding of the horn when the train was 15-16 seconds from the crossing did not serve its function of warning the crossing user of the approaching train for one of these reasons:

- the sound of the horn was inaudible to her
- she heard a horn being sounded, but did not distinguish it as coming from a train
- she did not register that the train horn was sounded, because she was only approaching the crossing at this time and not yet focused on crossing the railway.

After the accident, Network Rail applied to Cornwall Council to have the crossing closed, diverting users to the nearby Long Rock CCTV crossing, where they would be fully protected from the railway by barriers.

In December 2016, Network Rail reduced the 'night time quiet period' (NTQP) from 23:00-07:00 to 23:59-06:00, as evidence had shown that there was now greater crossing use during this bracket than expected.

Key point: It is important that drivers sound train horns when passing whistle boards rather than at some distance on the approach to them. This will ensure that the likelihood of the horn being heard at the crossing is maximised.

4.11 Blocking back

The first AHB crossing was introduced at Spath, near Uttoxeter, on 5 February 1961. Initially, a crossing keeper was retained to oversee operations, but by the July of that year, British Railways was keen to withdraw attendance as the new equipment was working well.

Indeed, the Ministry of Transport was close to granting permission when word reached them of a problem, namely seasonal traffic peaks at the interface, brought about by its close proximity to Alton Towers. With a T-junction a mere 100 yards beyond, traffic blocking back over the crossing was inevitable—even back then.

The Ministry thus required the railway to maintain attendance and report how many times this problem was arising. It was reported in September that no further occurrences had occurred. As a result, the Railway Inspectorate consented to attendance being withdrawn on 26 September 1961, while stipulating that signs be erected that read 'Do Not Stop On The Crossing'.

Yellow boxes are now common for AHBs and frequently feature at MCBs. Some crossings have active signs warning drivers when there is a blocking back risk, while MCB-ODs have sensors to stop barriers auto lowering on stationary traffic (both implemented at Harlescott, among others).

Key point: Blocking back continues to pose risks that need to be closely monitored.

4.12 Wrong side failures

Norwich Road AHB, New Rackheath, Norfolk, 2019

On Sunday 24 November 2019, the barriers at Norwich Road level crossing, near New Rackheath, Norfolk, lifted as a Class 755-formed Norwich–Sheringham service was approaching. Two road vehicles crossed the railway in front of the train, which reached the crossing less than half a second after the second road vehicle was clear.

RAIB found that there was contamination of the railhead in the area caused by leaf-fall and atmospheric conditions. This contamination had not been removed because there were no railhead treatment trains on the Norwich–Sheringham line at weekends.

There was a narrow running band on the railhead, because most of the rolling stock (Class 755) on the Norwich–Sheringham line was new and had wheel profiles in similar condition. This left the wheel-rail interface vulnerable to a poor electrical contact in the event of contamination and caused the level crossing equipment to misinterpret the position of the train. Consequently, it opened the crossing to road traffic while the incident train was closely approaching.

Furthermore, processes intended to update trial installations of equipment did not recognise and correct the shortcomings at Norwich Road crossing.

As a result of the incident, Network Rail reset the 'loss of shunt' (LOS) timers on all its HXP3[28] systems to 99 seconds, the maximum available on this equipment. This should guard against barriers rising before a train arrives at a crossing if the predictor incorrectly assesses its position.

All HXP3 predictor crossings were also fitted with pairs of reinforcement treadles at the equivalent of the strike-in point, the point at which the minimum warning time for the road user is achieved with the fastest train. The treadles will force the crossing sequence to start if the predictor has not registered the train while it was running between the limit of approach and the treadles. If the HXP3 predictor has registered the train before it reaches the treadles but not started the sequence due to the train's speed, the treadles will have no effect.

On the rolling stock side of the equation, the automatic sander operation on all Stadler manufactured Greater Anglia trains (Class 755 and 745 units) has had the delay removed. The frequency and pressure of scrubber block applications has also been increased on Class 745s and 755s. These blocks, which are similar to small tread brakes, are intended to improve traction by cleaning the treads of the driven wheels. Although it is not the design intent of the scrubber blocks,

[28] HXP3 uses audio frequency track circuits to detect an approaching train, and the rate of change of the inductance of the rails is used to determine its speed and hence calculate the trigger moment to provide a constant warning time for each train.

it is possible that their increased usage will provide some improvement to the wheel-rail electrical contact.

Network Rail is currently developing remote condition monitoring systems for signalling and level crossing equipment. This should result in data on the real-time performance of level crossings becoming available to maintenance staff and investigators, should they need it.

Key point: The management of change needs to consider both rolling stock and infrastructure, especially the latter in degraded conditions.

4.13 Right side failures

Not all problematic failures are wrong side, however. At Athelney in 2013, for example, a right side failure occurred which was to have fatal consequences.

Athelney AHB, Taunton, Somerset, 2013

At about 06:23 on 21 March 2013, a car drove around the barriers of Athelney AHB, near Taunton in Somerset. This took the car into the path of a train which was approaching the crossing at high speed. The driver of the car was killed in the resulting collision.

The motorist drove around the barriers without waiting for a train to pass and the barriers to re-open. The level crossing was closed to road traffic for between 75 and 103 seconds before the arrival of the train, because of earlier engineering work that had affected its automatic operation. This was notably longer than the normal 29 seconds. The motorist may have therefore believed that the crossing had failed with the barriers in the closed position, or that the approaching train had been delayed. He did not contact the signaller by the crossing's telephone for advice before he drove around the barriers.

After the accident, Network Rail's Western Route fitted directional strike-in treadles to the eight AHBs within its area that have independent treadle and track circuit operation to reduce the likelihood of extended barrier time closure.

Key points:

- Sometimes the holes in James Reason's Swiss cheese slices[23] can be small, yet still allow a 'trajectory of opportunity' to get through.
- People develop a mental model of how to use a level crossing from their prior experience of using crossings, instructions or by observing the behaviour of other users. While the mental model may work in normal operations, in degraded conditions it can be fatally flawed.

5 Crossing closure

There is no simple or easy procedure for closing such a crossing, which – as they are public rights of way – requires widespread public consensus. For example, an installation at Willesborough in Kent took several attempts at closure in the 1980s and 1990s before it was agreed that a bridge would be provided.[29] In fact, clauses in several private parliamentary bills were required over several years until the move was approved.[30]

It should be noted that level crossings create benefits to society and road users, as well as risk to users and passengers—and cost to the railway.[31] The number of crossings has, however, been reduced over the last 50-60 years. There are three main reasons for this:

The railway first tried closing Buriton footpath crossing (Hampshire) in 1896. Various attempts were later made, but closure only came in January 2017, following a Public Inquiry.

- the reduction in the size of the rail network and the closure of many branch lines (mainly as a result of Beeching's 1963 report, *The Reshaping of British Railways*)
- the increase in train speeds from the first introduction of HSTs in 1976 and from the many related resignalling/track realignment schemes
- more recently, Network Rail's level crossing closure programme.

Key points:

- Closing a crossing requires widespread agreement, where they are public rights of way.
- Most public crossing closures over the last 50-60 years have been down to line closures, and increases in train speeds. Increases in train speeds can increase the likelihood and consequence of accidents at level crossings.

[29] This was required as the line was to form part of the upgraded route to the Channel Tunnel.
[30] The process, and comparison with that applying in several other countries, was reviewed in RSSB's research report T528, *Attitudes to, processes and funding for, crossing closures in other countries*.
[31] Michael Woods, RSSB, *The Economics of Level Crossings*. Paper to Ninth International Level Crossing Safety and Trespass Prevention Symposium, Montréal, Canada, September 2006.

6 Changing level crossing user behaviour

Through its crossing closure programme spanning CP4 and CP5[32], Network Rail has closed around 1200 level crossings. However, closures are now becoming increasingly difficult to achieve. As a result, Network Rail is focusing on level crossing risk reduction, which includes continuing to close crossings, increasing use of technology, and educational campaigns to influence user behaviour. This work has been undertaken under the auspices of the CP4 Level Crossing Improvement Programme, the CP5 Level Crossing Prioritised Technology Programme and Network Rail Safety Campaigns.

6.1 Changing behaviour using technology

Learning both from incidents and RSSB research, Network Rail has developed new technology which works to influence how users interact with level crossings. Such technology includes proactive warning systems and enforcement technology.

Warning Systems and Supplementary Audible Warning Devices

In 2015, Network Rail began to introduce the CovTec Supplementary Audible Warning Device (SAWD), an overlay train detection system that broadcasts the sound of a train horn at whistle board-protected crossings. They supplement, rather than replace, whistle boards, but reduce the risk from train horns not being heard.

Overlay Miniature Stop Lights

Network Rail developed overlay miniature stop light systems (OMSL), installation beginning in 2017 at footpath, bridleway[33] and user-worked crossings. Installations have been prioritised at crossings in long signal sections, where the equipment can reduce long waiting times, and where sighting is poor. OMSLs provide a significant cost reduction when compared to a conventional integrated MSL. This means Network Rail is able to install more of them across the railway.

Enforcement Technology and Mobile Safety Vehicles

In partnership with BTP, a fleet of mobile safety vehicles, equipped with automatic number plate recognition technology and video surveillance equipment, are deployed to deter deliberate misuse and catch offenders. While some offenders are prosecuted, others are offered an education programme to improve safety.

Red Light Safety Equipment

In 2015, Red Light Safety Equipment (RLSE) started to be installed at public highway level crossings. The equipment recorded its first offence in the May of that year. By 2017/18, 33 crossings had been fitted; a total of 2343 cases were brought that year. The crossing with the most recorded offences was White Hart Lane, with 776 cases.

[32] Network Rail control periods covering 2009-2014 and 2015-2019 respectively.

[33] Bridleway crossings are those designed for use by horse riders and cyclists as well as pedestrians, but not vehicles.

RLSE is fully automated and unattended. It captures evidence of road vehicles failing to stop at level crossing red lights. The cameras' primary purpose is to reduce the risk from collision with a train. They act as a deterrent, dissuading motorists from driving dangerously.

6.2 Education

Education and awareness Campaigns

Safety awareness campaigns remain an important tool in cascading safety communication messages to the public. Network Rail continues to work collaboratively with partners such as the National Farmers Union (NFU), trade groups, Drinkaware, BTP and more broadly with rail industry colleagues through the International Level Crossing Awareness Day (ILCAD) community. Campaigns target at-risk groups, such as those most prone to errors, lapses or deliberate misuse. Each campaign delivers key safety messages to coincide with risk and seasonal trends, keeping information fresh and engaging.

Examples of such campaigns include:

- Stay Safe with Thomas
- Beware the bubble
- Switched On!

Driver education

BTP manages education courses that have been successful in raising awareness and reducing the likelihood of repeat offences for drivers caught breaking the law at level crossings.

7 Legislation and standards

As we saw earlier, the original railway Act of Parliament specified how the railway was to cross other ways (for example roads and footpaths), either by bridge or on the level. Where the crossing was on the level, the arrangements for protecting the users, both railway and highway, were specified.

Since initial construction, use of the roads and railway has changed considerably, as has the cost of and delay caused by level crossings. From the 1950s level crossings have also been modernised to permit remote or automatic operation with lifting barriers and/or road traffic signals.

To encourage railway operators to change the protective arrangement specified in the original Act, a legal process was introduced to empower the Secretary of State for Transport to make statutory orders specifying the new or updated arrangements at individual crossings to which the public has access. This is currently authorised through provisions in the Level Crossings Act 1983. It is managed by the ORR, normally initiated by the operator of a level crossing, and requires consultation with the local traffic authority. A level crossing order provides for the protection of those using a level crossing and may place duties on both the crossing operator and local traffic authority. It may also make such provision as the Secretary of State considers necessary for the safety or convenience of crossing users.

Requirements for the road/rail interface at level crossings were primarily set by Railway Inspectorate (RI) and published in *Railway Construction and Operation Requirements: Level Crossings* (1981). In particular, these included the timings of the warning lights before the barriers start to descend and the minimum time before a train can arrive at the crossing.

The 1981 requirements superseded level crossing requirements in the earlier *Railway Construction and Operation Requirements for Passenger Lines and Recommendations for Goods Lines*, published by the Ministry of Transport, together with a number of supplementary publications detailed in the introduction to the 1981 requirements.

The 1981 requirements largely implemented the recommendations in the 1978 'Townsend-Rose' report. They were replaced in 1996 by *Railway Safety Principles and Guidance (RSPG); part 2 section E Guidance on Level Crossings*, published by the Health and Safety Executive (of which the HMRI was a part at that time). Responsibility for the HMRI and for this guidance document was subsequently transferred to the ORR. This was in turn replaced by *Level crossings: a guide for managers, designers and operators*, published by the ORR in December 2011.

Although, since 1996, the design parameters have been published as 'guidance' rather than 'requirements', upgrading or modification of a level crossing on a public road requires an amendment to the Level Crossing Order if the new protection arrangements will not comply with the current one.

The introduction to the 1996 guidance stated:

'3 Application of this guidance should provide a sufficient level of safety for approval to be given by the Inspectorate, provided that it has been demonstrated that the use of the guidance is wholly applicable to the level crossing.'

'4 If this is not the case, then the Inspectorate will wish to be satisfied that due consideration has been given to implementing the safety principles in the Part 1 document Railway safety principles and guidance in a way that ensures that all intolerable risks have been eliminated and that all remaining risks have been reduced to be as low as reasonably practicable (known as ALARP)'.

Failure to comply with a level crossing order is a criminal offence. Under the following year's Level Crossing Regulations, failure to comply also allowed the ORR to issue an Improvement Notice if it

considers the arrangements at a crossing unsatisfactory and feels the infrastructure manager has not made or proposed suitable improvements, asking for an order to change the type of protection.[34]

Railway Group Standard on GE/RT7012, *Requirements for Level Crossings,* was published in August 2004. This incorporated requirements for the road /rail interface, which were based on the guidance in RSPG part 2 section E, with some more specific requirements on how they were to be implemented. There was an earlier set of Level Crossing Principles documents produced internally by British Rail, which are mentioned along with other superseded documents in the introduction to GE/RT7012, but these were not formally issued as Railway Group Standards.

GE/RT7012 was withdrawn in 2010 and replaced by GKRT0192 *Level Crossing Interface Requirements.* GKRT0192 is limited in coverage to the interface between railway infrastructure and trains. The presentation of the crossing to the road user is no longer within the scope of Railway Group Standards, and therefore the requirements relating to the road/rail interface were withdrawn. The design of the road/rail interface is now the responsibility of the infrastructure manager, who in most cases is Network Rail; standards relating to the road/rail interface are therefore issued by Network Rail, and further developments since then have been entirely handled by them, although as stated before the basic principles of protection including timing sequences are set out in the ORR's guidance.

In 2021, the ORR updated its guidance for level crossings. The new *Principles for managing level crossing safety* encourages thinking about the how level crossings are actually used and how level crossing design can influence this. It also fosters a collaborative approach to reduce and eliminate risk, as also demonstrated in the breadth of level crossing community representatives involved in the guidance's successful consultation.

7.1 The role of RAIB

According to its website, *The RAIB must by law investigate all rail accidents involving a derailment or collision which result in, or could result in:*

- *The death of at least one person;*
- *Serious injury to five or more people; or*
- *Extensive damage to rolling stock, the infra-structure or the environment.*

The RAIB may also investigate other incidents which have implications for railway safety, including those which under slightly different circumstances may have led to an accident.[35]

The RAIB will not investigate:

- Worker accidents/incidents with the exception of those involving train movements;
- Accidents/incidents involving trespassers or suicides; or
- Accidents/incidents where there are no likely safety lessons to be learned.

[34] Note the ORR acts under an agency agreement with the Department for Transport (DfT); if the ORR requires a crossing operator to apply for a Level Crossing Order then the issuing of the Order passes to the DfT on behalf of the Secretary of State.

[35] See http://www.raib.gov.uk/about_us/index.cfm#a5 (and ibid).

Regarding trespass, it is now normal to consider both the risk of trespass and the potential consequences (such as from contact with adjacent electrified infrastructure or pointwork in level crossing design).[36] Where trespass risk indicates, anti-trespass guards are fitted either side of the crossing to deter people straying from the right of way.

7.2 Public rights of way

Network Rail was worked with the Association of Directors of Environment, Economy, Planning & Transport – Rights of Way Managers' Group (ADEPT), and the Institute of Public Rights of Way and Access Management (IPROW) to develop a Memorandum of Understanding (MoU). The aim of the MoU is to promote level crossing safety and improve working practices between Network Rail and Local Highway Authorities (LHAs) where Public Rights of Way (PRoW) use level crossings in England and Wales.

The MoU is not intended to be legally binding, but aims to encourage clearer communication and build collaborative relationships between Network Rail and LHAs when changes are proposed to a level crossing which affects a PRoW.

Key points: Collaboration with stakeholders is important to bring about change, the full MoU may be found here.

[36] This stems from the 'Herrington' fatality, which occurred on 7 June 1965 at Mitcham. It involved six-year-old boy, who had been playing on the railway line after gaining access through a hole in the boundary fence, which was in bad repair. He was electrocuted on the live third rail. In Herrington v British Railways Board [1972], the House of Lords ruled that, as the British Railways Board (as occupiers) was aware of previous trespasses but had failed to maintain the integrity of the boundary fence, it was liable for injuries to the child. The House of Lords held that the occupier of the railway premises owed a duty of common humanity to said child. Until this case, no duty of care was owed to trespassers.

8 Research and development

Starting in 2001, RSSB managed and published a number of research reports related to level crossings and other road-rail interface issues such as bridge strikes, mainly focussed on improving safety at the interface. The responsibility for new research has now passed to Network Rail, which has a number of research activities completed and in progress. Such research is conducted in nine main areas:

- Understanding the risk at level crossings to enable prioritisation of remedial actions.
- Identifying and sharing good practice in Britain and overseas to facilitate the adoption of appropriate solutions.
- Identifying new technical and operational solutions to prevent errors and misuse of crossings.
- Understanding the costs of level crossings and the benefits of adopting alternatives to optimise societal benefits.
- Working in collaboration with highway and planning authorities to design out safety risk and reduce the overall cost to society.
- Understanding the needs of vulnerable users at level crossings to facilitate social inclusion.
- Review and overhaul of the legislative framework for level crossings to identify legal requirements and consolidate disparate regulations.
- Research into bridge strikes and vehicle incursions.
- Research to support inquiry recommendations, government and regulatory policies, proposed and new legislation.

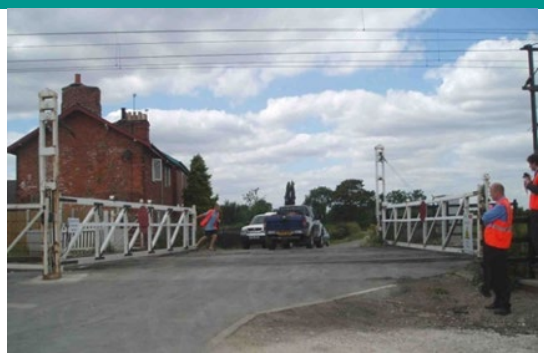
This table lists the research projects published on level crossings during the last decade:

Project No.	Title	Published
T000	*User worked and footpath level crossing research*	2002
T028	*Development of a universal level crossing risk tool*	2007
T032	*Trials of median strips / lane separators at level crossings*	2007
T105	*Wayside horns at level crossings*	2003
T232	*Improving level crossing information systems*	2004
T269	*Human factors risk at user worked crossings*	2004
T332	*Understanding the risk at station and barrow crossings*	2005
T333	*Evaluating best practice deterrence and enforcement mechanisms at level crossings*	2007
T334	*Reducing the risk to motorists traversing user worked crossings on foot*	2009
T335	*Improving road user and pedestrian behaviour at level crossings*	2008
T336	*Modelling the economics of level crossing closures and conversions*	2007
T364	*The cost of level crossings - an international benchmarking exercise*	2006
T521	*Developing enhanced consequence algorithms for level crossing risk models*	2006
T522	*Obstacle detection at level crossings*	2006
T524	*Use by other railways of risk models and risk assessments for level crossings*	2007

Project No.	Title	Published
T527	*Analysis of research ideas from recent international level crossing conferences*	2007
T528	*Attitudes to, processes and funding for, crossing closures in other countries*	2006
T561	*Evaluating safety benefits from miniature warning lights at level crossings*	2007
T650	*Improving safety and accessibility at level crossings for disabled pedestrians*	2011
T652	*Examining the benefits of 'another train coming' warnings at level crossings*	2008
T653	*Safer European level crossing assessments and technology (SELCAT)*	2009
T668	*Research into the safety benefits provided by train horns at level crossings*	2009
T680	*Mapping the extent of the train horn noise problem*	2006
T681	*Understanding the problems that train horn noise causes to neighbours*	2006
T707	*Analysing the potential of vehicle activated signs at public road level crossings*	2011
T719	*Monitoring motorists' behaviour at level crossing median strip trial sites*	2009
T729	*Further work on obstacle detection at level crossings*	2010
T730	*Understanding human factors and developing risk reduction solutions for pedestrian crossings at railway stations*	2009
T737	*Documenting the All Level Crossing Risk Model*	2010
T738	*Trialling the national roll out of the level crossing cost model*	2010
T756	*Research into traffic signs and signals at level crossings*	2014
T818	*Optimising public communication with signallers in emergencies at level crossings*	2009
T821	*Further work on miniature warning lights at user worked crossings*	2010
T854	*Reducing the number and impact of vehicle strikes on railway underline bridges*	2012
T863	*Updating the Level Crossing Risk Management Toolkit*	2010
T907	*A guide to RSSB research in Road Rail Interface Safety*	2011
T936	*Enhancing the accuracy and functionality of the All Level Crossing Risk Model (ALCRM)*	2017
T983	*Research into signs at private level crossings*	2015
T984	*Research into the causes of pedestrian accidents at level crossings and potential solutions*	2014
T1006	*Enhancing the accuracy and functionality of the AXIAT level crossing tool*	2006
T1007	*Research into positioning railway signals on the approach to level crossings*	2016
T1053	*Updating the Level Crossing Risk Management Toolkit*	2015
T1205	*Relationship between train horn test measurements and perceived sound levels on the track*	2021

Appendix: Level crossing types

Active crossings: Manual



Manually controlled gate (MCG): This crossing is equipped with gates, which are manually operated by a signaller or crossing keeper either before the protecting signal can be cleared, or with the permission of the signaller or signalling system. At the majority of these crossings, the normal position of the gates is open to road traffic, but on some quiet roads the gates are maintained 'closed to the road' and opened when required if no train is approaching.

Manually controlled barrier (MCB): MCB crossings are equipped with full barriers, which extend across the whole width of the roadway, and are operated by a signaller or crossing keeper before the protecting signal can be cleared. Road traffic signals and audible warnings for pedestrians are interlocked into the signalling system.

Manually controlled barrier protected by closed circuit television (MCB-CCTV): Similar to MCB crossings, except that a closed circuit television (CCTV) is used to monitor and control the crossing from a remote location.

Manually controlled barrier with obstacle detection (MCB-OD): MCB-OD are full barrier crossings equipped with an obstacle detection system as a means of detecting obstacles on the crossing prior to signalling train movements. The obstacle detection system comprises of RADAR and scanning laser obstacle detectors. The lowering sequence is instigated automatically upon detection of an approaching train. MCB-ODs are equipped with road traffic lights and audible alarms. The barriers, road traffic signals and audible warnings for pedestrians are interlocked with the signalling system. The signaller typically does not

participate in operation of the crossing and does not have a view of it. Indications on the state of the crossing warning lights, barriers and obstacle detection system are provided to the signaller and the barriers can be lowered and raised manually if required.

Train Man Operated, Manual Gates (TMOG): On small branch lines, these crossings are common as they require no monitoring by any signallers, and simply have to be observed by the train driver as being closed. The guard will manually close the gates or push a button close to the crossing that activates it, and once lowered the train can cross safely. These appear to be MCG/MCB type crossings to the road driver, but have a much shorter closing time (with the drawback of the train having to stop completely to activate the crossing).

Active crossings: Automatic

Automatic half-barrier (AHB): AHB crossings are equipped with barriers that only extend across the nearside of the road (so that the exit is left clear if the crossing commences operation when a vehicle is on it). Road traffic signals and audible warnings are activated a set time before the operation of the barriers, which are activated automatically by approaching trains. The barriers rise automatically when the train has passed, unless another train is approaching. Telephones are provided for the public to contact the signaller in case of an emergency or to ensure it is safe to cross in a long or slow vehicle. These crossings can only be installed where the permissible speed of trains does not exceed 100mph.

Automatic barrier crossing locally monitored (ABCL): As far as the road user is concerned, this crossing looks identical to an AHB crossing. The difference is that train drivers must ensure that the crossing is clear before passing over it. Train speed is limited to 55mph or less.

Automatic open crossing remotely monitored (**AOCR**)**:** The AOCR is equipped with road traffic signals and audible warnings only: there are no barriers. It is operated automatically by approaching trains. Telephones are provided for the public to contact the signaller in an emergency. Only one crossing of this type remains on the mainline railway, at Rosarie in the Scottish Highlands.

Automatic open crossing locally monitored (**AOCL**)**:** Like the AOCR, this crossing is equipped with road traffic signals and audible warnings only and is operated automatically by approaching trains. A physical difference apparent to the user is that no telephone is provided. An indication is provided to the train drivers to show that the crossing is working correctly, they must ensure that the crossing is clear before passing over it and train speed is limited to 55mph or less. If a second train is approaching, the lights continue to flash after the passage of the first train, an additional signal lights up, and the tone of the audible warning changes.

Automatic open crossing locally monitored with barriers (AOCL+B): AOCL+B is a simple half barrier overlay to previously commissioned AOCL crossings. They look and function as if they are ABCLs.

Automatic full barrier crossing locally monitored (AFBCL): The AFBCL is equipped with full barriers which extend across the whole width of the roadway and a light detection and ranging (LIDAR) detection system. Like the ABCL, train drivers must observe the white light and ensure that the crossing is clear before passing over it. Train speed is limited to 55mph or less.

User-worked crossing with miniature warning lights (**UWC-MWL**)**:** This crossing has gates or full lifting barriers, which the user must operate prior to crossing. Red/green miniature warning lights, operated by the approach of trains, inform the user whether it is safe to cross.

Passive crossings

User-worked crossing (**UWC**): This crossing has gates or, occasionally, full lifting barriers, which the user must operate prior to crossing. The user is responsible for ensuring that it is safe to cross; hence there must be adequate visibility of approaching trains. Once clear, the user is required to close the gate or barriers. These crossings are often found in rural areas, for example providing access between a farm and fields. They often have an identified user, some of whom keep the crossing gates padlocked to prevent unauthorised access.

User-worked crossing with telephone (**UWC-T**): These are similar to the standard user-worked crossing, but a telephone is provided. In some circumstances (for example when crossing with livestock or vehicles) the user must contact the signaller for permission to cross, and report back when they are clear of the track. They are provided where visibility of approaching trains is limited, or the user needs to cross over the railway on a regular basis.

Open crossing (**OC**): At open crossings, which are sited when the road is quiet and train speeds are low, the interface between road and rail is completely open. Signs warn road users to give way to trains. Road users must therefore have an adequate view of approaching trains. The maximum permissible speed over the crossing is 10mph or the train is required to stop at a stop board before proceeding over.

Footpath crossing: These are designed primarily for pedestrians and usually include stiles or wicket gates to restrict access. The crossing user is responsible for making sure that it is safe to cross before doing so. In cases where sufficient sighting time is not available, the railway may provide a whistle board, instructing drivers to sound the horn to warn of their train's approach, or miniature warning lights. A variant is the bridleway crossing, which is usually on a public right of way, although some are private and restricted to authorised users. Some footpath crossings are in stations and these can be protected by a white light (which goes out when a train is approaching) and are generally only used by railway staff.

About RSSB

RSSB provides research, analysis, and insight to help the industry work together to deliver a better, safer railway.

As a membership-based rail industry body, RSSB includes train and freight operating companies, infrastructure managers, contractors, rolling stock leasing companies and suppliers, and our work involves partnerships with academia and other railways across the world.

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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (LEEDS TO MICKLEFIELD ENHANCEMENTS) ORDER

DOCUMENT CD.01.21.07

Appendix to Proof of Evidence of Jerry Greenwood, Head of Infrastructure Liability

On behalf of Network Rail Infrastructure Limited

RAIB Report-Fatality at Lady Howard Bridle Crossing

21.04.2022

Date 06 February 2024

Rail Accident Investigation Branch

Rail Accident Report

Pedestrian struck by a train at Lady Howard footpath and bridleway crossing, Surrey, 21 April 2022

Report 01/2023
February 2023

This investigation was carried out in accordance with:

- the Railway Safety Directive 2004/49/EC
- the Railways and Transport Safety Act 2003
- the Railways (Accident Investigation and Reporting) Regulations 2005.

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This report is published by the Rail Accident Investigation Branch, Department for Transport.

Preface

The purpose of a Rail Accident Investigation Branch (RAIB) investigation is to improve railway safety by preventing future railway accidents or by mitigating their consequences. It is not the purpose of such an investigation to establish blame or liability. Accordingly, it is inappropriate that RAIB reports should be used to assign fault or blame, or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose.

RAIB's findings are based on its own evaluation of the evidence that was available at the time of the investigation and are intended to explain what happened, and why, in a fair and unbiased manner.

Where RAIB has described a factor as being linked to cause and the term is unqualified, this means that RAIB has satisfied itself that the evidence supports both the presence of the factor and its direct relevance to the causation of the accident or incident that is being investigated. However, where RAIB is less confident about the existence of a factor, or its role in the causation of the accident or incident, RAIB will qualify its findings by use of words such as 'probable' or 'possible', as appropriate. Where there is more than one potential explanation RAIB may describe one factor as being 'more' or 'less' likely than the other.

In some cases factors are described as 'underlying'. Such factors are also relevant to the causation of the accident or incident but are associated with the underlying management arrangements or organisational issues (such as working culture). Where necessary, words such as 'probable' or 'possible' can also be used to qualify 'underlying factor'.

Use of the word 'probable' means that, although it is considered highly likely that the factor applied, some small element of uncertainty remains. Use of the word 'possible' means that, although there is some evidence that supports this factor, there remains a more significant degree of uncertainty.

An 'observation' is a safety issue discovered as part of the investigation that is not considered to be causal or underlying to the accident or incident being investigated, but does deserve scrutiny because of a perceived potential for safety learning.

The above terms are intended to assist readers' interpretation of the report, and to provide suitable explanations where uncertainty remains. The report should therefore be interpreted as the view of RAIB, expressed with the sole purpose of improving railway safety.

Any information about casualties is based on figures provided to RAIB from various sources. Considerations of personal privacy may mean that not all of the actual effects of the event are recorded in the report. RAIB recognises that sudden unexpected events can have both short- and long-term consequences for the physical and/or mental health of people who were involved, both directly and indirectly, in what happened.

RAIB's investigation (including its scope, methods, conclusions and recommendations) is independent of any inquest or fatal accident inquiry, and all other investigations, including those carried out by the safety authority, police or railway industry.

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Pedestrian struck by a train at Lady Howard footpath and bridleway crossing, Surrey, 21 April 2022

Contents

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Summary

At about 14:49 hrs on Thursday 21 April 2022, a pedestrian was struck and fatally injured by an out-of-service passenger train at Lady Howard footpath and bridleway crossing, near Ashtead in Surrey. The pedestrian, who was walking on the crossing with a dog and pushing a wheeled trolley bag, started to cross the railway tracks shortly after a train had passed. She was struck by a second train, which was travelling in the opposite direction to the first. The driver of the train involved in the accident sounded the train's horn on seeing the pedestrian on the crossing. The pedestrian responded by hurrying forwards towards the exit of the crossing, but was unable to get clear of the path of the train in time to avoid being struck.

RAIB's investigation found that the pedestrian was apparently unaware that the second train was approaching when she made the decision to cross; there is no evidence that she was aware of it and/or had misjudged the time available to cross. This was because, although the pedestrian looked twice in the direction of the second train before starting to cross, the front of this second train was hidden behind the first train, which was moving away on the line nearest to her. RAIB also found it was possible that the pedestrian did not perceive the risk arising from the possibility that the first train was hiding another approaching train.

A probable underlying factor was that Network Rail had not provided any effective additional risk mitigation at the crossing, despite having previously deemed the risk to users to be unacceptable. Network Rail had planned to install miniature stop lights at the crossing, but complexities with the technology required at this location meant that this solution was not ready for implementation before the accident occurred. There is little evidence that Network Rail considered effective options to mitigate the risk on an interim basis while this solution was progressed, although they fitted additional warning signs for users and a camera to monitor crossing use.

As a result of this investigation, RAIB has made two recommendations, both to Network Rail. The first is intended to address the risk to pedestrians at crossings of this type arising from a second approaching train being hidden from view by another train. The second recommendation concerns the implementation of appropriate interim risk mitigations at level crossings that are awaiting long-term solutions.

Introduction

Definitions

1 Metric units are used in this report, except when it is normal railway practice to give speeds and locations in imperial units. Where appropriate the equivalent metric value is also given.

2 The report contains abbreviations which are explained in appendix A. Sources of evidence used in the investigation are listed in appendix B.

The accident

Summary of the accident

3 At about 14:49 hrs on Thursday 21 April 2022, a pedestrian was struck and fatally injured by an out-of-service passenger train at Lady Howard footpath and bridleway crossing, near Ashtead in Surrey (figure 1). The train was recorded as travelling at about 62 mph (100 km/h) at the time of the accident.

4 The pedestrian, who was walking with a dog and a wheeled trolley bag, had started to cross the railway tracks shortly after a previous train had passed the crossing in the opposite direction to the train involved in the accident.

5 The driver of the train involved in the accident sounded the train's horn upon seeing the pedestrian on the crossing. The pedestrian responded to the warning by hurrying forwards towards the exit of the crossing, but did not reach a point that was clear of the train's path before it arrived at the crossing.

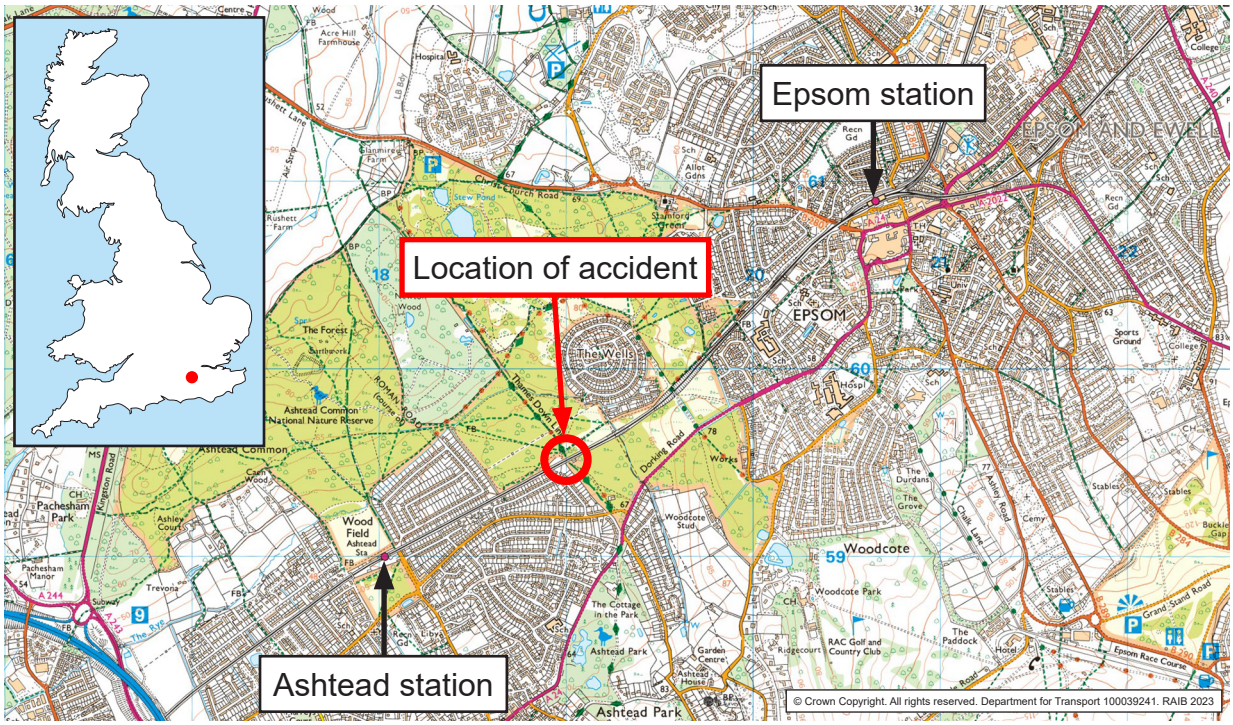

Figure 1: Extract from Ordnance Survey map showing location of accident at Lady Howard crossing.

Context

Location

6 Lady Howard crossing is situated in Surrey, between the stations at Epsom (1.3 miles (2.1 km) away) and Ashtead (0.7 miles (1.1 km) away). The line is used by South Western Railway trains running from London Waterloo to Guildford and Dorking, as well as Southern trains from London Victoria to Horsham. The crossing is 15 miles 43 chains[1] from a datum point at London Waterloo measured via Worcester Park.

[1] A unit of length equal to 66 feet or 22 yards (around 20 metres).

7 The railway at this location runs broadly north-east to south-west and comprises two tracks, known as the up and down Portsmouth lines (towards and away from London respectively; figure 2). An electrically live conductor rail, energised at 750 V DC, is located adjacent to each track to provide power to trains. The maximum permitted speed for trains travelling in either direction over the crossing is 60 mph (97 km/h). Signalling in this area is controlled from Wimbledon Area Signalling Centre.

8 The crossing itself is part of a footpath and bridleway linking Craddocks Avenue in Ashtead (around 350 metres to the south-east of the crossing) to Ashtead Common on the north-west side of the railway.

Figure 2: Google Earth view of the crossing.

Organisations involved

9 Network Rail is the owner and maintainer of the railway infrastructure at the location of the accident, which includes Lady Howard crossing and the land inside and including the boundary fences. It also employed the staff responsible for gathering data about the crossing and for assessing and managing its safe use (see paragraphs 27 and 28). Lady Howard crossing falls within Network Rail's Wessex route on its Southern region.

10 Govia Thameslink Railway, under its Southern brand, operated the train involved in the accident as well as the train that passed the crossing in the opposite direction just before the accident. It also employed the drivers of both trains.

11 Network Rail and Govia Thameslink Railway freely co-operated with the investigation.

The level crossing

12 In common with many footpath and bridleway crossings (see paragraph 13), Lady Howard crossing does not have any active protection, such as lights, to warn of approaching trains, or barriers to restrict access over the crossing. Crossing users on foot are expected to stop, look and listen for approaching trains, and to make their own decision about whether or not it is safe to cross. Telephones and instructions are provided for equestrian users to contact the signaller to ask permission before crossing. This is because the railway perceives that there is an additional risk involved in taking horses over a crossing of this type and the mitigation of this risk involves the signaller checking whether any trains are approaching the crossing before giving permission to cross.

13 Nationally, at the time of writing, there are 1336 crossings of the same type as Lady Howard (as described in paragraph 12) on Network Rail's infrastructure. On the Wessex route, there are 154 such crossings, out of a total of 315 level crossings.

14 On each side of Lady Howard crossing, users enter through a latched gate that opens towards the railway. The gate leads users through the railway boundary into a corridor laid with an asphalt surface. This corridor is enclosed with metal fencing, approximately 1.25 metres tall. Signs at each gate warn users of the following:

- to 'Stop, Look, Listen – Beware of trains'
- that cyclists should dismount
- that people in charge of animals should telephone the signaller before crossing
- that users should remove their headphones before crossing
- not to touch the live rail
- not to trespass on the railway
- that there have been several near fatalities at this crossing.

At the time of the accident, some of these signs had been painted with graffiti (figure 3).

15 RAIB measured the fenced corridor inside the gate on the Ashtead Common side of the crossing (the approach used by the pedestrian involved in the accident) to be 4.5 metres long. This ends with a white line painted on the asphalt surface 2 metres from the nearest rail of the up Portsmouth line (figure 4). This white line, known as the 'decision point', is the notional point at which users on foot are expected to make a decision as to whether or not it is safe to cross the railway. For crossing users with horses, Network Rail uses a decision point 3 metres from the nearest rail, although this point is not marked on the ground.

16 At the marked decision point, the metal fencing opens out in both directions along the railway. RAIB measured the sighting distances (the distances at which approaching trains can be seen by crossing users) in each direction at this point. On the Ashtead Common side, a user standing at the decision point can see for around 440 metres in the direction towards Epsom (the direction from which the train involved in the accident approached). Beyond this point the railway curves to the left from the observer's point of view (figure 5 and figure 6). In the other direction, the railway is straight and users can see for at least 1000 metres to Ashtead station.

Figure 3: The entrance to Lady Howard crossing, approaching from Ashtead Common (the direction of the pedestrian at the time of the accident).

Figure 4: Inside the gate at Lady Howard crossing showing the decision point, approaching from Ashtead Common.

Figure 5: View from the decision point on the Ashtead Common side of Lady Howard crossing, looking towards Epsom.

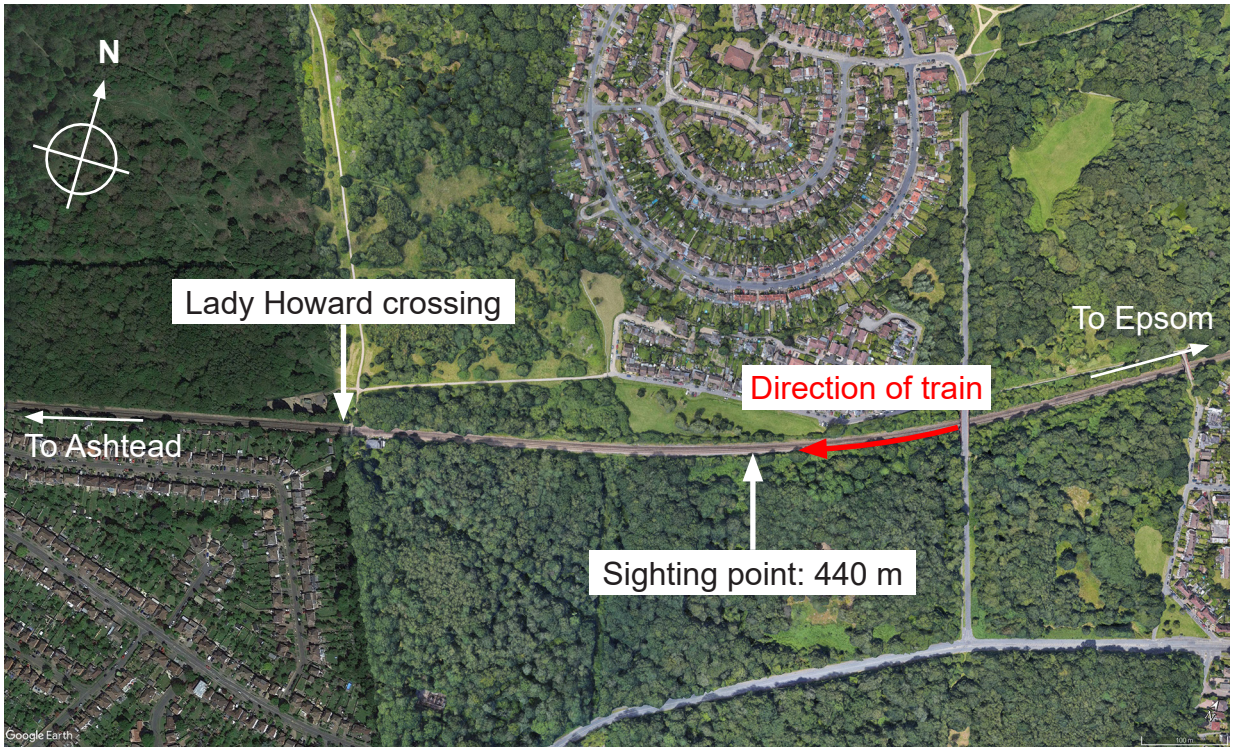

Figure 6: Google Earth view of the location, showing the crossing and the left-hand curve in the direction towards Epsom.

17 The distance between the two decision points (located 2 metres from the nearest rail on each side of the crossing) is known as the 'traverse distance'. RAIB measured this distance to be 9.3 metres. Because Lady Howard is also a bridleway crossing, Network Rail's measurement of the traverse distance starts at the decision point 3 metres from the nearest rail (paragraph 15) and ends 2 metres beyond the farthest rail. Network Rail measured the traverse distance to be 10.2 metres, which is comparable to RAIB's measurement (accounting for the additional metre).

18 Network Rail uses the traverse distance to calculate the amount of time it takes a user to cross. Network Rail uses a defined walking speed of 1.189 m/s for this calculation which, in some instances (including at Lady Howard crossing), is reduced by 50% to allow for vulnerable users (such as families with young children, dog walkers, or the elderly, who may walk slower). Including this 50% allowance results in a traverse time of 12.87 seconds. This is therefore the minimum required sighting time in each direction for trains approaching the crossing at the maximum permitted speed on the line (in this case, 60 mph or 97 km/h). A train at that speed will cover 345 metres in that time; hence, this is the minimum sighting distance that users require to decide if it is safe to cross.

19 Because the actual sighting distance exceeds the required sighting distance on both sides of Lady Howard crossing (440 metres towards Epsom and over 1000 metres towards Ashtead), there is no requirement for the crossing to be fitted with any type of additional protection that may be used for reduced sighting distances, such as a whistle board instructing train drivers to sound the train horn on the approach to the crossing.

20 Network Rail's most recent risk assessment (see paragraph 57) for Lady Howard crossing before the accident (dated October 2021) noted that an average of 201 users and 225 trains per day passed over the crossing. Users were identified as mainly being recreational, using the crossing to access Ashtead Common.

21 Network Rail assesses the risk of all its level crossings on two criteria. These are:

- the risk to an individual user of the crossing (rated from A to M, where A is the highest risk)
- the total, collective risk of harm to crossing users and those on board trains (rated from 1 to 13, where 1 is the highest risk).

The October 2021 risk assessment for Lady Howard crossing rated it as B2, ranking it the sixth highest risk footpath crossing on the Wessex route.

22 The October 2021 risk assessment documented six near misses at the crossing between 28 March 2019 and 29 March 2021 and one fatality on 9 August 2019, which Network Rail recorded as a deliberate act. The October 2021 risk assessment also recorded that Network Rail installed a motion-activated camera at the crossing, in response to a number of incidents that it classified as deliberate misuse.

Trains involved

23 The train involved in the accident, reporting number 5Z56, was the 14:05 hrs empty coaching stock movement (a train movement without passengers) from Selhurst depot to Dorking down sidings. It was a class 377 train formed of 10 coaches. The train was fitted with an on-train data recorder (OTDR) but not with forward-facing CCTV (FFCCTV) cameras.

24 The train which passed the crossing just before the accident, reporting number 1I37, was the 14:14 hrs passenger service from Horsham to London Victoria. It was also a class 377, formed of 8 coaches. This train was fitted with an OTDR as well as an FFCCTV camera, but not a camera looking behind the train. This means that there was no rearward-facing CCTV evidence available.

People involved

25 The pedestrian was an 85-year-old female from Hampton, south-west London. Her eyesight prescription showed that she had a mild astigmatism (a cause of blurred vision that can be corrected with glasses or contact lenses), but good distance vision. She also used a hearing aid and, while her mobility was good, the trolley she used was described to RAIB as also acting as an aid to standing. Although RAIB could not establish with certainty whether the pedestrian was familiar with the crossing, the circumstances suggest that, while she was unlikely to have used it regularly, it is possible that she had used it before.

26 The driver of train 5Z56 was based at Selhurst depot and had worked for Southern since November 2001. His competence assessments were up to date with positive feedback about his performance and no reported issues of concern.

27 The level crossing manager (LCM) with responsibility for Lady Howard crossing had worked for Network Rail since 2000, with the exception of one year working for a train operator. He had worked as an LCM in this area since 5 November 2018. Lady Howard was one of around 48 crossings that fell within his area of responsibility.

28 The route level crossing manager (RLCM) for Wessex route, to whom the LCM reported, joined Network Rail in 2003 and began managing level crossings about two years later. He had been RLCM for about 10 years and, at the time of the accident, managed a team of five LCMs. Since the accident (but not as a response to it), Network Rail's Wessex route has restructured the organisation of these roles, and the RLCM now works at a regional level.

External circumstances

29 The weather at the time of the accident was sunny and warm, about 18°C, with clear visibility. The sun was to the right of the pedestrian as she approached the crossing (in the direction towards Ashtead), the same direction from which the train that passed the crossing just before the accident approached. It is possible that the sunlight played a role in the accident (see paragraph 46).

The sequence of events

Events preceding the accident

30 At around 14:33 hrs on the day of the accident, Network Rail's camera at Lady Howard crossing recorded the pedestrian using the crossing for the first time that day. The pedestrian was walking towards Ashtead Common with a dog and a wheeled trolley bag.

31 At 14:49:06 hrs, the front of train 1I37 passed over Lady Howard crossing, travelling towards Epsom on the up Portsmouth line (from right to left when viewed from the Ashtead Common side of the crossing) at a speed of approximately 50 mph (80 km/h). As the train passed the crossing, its FFCCTV system recorded the pedestrian standing, stationary, waiting inside the boundary gate on the Ashtead Common side of the crossing, about 1.9 metres back from the white line marking the decision point and looking towards the oncoming train. The field of view of the camera at the crossing also showed the dog waiting stationary while train 1I37 passed the crossing.

32 Around one second after the front of train 1I37 passed the crossing, the front of train 5Z56 emerged round the curve on the down Portsmouth line. Train 5Z56 was about 440 metres from Lady Howard crossing at that time, travelling from the Epsom direction, and would have been visible from the crossing. After about 6 seconds, from the point of view of someone standing on the Ashtead Common side of the crossing, the front of the approaching train 5Z56 would have been obscured behind train 1I37 as it moved away.

33 Less than one second later, the rear of train 1I37 had cleared Lady Howard crossing, and the pedestrian started to move towards the decision point. The camera at the crossing showed that she briefly turned her head to the left as she started to move forwards and did so again as she crossed the decision point. During both of these glances, the front of train 5Z56 would have been hidden behind train 1I37. The pedestrian crossed the decision point about 4 seconds after train 1I37 had cleared the crossing.

Events during the accident

34 Around one second after the pedestrian crossed the decision point, the front of train 5Z56 emerged from behind train 1I37 and would have been visible from the crossing. The crossing would also now have been visible from the driving cab of the train. At this point, OTDR evidence shows that train 5Z56 was travelling at 62 mph (100 km/h) and that it was about 130 metres, or approximately 4.7 seconds, from the crossing. CCTV evidence from the crossing shows that the pedestrian was at that point moving across the up Portsmouth line, and that she was looking down and ahead.

35 Approximately 2.7 seconds later, the driver of train 5Z56 sounded the train's horn. The pedestrian, by now about to cross the down Portsmouth line, responded by looking to her left and starting to hurry across this line towards the exit of the crossing. The collision occurred at about 14:49:24 hrs.

Events following the accident

36 The pedestrian sustained injuries that were immediately fatal. The driver applied the emergency brake just over one second after the collision, and the train subsequently stopped about 315 metres beyond the crossing. The driver used the GSM-R (Global system for mobile communications – railway) train radio system to report the accident to the signaller and subsequently reported it to his employer.

37 Emergency services and Network Rail staff attended the scene from around 15:20 hrs. The driver was authorised to take the train on to Ashtead station where he was relieved, and another driver returned the train to Selhurst depot.

Analysis

Identification of the immediate cause

38 The pedestrian crossed into the path of train 5Z56 as it approached.

39 The FFCCTV footage from train 1I37 and images from the CCTV camera at the crossing (paragraph 22) showed that the pedestrian had waited for train 1I37 to pass the crossing, and that she then crossed behind it, having looked twice to her left before passing the decision point. The pedestrian did not look again to her left until she heard the horn of train 5Z56, after which she attempted to hurry to the other side of the crossing.

40 RAIB determined that the driver's reaction time in sounding the horn after seeing the pedestrian, which at most was about 2.7 seconds, was within the bounds of an appropriate response based on research[2] into car drivers' reaction times. Furthermore, if the driver had applied the train's emergency brake instead of (or as well as) the horn, it would have had no effect on the train's speed before the accident because the nature of the train's braking system means that there is a delay of about 3 seconds between applying the brakes and the beginning of deceleration. Finally, the apparent discrepancy between the train's speed of 62 mph (100 km/h) as recorded on the OTDR on approach to the crossing, and the maximum permitted speed on that line of 60 mph (97 km/h), is within the margin of tolerance allowed in rail industry standards.[3]

Identification of causal factors

41 The accident occurred due to a combination of the following causal factors:

a. The pedestrian was apparently unaware that train 5Z56 was approaching when she made the decision to cross (paragraph 42).

b. The pedestrian did not perceive the risk arising from the possibility that the passing train was hiding another train (paragraph 48). This is a possible causal factor.

Each of these factors is now considered in turn.

Awareness of the train

42 The pedestrian was apparently unaware that train 5Z56 was approaching when she made the decision to cross.

43 Based primarily on the CCTV evidence from the camera at Lady Howard crossing (paragraph 22), RAIB has concluded that the pedestrian had probably neither seen nor heard the approach of train 5Z56 when she started to cross. There is no evidence to suggest that she was aware of this second train when she made the decision to cross, or that she was aware of it but had misjudged the time available to cross safely.

[2] Coley, G., Wesley, A., Reed, N. & Parry, I. (2009). Driver reaction times to familiar but unexpected events. TRL Report 313.

[3] RIS-2273-RST 'Post Incident and Post Accident Testing of Rail Vehicles', issue 2, December 2017.

44 RAIB created a computer model of the two trains passing at the crossing, to determine what may or may not have been visible to the pedestrian at the two points when she looked to the left, towards the approaching train 5Z56 (paragraph 35). The model was based on the OTDR evidence from both trains, FFCCTV footage from train 1I37, footage from the CCTV camera at the crossing, and RAIB's survey data for the crossing. Because the OTDR and CCTV data sources are not synchronised, and must be cross-referenced manually, there is a small level of inaccuracy (fractions of seconds) possible with this kind of analysis. However, RAIB has determined that the conclusions which follow reflect the best available evidence.

45 When the pedestrian looked twice to the left, the front end of train 5Z56 (which is the most conspicuous part of the train, being painted yellow and displaying headlights) was hidden behind train 1I37, which was receding from the crossing. The front end of train 5Z56 did not re-emerge from behind 1I37 until after the pedestrian had started to cross. Although it may have been possible for the pedestrian to have seen the side of train 5Z56 in the gap beyond train 1I37 and before the railway curved to the left out of view, it would have appeared very small at that distance and not particularly conspicuous (figure 7). This is in part because the green and white painted livery of the train would have provided relatively low contrast against the background of green vegetation.

46 The pedestrian was wearing prescription sunglasses and had been facing towards Ashtead just before crossing, in the direction of the approaching train 1I37. In that position and at that time of day, she was almost directly facing the sun. When she turned to look towards the left, there may have been some after-effects of facing the sun that could have reduced her sensitivity to contrast, and this may have been further attenuated by the sunglasses. However, the predominant factor affecting the pedestrian's ability to see the oncoming train 5Z56 was the presence of train 1I37 as it moved away from the crossing. This would have been much more conspicuous and largely hid the approaching train, 5Z56, from view.

Figure 7: Computer-generated reconstruction of the view from the pedestrian's perspective looking to her left as she started moving towards the crossing.

47 The driver of train 5Z56 did not, nor was he required to, sound the train's horn on the approach to the crossing, until a few seconds before the accident when he reacted to seeing the pedestrian ahead. In the absence of a train horn, the noise generated by an electric train at distance is relatively inconspicuous, and again would have been masked by the similar noise being produced by train 1I37, which was closer. The pedestrian also used a hearing aid, although her prompt response to the train's horn when it sounded just before the accident indicates that she was able to hear this warning.

Perception of risk

48 The pedestrian did not perceive the risk arising from the possibility that the passing train was hiding another train. This is a possible causal factor.

49 Among the signage at the crossing is an instruction for users to 'Stop, Look, Listen – Beware of trains'. The CCTV evidence shows that the pedestrian did stop for the first train passing the crossing (1I37) and then looked twice to the left before starting to cross.

50 When the pedestrian took the second glance, as she passed the decision point, RAIB calculated that the rear of train 1I37 was around 100 metres beyond the crossing. RAIB has also concluded that, at that point, it is more likely than not that the pedestrian would have been looking towards her left for oncoming trains on the down Portsmouth line to the right of, rather than beyond the front of train 1I37 and into the diminishing gap between it and the curve of the railway line.

51 Visibility past the trailing end of train 1I37 towards the down Portsmouth line would have been greater than 100 metres (figure 8). Given the extent of the visibility available to the pedestrian, it is possible that she decided that this was sufficient distance to be able to safely traverse the crossing, not realising that a train travelling at the maximum permitted speed of 60 mph (97 km/h or 27 m/s) could cover the visible distance in around 4 seconds. At the time of the accident, there were no warnings at the crossing to alert users to this risk.

Figure 8: Computer-generated reconstruction of the view from the pedestrian's perspective looking to her left as she crossed the decision point.

Identification of underlying factor

Risk management

52 Network Rail had not provided any effective additional risk mitigation at the crossing despite having deemed the risk to be unacceptable. This is a probable underlying factor.

Background information

53 The Office of Rail and Road (ORR), the safety authority and economic regulator for Britain's railways, has set out principles and guidance for managing level crossing safety in a document[4] published in June 2021. This document includes guidance that states '*It is essential that decisions and options for level crossing control measures are informed by a suitable and sufficient assessment of the risks*'.

54 Under health and safety law, duty holders (in the case of this crossing, Network Rail) are required to reduce the level of risk so far as is reasonably practicable. Options for controlling the risk should be considered according to the hierarchy of prevention.[5] Eliminating the risk (such as through closure of the level crossing) should be the first consideration, followed by engineering controls (for instance, technologies providing an active warning system), and finally administrative controls (such as signage and instructions).

55 Deciding what is reasonably practicable is a matter of judgement for each duty holder but, given the risks to railway staff, passengers and members of the public, the ORR guidance document states that risk control measures should be deemed reasonable unless the cost of the measure is grossly disproportionate to the risk. This can be determined by using a cost-benefit analysis as part of the risk management process.

56 The ORR guidance document also includes a principle which states:

> *'User Principle 6: Provide a suitable warning for users that a train is approaching to enable them to be in a safe place before a train passes. To help you achieve this, you should consider, at least, these factors:*
>
> *(a) an active warning system in preference to relying on the user to determine whether or not a train is approaching the level crossing;*
>
> *(b) user behaviours and actions in relation to the operation of the level crossing, e.g. to prevent them from being trapped within a closed crossing or starting to cross when it is unsafe to do so;*
>
> *(c) foreseeable actions of different users in a 'another train coming' scenario, these trains may be coming in the same or different directions; one may be inaudible and hidden from view…'*

57 Network Rail's process for managing risk at level crossings begins with an assessment by an LCM of the crossing. This includes measuring sighting distances and the traverse length and conducting a census of both users and trains over the crossing. The results of this assessment are entered into Network Rail's computer-based all level crossing risk model (ALCRM), which calculates a quantitative risk score for the crossing (paragraph 21).

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[4] https://www.orr.gov.uk/sites/default/files/2021-06/principles-for-managing-level-crossing-safety-june-2021_0.pdf

[5] The Management of Health and Safety at Work Regulations 1999, schedule 1.

58 The LCM uses the information from the site visit and the output from ALCRM to produce a written narrative risk assessment (NRA). The NRA documents their findings and, if the risks are deemed not to be as low as reasonably practicable, proposes options to mitigate the risk. The quantitative risk score from ALCRM is used to calculate a cost-benefit ratio for each of the proposed risk mitigations. The cost-benefit ratio is a whole-life calculation of how much each proposed measure costs[6] and by how much they are expected to reduce the risk. The LCM then uses their experience and professional judgement to supplement this calculation and determine whether the options are reasonably practicable to implement, considering qualitative factors associated with risk at the crossing as well as the results of any cost-benefit analysis.

59 The LCM submits the NRA and their risk mitigation option proposals to the RLCM, who reviews and (as appropriate) countersigns them. In Network Rail's Wessex route, the RLCM takes these options, along with those for other level crossings, to a four-weekly 'tactical group' meeting, which also involves the route's asset managers for signalling and scheme renewals. This tactical group takes decisions about which options are progressed, based on the available funding and the route level crossing strategy.

60 The latest level crossing strategy for Network Rail's Wessex route before the accident (dated January 2019) covers the period from 2019/20 to 2023/24. While the previous route strategy focused on closing level crossings where possible, the emphasis of the strategy in force at the time of the accident was on reducing risk through engineering solutions as part of upgrades or renewals, where closure is difficult or impossible. The strategy is supported by its own, ring-fenced budget which can only be used for level crossing risk reduction in accordance with the strategy. The ORR has made additional funds available which are prioritised towards risk reduction at user worked crossings (a type of level crossing typically providing vehicular access to private land).

61 Closing a crossing outright (that is, closing it without providing alternative access over the railway at that location) is not always viable because it can involve issues such as extinguishing legal rights of way, or the consequent increased risk on diversionary routes. The main alternative options to outright closure are to install a footbridge (which, for a bridleway crossing, needs to include ramps to provide access for people with reduced mobility or horse riders) or to install miniature stop lights (MSLs).

62 MSLs consist of red and green lights. The green light normally shows to users and indicates that the crossing is clear. But an approaching train automatically changes the light to red and sounds an audible alarm, to indicate that users must stop. Network Rail told RAIB that this alarm also includes a spoken warning which is triggered if another train is approaching the crossing soon after the first one has passed. This message states 'Warning – another train may be approaching'.

[6] In May 2022, Network Rail issued new guidance on these cost-benefit analyses, raising the threshold for what is considered reasonably practicable by stating that mitigations should be considered for implementation unless the costs are 'grossly disproportionate' to the benefits. This change was not made in response to this accident.

63 There are several types of MSL system that use different means to detect approaching trains, depending on the configuration of the crossing. In many cases, the MSL system can be installed independently of the main railway signalling system. This is known as an 'overlay' system. However, if the crossing is in a more complex location (such as near signals, points or stations), the MSL technology will have to be integrated with the signalling system, significantly increasing its cost and complexity.

64 Various MSL solutions have been pursued by Network Rail, and it stated that the development and approval of these products has been fraught with difficulties. Nevertheless, recent developments in technology have made it possible to install overlay MSL systems at crossings which would in the past have needed an integrated design. One such system, called 'Flex', was initially approved by Network Rail on 12 April 2021 for use in certain circumstances (including the layout at Lady Howard crossing), following trials at another crossing on the Wessex route.

65 Another option for mitigating level crossing risk is to install supplementary audible warning devices (SAWDs). Using radar to detect an approaching train, these devices play a synthesised recording of a train horn through a speaker at the crossing itself. Because the reliability of SAWDs does not meet Network Rail's standards for safety-critical systems, Network Rail considers them to be supplementary to an actual train horn. As such, SAWDs are only installed at crossings where whistle boards are provided, requiring the train driver to sound the horn because sighting distances are insufficient to provide the necessary warning time. The synthesised recording is triggered at about the same time as the sounding of the actual train horn.

Risk management at Lady Howard crossing

66 The latest NRA for Lady Howard crossing undertaken before the accident, dated October 2021, expressed concerns about vulnerable users and frequent misuse. The installation of additional signage (see paragraph 74) and the crossing camera (paragraph 22) were intended as short-term mitigation measures for these concerns. In the medium term, the NRA stated that installing MSLs was being progressed and, in the longer term, that Network Rail's aspiration was to close the crossing. However, in the meantime, the NRA stated that the risk was not considered to be as low as reasonably practicable. Similarly, the previous NRA in 2020 referred to the risk being 'unacceptable'.

67 The 2021 NRA considered four options to mitigate the risk. These were closure, a ramped (accessible) footbridge, a stepped footbridge, or MSLs. Although the cost-benefit calculations for closure and a stepped footbridge were positive, the LCM concluded that these options were not viable. This was because, if Lady Howard crossing was closed, its risk would be transferred to the nearby Craddocks Lane footpath crossing, about 380 metres towards Ashtead station. The LCM also considered that gaining the necessary consent and approval for a ramped bridge would be unlikely, due to the size of such a bridge taking it outside of Network Rail's land, and that a stepped footbridge would neither be accessible nor suitable for equestrian users.

68 The LCM therefore recommended installing MSLs, even though the cost-benefit ratio for this option was marginal.[7] RAIB has reviewed NRAs for Lady Howard crossing going back to 2017, and on each occasion the recommendation made was to install MSLs. The evidence available to RAIB indicates that Network Rail had approved and allocated funds for installing MSLs at Lady Howard crossing every year since at least 2017. However, the development of new MSL technology that would offer a solution at Lady Howard crossing has taken several years, so MSLs had not been installed at the crossing when the accident occurred on 21 April 2022.

69 Because there is a railway signal on the approach to the crossing, the site was not compatible with the simple MSL overlay system, and until recently a suitable alternative had not been available (paragraph 64). The approach taken by Network Rail's Wessex route was therefore to accept the level of risk at the crossing and defer implementation at complex sites such as Lady Howard crossing until a suitable solution (such as the Flex design) became available.

70 While waiting for these solutions, the route progressed the implementation of the simple overlay MSL system at sites where it was compatible. Twelve such sites were identified. These included one footpath crossing in Wiltshire, with the remainder being user worked crossings (following ORR's prioritisation by additional funding of these crossings; paragraph 60). At the time of writing this report, MSLs have been installed at three of the twelve crossings, including the footpath crossing.

71 Network Rail stated it has also faced issues in delivering MSLs at a national level. This is because many of the level crossings that were feasible for closure have already been closed, meaning that LCMs were frequently relying on MSLs as a risk mitigation. (RAIB has seen several examples of other NRAs, similar to those undertaken for Lady Howard, in which the options of closure or a footbridge are not deemed to be viable, leaving MSLs as the recommended solution.) This has created high demand for both the equipment and the resources to install the MSL systems and reduced their availability, thereby slowing delivery programmes.

72 The 2021 NRA for Lady Howard crossing also identified the 'second train coming' risk (sometimes referred to as 'another train coming'), in which an approaching train can be hidden by a passing train on the nearest line, as occurred in this accident. This risk is present on any railway with two or more tracks and increases with the frequency of train traffic, but it is almost impossible to determine where trains will actually pass each other. As with other NRAs seen by RAIB, while the risk is identified, it is not specifically addressed or controlled in the conclusions and proposed options, partly because there are few options available to mitigate this risk. Although MSLs may be effective at addressing the second train coming risk, these warnings may not entirely eliminate it, because they are dependent on users recognising the warning, understanding its significance, and then acting upon it. Recognition in particular may be affected if the user is hearing impaired or wearing headphones.

[7] RAIB reviewed the cost-benefit calculations and identified some inconsistencies in the analysis, which Network Rail was unable to resolve. Since these inconsistencies did not affect subsequent safety-related decision-making for Lady Howard crossing, RAIB determined that they were not causal to the accident. However, under different circumstances, these calculations may be pivotal to such decision-making.

Interim risk mitigations

73 Although Network Rail had recognised that the risk at Lady Howard crossing was unacceptable, and that a suitable mitigation solution was not yet available, there is little evidence that alternative options were considered as an interim measure to reduce risk to crossing users.

74 Network Rail had implemented some mitigations at Lady Howard crossing, but these did not prevent the accident on 21 April 2022. Between August 2019 and July 2020, Network Rail installed additional signs at Lady Howard crossing, which were intended to raise awareness of the risks of near misses and to warn users to remove headphones before crossing (figure 3). The 2021 NRA also recorded the installation of the motion-activated camera, primarily to monitor misuse of the crossing. These signs and the camera were in place at the time of the accident.

75 Train drivers are not required to sound the horn at Lady Howard crossing because the sighting affords sufficient warning time to be able to cross safely (paragraph 19). There is no evidence that this was considered as an interim mitigation before the accident occurred. Network Rail is mindful of the noise pollution associated with train horns, particularly in residential neighbourhoods. In the absence of a requirement to sound the train horn, Network Rail also considers SAWDs to be unsuitable because they are only intended to be supplementary to the train horn (paragraph 65).

76 In other locations on Network Rail's infrastructure, temporary speed restrictions have been applied as an interim risk mitigation for level crossings, as slowing trains down increases the warning time for crossing users. These are usually used to mitigate the risk of insufficient sighting at the crossing, for example, due to foliage growth reducing a crossing user's view. Although it cannot be known for certain what effect a temporary speed restriction would have had on this particular accident, it is possible that it would reduce the likelihood of a user being struck.

77 There is no evidence that speed restrictions were considered as an interim mitigation for the risks at Lady Howard crossing despite the risk at the crossing being deemed unacceptable (paragraph 66). While it is not clear why speed restrictions were not considered as a mitigation measure, Network Rail stated to RAIB that the introduction of speed restrictions to address the second train coming risk could potentially extend to a large number of crossings and cause very significant disruption to railway operations.

Previous occurrence of a similar character

78 At about 08:24 hrs on 1 May 2019, the driver of the 07:25 hrs passenger service from London Victoria to Horsham reported a near miss with a pedestrian with a bicycle at Green Lane footpath crossing, about 0.5 miles (0.8 km) south-west of Ashtead. The latest NRA for Green Lane (dated April 2022 and carried out by the same LCM that undertook the assessment at Lady Howard crossing) recorded that the pedestrian walked out from behind another passing train.

79 The NRA recorded the risk rating for Green Lane as C2 and stated that this ranked it as the second highest risk of all footpath crossings on the Wessex route. The LCM concluded that the risk was not tolerable or as low as reasonably practicable. As with the NRA for Lady Howard, the NRA for Green Lane also identified the 'second train coming' risk, highlighting that this risk is exacerbated by the use of longer 10- and 12-coach trains on this line and the frequency of the train service. As with Lady Howard crossing, no specific mitigations to address this risk were identified or implemented, although the LCM recommended that Green Lane crossing should be closed because of different circumstances relating to access rights over the crossing.

Summary of conclusions

Immediate cause

80 The pedestrian crossed into the path of train 5Z56 as it approached (paragraph 38).

Causal factors

81 The causal factors were:

a. The pedestrian was apparently unaware that train 5Z56 was approaching when she made the decision to cross (paragraph 42, **Recommendation 1**).

b. The pedestrian did not perceive the risk arising from the possibility that the passing train was hiding another train (paragraph 48, see paragraph 92 and **Recommendation 1**). This is a possible causal factor.

Underlying factor

82 Network Rail had not provided any effective additional risk mitigation at the crossing despite having deemed the risk to be unacceptable (paragraph 52, **Recommendations 1 and 2**). This is a probable underlying factor.

Previous RAIB recommendations relevant to this investigation

83 The following recommendations, which were made by RAIB as a result of its previous investigations, have relevance to this investigation.

Fatal accident at Gipsy Lane footpath crossing, Needham Market, Suffolk, 24 August 2011, RAIB report 15/2012, Recommendation 3

84 This recommendation read as follows:

Recommendation 3

The intent of this recommendation is for Network Rail to develop guidance for use by the level crossing teams on the circumstances under which short-term mitigation measures are to be implemented at level crossings that have insufficient sighting or warning of approaching trains.

Network Rail should develop its guidance for use by level crossing teams to include:

- a clear definition of what constitutes a 'higher than usual' number of vulnerable users;
- implementing risk-reduction measures at crossings that have deficient sighting or warning times; and
- when speed restrictions must be imposed, what type of speed restriction is to be used (emergency, temporary or permanent) and the timescales for imposing speed restrictions.

85 Network Rail's response to this recommendation focused largely on developing guidance to identify and calculate the proportion of vulnerable users of its level crossings and producing guidance on interim risk mitigation for level crossings with deficient mitigation. On 9 June 2014, ORR reported to RAIB that it considered the recommendation to be implemented.

86 The relevance of this recommendation to the current investigation lies in the short-term risk reduction measures for level crossings with insufficient warning of approaching trains. Although sighting at Lady Howard was sufficient under normal circumstances, the causal factors of the accident were associated with insufficient warning of the second train. Therefore, recommendation 2 of this report takes a broader approach to interim risk mitigations at high-risk level crossings.

Fatal accident at Tibberton No. 8 footpath crossing, 6 February 2019, RAIB report 13/2019, Recommendation 1

87 This recommendation read as follows:

> *Recommendation 1*
>
> *The intent of this recommendation is for Network Rail to understand the risk to crossing users presented by fog at passive level crossings and to ensure that the risk to an individual using a passive level crossing in fog is acceptably low.*
>
> Network Rail should analyse and evaluate the risk of fog affecting the safe use of those passive level crossings where users are entirely reliant on the sighting of trains. This analysis should take into account regional and local variation of the likelihood of fog, its potential impact on visibility and the effectiveness of any existing mitigation measures. Network Rail should then use the output of this evaluation to develop and implement a strategy to adequately mitigate the effects of fog at passive level crossings. …

88 Network Rail's response focused on developing a tool to identify passive level crossings that were historically vulnerable to fog, and on including that tool within the NRA process. The response included consideration of MSLs to mitigate sighting deficiencies but noted the problems in deployment of a wider solution. Network Rail also engaged with industry about the possibility of using whistle boards as a further means of reducing risk where reduced visibility is known to occur.

89 On 6 December 2021, ORR reported to RAIB that it considered the recommendation to be implemented.

90 Although the recommendation concerned a causal factor associated with foggy weather conditions, the factor is analogous to the restricted sighting associated with the second train coming risk which led to the accident at Lady Howard crossing on 21 April 2022.

Actions reported as already taken or in progress relevant to this report

91 From 25 May to 1 June 2022, Network Rail posted staff at Lady Howard crossing for 12 hours a day over a period of seven days to talk to users about how to use the crossing safely. On 26 October 2022, Network Rail delivered a presentation to Ashtead Residents' Association about level crossing safety.

92 On 11 October 2022, Network Rail erected a poster on the approaches to Lady Howard crossing warning users that a passing train can obstruct the view of a train coming on the other line (figure 9). Network Rail told RAIB that the poster would remain in place until MSLs are installed at the crossing.

93 Network Rail is progressing the implementation of Flex MSLs at Lady Howard crossing, with a view to completion in February 2024. In the meantime, it has considered alternative measures, such as convex mirrors or installing SAWDs, but has considered these to be unsuitable. Convex mirrors could cause glare or distraction for train drivers, while Network Rail considers that SAWDs are inappropriate at crossings where whistle boards are not fitted (paragraph 65).

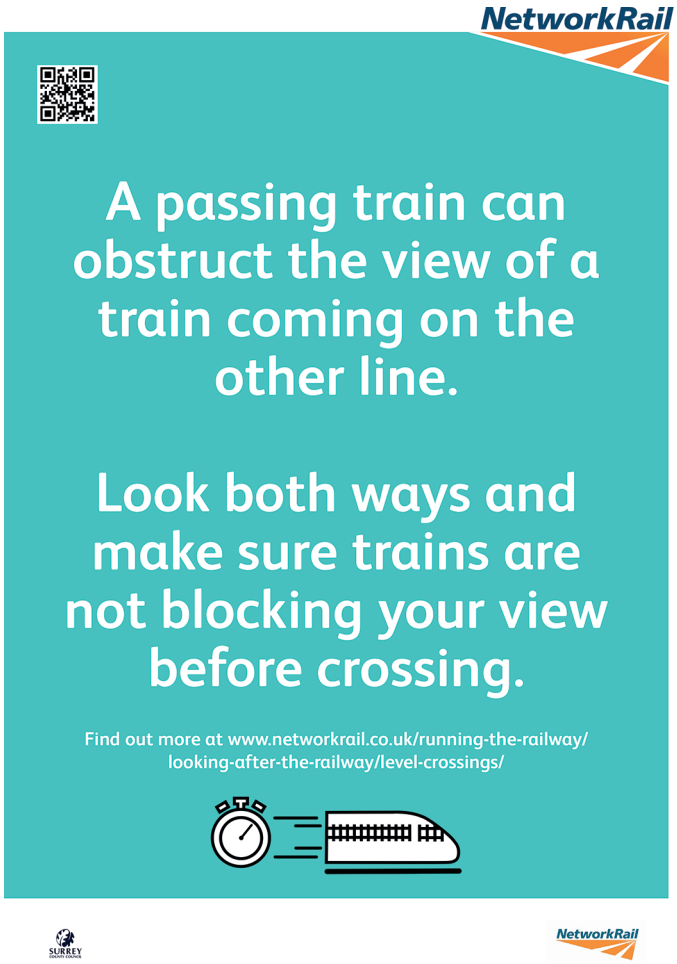

Figure 9: Design of the poster now in place at Lady Howard crossing (courtesy Network Rail).

Recommendations

94 The following recommendations are made:[8]

1 *The intent of this recommendation is to reduce the risk at footpath and bridleway level crossings of a second train approaching being hidden from the view of crossing users by a previously passing train.*

Network Rail should:

- use its existing risk assessment data to identify those footpath and bridleway crossings that present the highest risk to users of a second train approaching being potentially hidden by another train
- at those crossings identified as presenting the highest risk, implement appropriate measures to control the risk to users of a second train approaching
- in deciding what measures to implement, specifically consider technological solutions, as well as user awareness campaigns. It should also consider good practice elsewhere in the rail industry (including internationally) and the predictable limitations of human performance (paragraphs 81a, 81b and 82).

2 *The intent of this recommendation is to ensure that appropriate interim shorter-term risk mitigations are identified and implemented in a timely manner at level crossings that are awaiting long-term solutions to reduce the risk.*

Network Rail should review its existing processes for level crossing risk management and include:

- explicit provision for considering a wider range of short- and medium-term risk mitigation options than is currently the case
- steps to ensure that those responsible for implementing risk controls are aware of all the options available, including those that might offer only incremental reductions in risk or interim mitigation pending implementation of preferred long-term solutions
- documented details of short- and medium-term risk controls, including both technical and non-technical options (paragraph 82).

[8] Those identified in the recommendations have a general and ongoing obligation to comply with health and safety legislation, and need to take these recommendations into account in ensuring the safety of their employees and others.

Additionally, for the purposes of regulation 12(1) of the Railways (Accident Investigation and Reporting) Regulations 2005, these recommendations are addressed to the Office of Rail and Road to enable it to carry out its duties under regulation 12(2) to:

(a) ensure that recommendations are duly considered and where appropriate acted upon; and

(b) report back to RAIB details of any implementation measures, or the reasons why no implementation measures are being taken.

Copies of both the regulations and the accompanying guidance notes (paragraphs 200 to 203) can be found on RAIB's website www.gov.uk/raib.

Appendices

Appendix A - Glossary of abbreviations and acronyms

ALCRM	All level crossing risk model
FFCCTV	Forward-facing closed-circuit television
GSM-R	Global system for mobile communications - railway
LCM	Level crossing manager
MSL	Miniature stop light
NRA	Narrative risk assessment
ORR	Office of Rail and Road
OTDR	On-train data recorder
RLCM	Route level crossing manager
SAWD	Supplementary audible warning device

Appendix B - Investigation details

RAIB used the following sources of evidence in this investigation:

- information provided by witnesses
- information taken from both trains' on-train data recorders (OTDRs)
- video footage taken from the FFCCTV of train 1I37 and from a camera at the crossing
- signalling data
- voice communications
- railway incident control logs
- documentary evidence associated with risk management for Lady Howard and other crossings on Wessex route
- site photographs and measurements
- weather reports and observations at the site
- a review of previous RAIB investigations that had relevance to this accident.

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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (LEEDS TO MICKLEFIELD ENHANCEMENTS) ORDER

DOCUMENT CD.01.21.08

Appendix to Proof of Evidence of Jerry Greenwood, Head of Infrastructure Liability

On behalf of Network Rail Infrastructure Limited

Great Missenden section 257 Order Decision 28.10.2022

Date 06 February 2024

The Planning Inspectorate

Order Decision

Site visit made on 6 September 2022

by Mrs A Behn Dip MS MIPROW

An Inspector appointed by the Secretary of State for Environment, Food and Rural Affairs

Decision date: 28 October 2022

Order Ref: ROW/3285310

- This Order is made under Section 257 of the Town and Country Planning Act 1990 and is known as The Buckinghamshire Council (Public Footpath No 70 (part) Parish of Great Missenden) Public Path Diversion Order 2021.
- The Order is dated 5 March 2021 and proposes to divert part of the public right of way as shown on the Order plan and described in the Order Schedule.
- There was 1 objection outstanding when Buckinghamshire Council (BC) submitted the Order to the Secretary of State for Environment, Food and Rural Affairs for confirmation.

Summary of Decision: The Order is confirmed subject to the modifications set out below in the Formal Decision.

Procedural matters

1. I made an unaccompanied site visit on 6 September when I was able to walk Public Footpath No 70 (FP No 70) on its current line and the Order route on its proposed diversion.

2. In writing this decision I have found it convenient to refer to points marked on the Order Map.

3. BC have requested if the Order is confirmed that Part 2 of the Order Schedule (Description of Site of Alternative Highway) is amended to include the proposed width of the route, which is 3 metres throughout.

The Main Issues

The statutory test

4. Section 257 of the Town and Country Planning Act 1990 (the 1990 Act) provides for an Order to be made authorising the stopping up or diversion of a footpath if it is necessary to do so in order to enable development to be carried out in accordance with a valid planning permission already granted under Part III of the same Act.

Other material considerations

5. In considering whether or not to confirm an Order, the disadvantages or loss likely to arise as a result of the diversion of the way to members of the public generally, or to persons whose properties adjoin or are near the existing highway, should be weighed against the advantages of the proposed Order.

6. The requirements of the Equality Act 2010 should also be considered where appropriate.

Reasoning

Background

7. Sustrans have received funding from the Department for Transport which will enable them to create a Greenway stretching from Uxbridge to Buckingham and Milton Keynes. The Misbourne Greenway between Wendover and Great Missenden will form part of this project and has the aim of setting out a safe and attractive multi-user route away from the busy A413, to encourage walking and cycling, both for leisure and for access to work, school, and amenities. The proposed diversion of FP No 70 would form the southern end of the Misbourne Greenway.

8. Although much of the Misbourne Greenway is a permissive path with agreement of the landowners, the proposed diversion in question here, would retain its status as a public right of way, as agreed by the owner of the land, Road Farm.

9. FP No 70 does not materially affect the creation of the southern section of the Misbourne Greenway but the planning consents granted, require, as part of the conditions for development, that the part of the footpath that crosses the mainline railway via an unmanned level crossing, be stopped up and the crossing removed.

Whether the diversion of the path is necessary to allow development to be carried out in accordance with a valid planning permission

10. I am satisfied that the planning permissions PL/19/4427/FA and 19/04476/APP are extant, albeit PL/19/4427/FA is the permission that directly relates to land upon which the diverted route will sit.

11. The relevant condition in both planning consents states the following:

    - Prior to the approved development being brought into use the following shall be implemented:

        a. The public right of way (GMI/70/4) over Great Missenden level crossing(Great Missenden No.70 Level crossing, Network Rail ref: MCJ2 30m, 3ch) shall be permanently stopped up.

        b. Great Missenden No.70 Level Crossing (Network Rail ref: MCJ2 30m, 3ch) shall be closed; and

        c. Any necessary diversional route shall be completed and operational.

12. In a physical context, there is no need to make any changes to FP No 70 for development to take place. However, for the development to proceed it must comply with the valid planning permissions above and the conditions thereby imposed. Both permissions contain conditions that require that Footpath No 70 is stopped up over the railway crossing, in order that the Level Crossing can be closed. As there are two extant planning permissions presented in support but only one of these is included in the Order, as both are deemed relevant and if the Order should be confirmed, it would be appropriate to modify the Order to record both permissions.

13. The reasons given for this requirement are to ensure the proposed development does not increase footfall across the level crossing, so as to minimise risk to users of the footway and the railway infrastructure and to ensure the safe operation of the

railway. The reasons comply with the National Planning Policy Framework and the Local Plans for the area.

14. The current route of FP No 70 travels east to west across the railway line in a rural location. The line is active and there are currently 79 trains that traverse the crossing in a 24-hour period. Evidence provided suggests that the crossing has been little used in recent years and accordingly the risk posed by the crossing is fairly low.

15. Although likely future use cannot realistically be determined, I do accept Network Rail's view that the new Misbourne Greenway of which this proposed diversion is part, would likely attract a much larger number of users than currently use FP No 70. This would change the dynamic of the use of the area from an infrequently used rural footpath to that of an open and easily accessible surfaced route attractive to walkers, cyclists, families, and those who have mobility restrictions. With a potential increase in use and change in user profile, there would likely be a fundamental rise in the risk of public safety should that part of FP No 70 that crosses the railway line remain open.

16. Whilst ensuring safety of the public is a priority to Network Rail, the operational efficiency that would be affected if there were an incident, near miss, or trespass is also a material factor in their rationale for closing the crossing.

17. The imposition of the planning conditions that require the diversion of the path, in turn determines that the diversion of the path is necessary to enable development to take place, in accordance with planning permission granted under Part III of the 1990 Act. The development is essentially frustrated unless the path is diverted, thus justifying the statutory test.

18. I now move on to consider the advantages and disadvantages of the proposed Order.

Disadvantages v advantages of the proposed Order

19. Confirmation of the proposed Order would result in the loss of that part of FP No 70 that crosses the railway line and heads in a south westerly direction uphill, to meet with GMI/1 on the western side of the railway line. The replacement path would not terminate at a similar point, west of the railway line, but instead would run parallel to the railway line on its eastern side, in a south easterly direction before turning east to connect to the Aylesbury Road. A short walk is then required to reach the underpass that leads across to GMI/1 as well as to other connecting footpaths that are west of the railway line.

20. The objector pointed out that the proposed route was longer, entailing 'a walk alongside the railway line for approximately 0.5 kilometre, a short walk along the Aylesbury Road and then a walk under the railway before walking up GMI/1'. Certainly, if the intention is to reach the GMI/1 at Point A on the map from Leather Lane or the A413, then the proposed route is considerably longer than that of FP No 70. It should be noted however, that users wishing to utilise FP No 70 in this way would likely be recreational walkers as FP No 70 connects to further rural public rights of way to the west of the railway line. With this in mind, the longer distance of the proposed diverted route would be diminutive compared to the total distance generally being travelled in a recreational capacity.

21. The offered diversion, in comparison, does provide a safe shorter route to Great Missenden, avoiding the busy A413 and does not have the limitations of the two sets of stiles and steps of the current footpath, thus being a better suited route for those users with protected characteristics under The Equality Act 2010.

22. The objector stated that the current route of FP No 70 is very pleasant and the alternative route is a much less pleasant walk. It is true that the current footpath offers commanding views and an enjoyable walk across open fields and that the alternative is less pleasing. The diverted route would run alongside the railway track, across an open field, away from the busy A413. This route although not as enjoyable, does however provide a safe green route for users to easily access Great Missenden as well as the GMI/1 via an underpass close to the termination point at E.

23. BC suggested that the Misbourne Greenway, which would be created as a result of this proposed diversion, will result in much higher usage than that observed on the current route of FP No 70, the Greenway benefitting health and exercise and boosting leisure spend and enjoyment of the area. It would also provide a safe off-road route for walkers and cyclists, between Wendover and Great Missenden as there is currently no footway or cycleway on the corresponding section of the A413.

24. BC also advised that the proposed diversion of FP No 70 and the ensuing Misbourne Greenway would provide for long circular walks that are currently not available.

25. Limited weight can be given to the benefits of the Misbourne Greenway as the majority of this route has not yet been realised and consequently the larger picture of this multi-use route has little current relevance to the proposed diversion.

26. The objector noted that the current route of FP No 70 provides a point of crossing to Leather Lane. The section of FP No 70 from the A413 to Point C on the map would be retained, still giving access to Leather Lane. From Point C, the diversion route running south would still provide access to Great Missenden as well as the GMI/1 to the west of the railway line, via the underpass to the south.

27. The objector also considered that the replacement footpath was totally different and unsuitable, although this comment was not expanded upon. I agree that the proposed path is quite different from the current footpath but in many ways its suitability could be found to benefit a large proportion of the public, wanting to head north or south in a safe environment. For those people wanting to travel east or west, the proposed route whilst much longer, is not substantially unsuitable for the type of recreational walk being undertaken.

28. When looking at the overall network in the immediate vicinity, the majority of public rights of way lie to the west of the railway line with very little in the way of connectivity to the east of the railway line. It follows then, that use from east to west of the FP No 70 is likely to be sparse, in correlation with the evidence of use provided. The type of use is also likely to be recreational and part of a longer walk. Thus, the extra length of the proposed diversion, when travelling east or west is not substantially inconvenient or more of a disadvantage than the ability to travel safely.

29. It is acknowledged that the proposed diversion route would be 3 metres wide and surfaced appropriately for multi-use, providing better access opportunities for

families and users with mobility restrictions. The proposed Order route would also negate the need to cross stiles, a railway line, and negotiate steps or an unmade surface in inclement weather. These advantages hold significant weight.

30. There are no properties adjoining or immediately close by the proposed route, so there would be no disadvantages to local residents in this respect.

31. The proposed diversion and to a larger degree, the Greenway as a whole, does support the Buckinghamshire Council Rights of Way Improvement Plan objectives for better connecting the rights of way network, specifically sections EN1 and EN3 ensuring access improvements are strategically planned to meet needs and evolving the network to meet needs and improve connectivity.

Conclusions

32. It is clear that the Grampian conditions imposed in the planning consents for the Misbourne Greenway necessitate that the FP No 70 is diverted in order for the development of the Greenway to take place, or otherwise be frustrated due to non-confirmation of the Order.

33. Both public safety and operational efficiency of the railway are issues that are in the public interest and hold some weight when considering the rationale and merit of the Order.

34. The quite apparent disadvantage of the diversional route is that it is significantly longer. However, the rural nature of the current line of FP No 70 with its limitations of stiles, steps and railway line suggests recreational use by a finite audience. In this context, the additional time and distance would likely represent a proportionally small increase in overall journey time.

35. Whilst the more convenient route across the railway line to join the rural paths on the west of the railway from the A413 would be lost for the small number of people using it, the proposed diversion does offer a route to reach the western side of the railway, albeit longer. There is comparatively greater public benefit in enabling the development to take place, providing a safe, easily accessible route by foot and on bicycle without the need to negotiate the limitations of the current footpath.

36. Having regard to these and all other matters raised in the written representations I conclude that the Order should be confirmed with modifications.

Formal Decision

37. I confirm the Order subject to the following modifications :

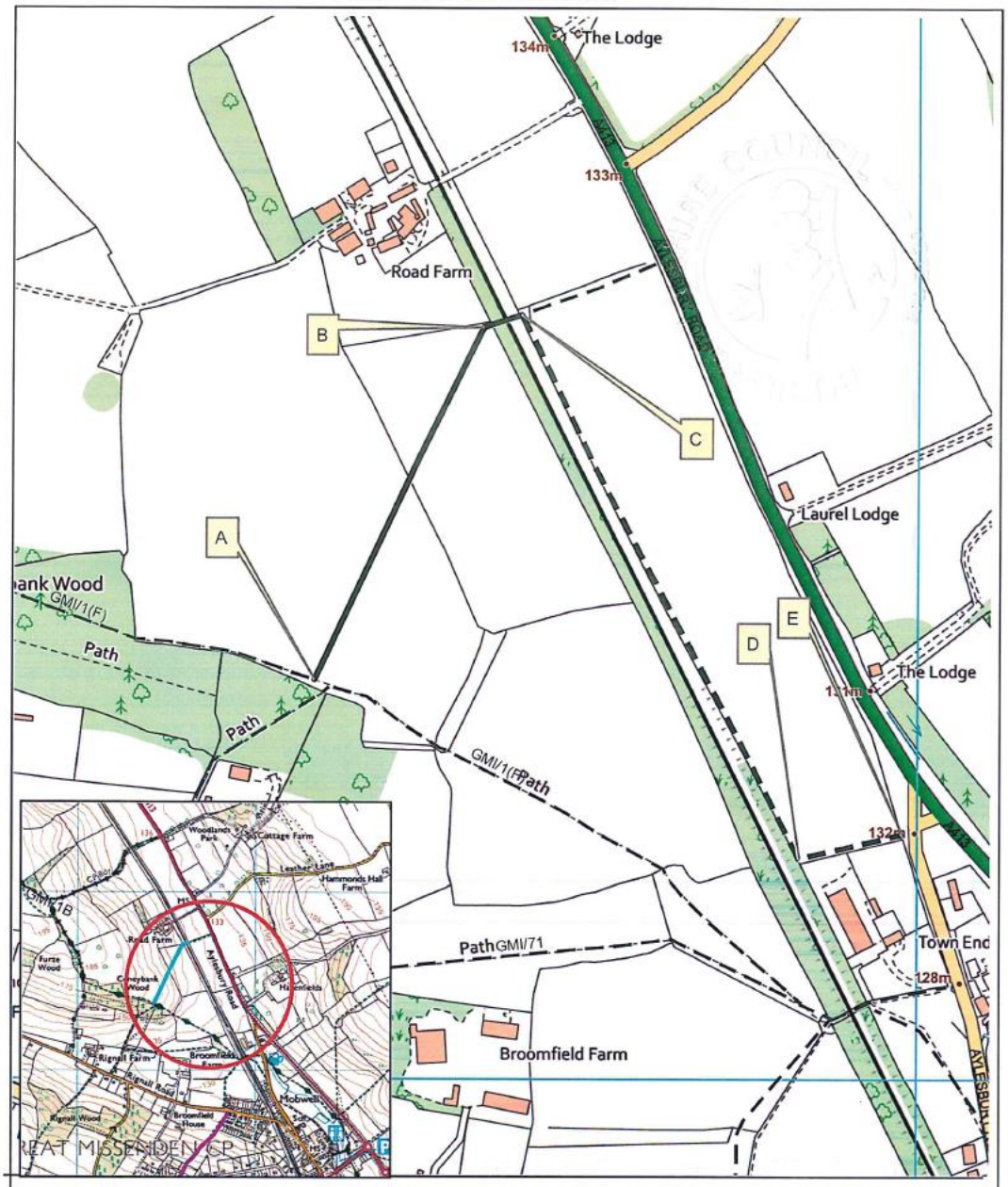
    On the Order, at the end of the first paragraph, delete (Planning Application Reference 19/04476/APP) and insert (Planning Application References 19/04476/APP and PL/19/4427/FA).

    On Part 2 of the Order Schedule, at the end of the description for C-D-E, remove the full stop after the word ‘dashes’ and insert the words ‘with a width of 3 metres throughout’.

Mrs A Behn

Inspector

Town and Country Planning Act 1990
Section 257 Diversion of Public Footpath No 70 (part)
Parish of Great Missenden



Public Rights of Way

Route to be deleted:
A-B-C

Route to be added:
C-D-E

other FP

PARISH BOUNDARY

Grid references:
Point A: SP8843-0237
Point B: SP8859-0270
Point C: SP8862-0271
Point D: SP8888-0220
Point E: SP8898-0222

N

1:5,000

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (LEEDS TO MICKLEFIELD ENHANCEMENTS) ORDER

DOCUMENT CD.01.21.09

Appendix to Proof of Evidence of Jerry Greenwood, Head of Infrastructure Liability

On behalf of Network Rail Infrastructure Limited

Moor Lane PFP section 118A Order Decision 02.11.2021

Date 06 February 2024

The Planning Inspectorate

Order Decision

Inquiry opened on 19 January 2021

by Heidi Cruickshank BSc (Hons), MSc, MIPROW

an Inspector appointed by the Secretary of State for Environment, Food and Rural Affairs

Decision date: - 2 NOV 2021

Order Ref: ROW/3207992

- The draft Order is made under Section 118A and 120(3) of the Highways Act 1980 and is known as the (Footpath 18, Parish of Staines) Borough of Spelthorne, Surrey Rail Crossing Extinguishment Order 2021[1].
- The draft Order proposes to extinguish Footpath 18 running from Moor Lane, Surrey, generally north-easterly across the South West mainline and continuing to the junction with Footpaths 17 and 19. Full details are set out in the draft Order Map and Schedule.
- There were 32 objections outstanding at the commencement of the Inquiry.

Summary of Decision: The Order is made subject to modification as set out in the Formal Decision.

Procedural Matters

The Application and Making of the Draft Order

1. In July 2014 the applicant for the Order, Network Rail (NR), applied to Surrey County Council (SCC) under section 118A of the Highways Act 1980 (the 1980 Act) for an Order to extinguish Footpath 18, Spelthorne (FP18). At the meeting of 23 April 2015 members of the SCC's Spelthorne Local Committee (SLC) voted to decline to make the Order. SLC is made up of members of both SCC and Spelthorne Borough Council (SBC). SLC is now referred to as Spelthorne Joint Committee and they made an objection to the proposed Order.

2. Subsequent to the determination not to make an Order, NR applied to the Secretary of State for Environment, Food and Rural Affairs (the Secretary of State) for an Order to be made under section 120(3) of the 1980 Act. Where it appears to the Secretary of State that it is expedient as mentioned in section 118A(1) of the 1980 Act that "*...the path or way should be stopped up...then if no council having the power to do so have made and submitted...a rail crossing extinguishment order...and the Secretary of State is satisfied that if such an order were made and submitted...he would have the power to confirm the order in accordance with the provisions...he may himself make the order...*".

3. As required, notice was given that the Secretary of State proposed to make the Order, with the opportunity for representations and objections to be made not later than 7 February 2020. It is often the case that proposed Orders such as this are subject of a report to the Secretary of State, with a recommendation. In this instance the matter has been delegated and my role is to determine, on behalf of the Secretary of State, whether the draft Order should now be made. This determination is separate from the decision taken to propose that the draft Order be made, and I need to take account of the relevant matters in relation to confirmation as set out in section 118A(4) of the 1980 Act.

[1] Subject to modification as set out in the Formal Decision

4. I note that the draft Order was dated 2019. As the Order is not made until such time as the decision is taken, the Order will be modified to be dated 2021.

Consultation

5. The statutory consultation requirements for draft Orders of this type are set out in Schedule 6 to the 1980 Act and the Rail Crossing Extinguishment and Diversion Orders Regulations 1993. There was a question regarding an affected landowner, but it was clear that there was notification of the draft Order, with an objection made, although a choice not to take part in the Inquiry itself.

6. There were concerns that the public may not have known of the Inquiry, due to the placement of notices at the ends of the affected route, which it was believed would not be seen as people were not using the route. Notice of the Inquiry was given as required by the Rights of Way (Hearings and Inquiries Procedure) (England) Rules 2007. As the relevant footpath sign at point A is on the edge of the highway on Moor Lane it seems likely that the majority of local people should have had opportunity to see that notice, even taking account of lockdown restrictions. Those who made a statutory objection or representation would have been notified of the Inquiry directly.

7. I cannot comment on any non-statutory consultation(s) undertaken by NR in the lead up to their application. There is no legal requirement for non-statutory consultation; it is for any applicant to decide how they wish to proceed prior to an application being made.

8. I am satisfied that the statutory requirements in relation to this draft Order were met.

Documents

9. There was some indication that people may have found it more difficult to access hardcopy documents, as restrictions prevented them from accessing the usual places where they would be held. The representative of Spelthorne Natural History Society (SNHS)[2] indicated that there were difficulties following the Inquiry proceedings with reference to the "bundles" with documents referenced and paginated differently to those supplied to other participants. The bundles were an attempt to place all the documents already submitted to the Inquiry into one place, there being no Inquiry website available to assist. Therefore, there should have been no 'new' evidence which was not already available to any party requesting it in the usual way.

10. SCC indicated at the Test Event that they would be able to email any documents held by them and confirmed that they had provided information in this way to SNHS. During the Inquiry I took adjournments as needed and ensured that the Planning Inspectorate sent out documents to the relevant parties when I was aware that they were not already in possession. I thank all the parties who worked together to assist in this way and I am satisfied that no prejudice arose in relation to this matter.

11. Prior to issuing this decision, I became aware that the consultation document, referred to during the course of the Inquiry, "Principles for managing level

[2] Although NR questioned whether the person assisting the Inquiry was representing SNHS I am satisfied that there was nothing to show that this was not the case. I thank SNHS for their assistance to the Inquiry.

crossing safety[3], was published by the Office of Road and Rail (ORR) on 15 June 2021. As a result, I asked NR to confirm that RSP7[4] remained extant.

12. NR confirmed that the new publication, consultation on which was referred to during the Inquiry, specifically follows a risk-based approach which supersedes elements of RSP7. However, ORR confirms that RSP7 will continue to remain extant on risk management until such time the ORR is comfortable that the more risk-based approach of the newer publication is embedded. As a result, comments made by NR witnesses remain generally correct but would have had additional reference to the new publication and some minor changes to certain definitions. I am satisfied that the presentation of principles around the interface of users, railway and highway and ways of understanding the types of use and mitigating appropriately, gives rise to no contradiction in the evidence heard and tested.

13. In those circumstances, I am satisfied that there was no need to invite further comment on this matter. This may have been the case had we not already had reference to both documents at the Inquiry, albeit with the new publication then in consultation form, and so I thank the British Horse Society (BHS)5 for bringing this to the attention of the Inquiry.

The Inquiry

14. In light of the Government health restrictions in place to deal with the Covid-19 pandemic the Inquiry was held as a virtual event, that is online. A test event/ pre-Inquiry meeting was held on 7 January 2021, with further opportunities for generic test event participation and guides on the use of Microsoft Teams provided for all interested parties. One of the matters discussed at the pre-Inquiry meeting was whether the Inquiry should be live-streamed. Taking account of the number of statutory parties and the wider public interest, evidenced by the initial stance of the County and Borough Councils, I decided that this Inquiry should be livestreamed.

15. I am aware of the concerns that a virtual Inquiry was not the same as an Inquiry held in person. It meant that instead of travelling in person to the event, participants were able to take part from their own home, office or other location that best suited them. This avoided concerns relating to any local, or national, restriction that could be put in place with little notice, as well as taking account of the potential vulnerability of witnesses. Such an event makes use of Microsoft Teams allowing participants to take part, or watch/ listen in, using computer, laptop, tablet, smart phone, or landline.

16. The purpose of the Inquiry remained the same – for me as the Inspector to see and hear the relevant evidence. The written submissions form part of the Inquiry evidence which I have also considered in writing my decision. In taking the Inquiry forward I balanced the need for fair opportunity for public involvement in the Inquiry, which the Covid situation made more testing for us all, and the need to deliver decisions in a fair, open, and impartial manner.

17. I opened the Inquiry on 19 January 2021 and closed it on 3 February 2021, having sat for eight days in that period.

[3] Inquiry Document number 33
[4] Inquiry Document number 34, Level Crossings: A guide for managers, designers and operators, RSP7, ORR, December 2011
[5] Representative stated to be Regional Access, Bridleway and Common Land Officer, SE Region

The stance of Spelthorne Borough Council

18. SBC made a statutory objection to the draft Order. At the opening of the Inquiry, they continued with that objection, cross-examining NR witnesses on their evidence over the first four days of the Inquiry. Their own witness evidence was presented and subject to cross-examination on the fifth sitting day, Tuesday 26 January.

19. On resumption of the Inquiry at 12.30pm on Friday 29 January - not having sat on Wednesday, Thursday, or Friday morning - SBC indicated that their stance had altered. Having used the Inquiry process to thoroughly test NR's evidence SBC accepted that it would not be reasonably practicable to implement mitigations in order to render the crossing safe and were content with the progress with regard to proposed improvement works on the alternative route. Taking all matters into account SBC withdrew the objection to the draft Order.

20. The timing of the withdrawal was questioned as at 11.26[6] on that Friday morning SBC had sent out an e-news to subscribers, with general Council information, including comment on objection to the draft Order at the Inquiry. Questions were raised regarding the making of the decision to alter stance at the Inquiry and SBC clarified the process and those involved.

21. Whilst some people were unhappy with the altered stance, it is not unknown for matters to alter in the course of an Inquiry. The remaining objections were not withdrawn and have been considered in this decision.

Site visit

22. I made a site visit on 25 November 2020 taking in the crossing itself, including at the time of a train passing, the suggested alternative available routes, as well as various locations which had been mentioned by parties in their submissions.

23. A request was made at the close of the Inquiry for an accompanied site visit. Due to the Covid-19 restrictions an arrangement was made for this to take place on 14 April. I was accompanied on that visit by representatives from NR, SCC, SBC and other objectors and I thank them all for their time.

Costs

24. A partial costs application was made, initially in writing and expanded upon orally at the close of the Inquiry on 3 February 2021. That application is dealt with in a separate decision.

Main Issues

25. The draft Order was made under section 118A of the 1980 Act as it appeared to the Secretary of State that FP18 and the Moor Lane level crossing ("the crossing"), should be extinguished in the interests of the safety of members of the public.

26. To make the draft Order, I would need to be satisfied that it is expedient to do so having regard to all the circumstances, and in particular to:

[6] The timing may have varied slightly for individuals

(a) whether it is reasonably practicable to make the crossing safe for use by the public, and

(b) what arrangements have been made for ensuring that, if the order is confirmed, any appropriate barriers and signs are erected and maintained.

27. NR argued that the crossing was unsafe and should be closed. They said that there were no practicable means to make the crossing safe for use by the public and that the other available routes provided appropriate alternatives.

28. Objectors argued that the crossing was safe to use and, if not, further works were possible to improve safety, such as those carried out on another nearby crossing. There was concern regarding the proposed alternatives which were argued not to be as safe or convenient as the crossing itself, particularly in relation to access to Staines Moor (the Moor).

Reasons

The crossing and the surrounding area

29. The crossing is located to the north-west of Staines-upon-Thames (Staines) and the railway station there. It provides pedestrian access over the South West Mainline, which provides a route for passenger traffic, operated by South Western Railway, between London and Windsor & Eton Riverside. The up line is the line the north-east at this crossing whilst the down line is the south-western line, on the Moor Lane side.

30. The railway line runs north-west from Staines with London Heathrow Airport situated to the north of the town, north-east of the crossing and north of the Moor. South-west of the railway line, running generally parallel, is Moor Lane, which runs from the B376, Wraysbury Road, passing under a bridge for the A30, Staines Bypass. At the north-western end, Moor Lane alters direction several times, crossing over the railway line by way of a bridge and then underneath the M25, alongside which it runs before terminating as a cul-de-sac route south of the Wraysbury Reservoir. The Wraysbury River runs for a length between Moor Lane and the railway before passing underneath the railway line to the east of the crossing and then generally north to the M25, alongside which it runs for a distance.

31. A mix of business and residential uses are located on Moor Lane to the north-west of the M25, with residential properties to the south-west of the road on the section between the A30 and M25 bridges. Further residential areas lie alongside the road, mainly to the south-west of the road initially before entering into a mix of residential and businesses on both sides of the road as it runs towards the junction with Wraysbury Road.

32. To the north-east of the railway line, between the M25 and the King George VI Reservoir, is the Moor, through which the River Colne runs. The largest area of the Moor is situated east of a dismantled railway, which runs generally north-south. There is, as I understand it, permissive use of this dismantled line and of a route through a bridge under that line, linking the land on either side. The Moor is common land, recorded as CL31 on the Common Land Register held by SCC. CL31 is shown on the Commons Register Map recorded in several parcels

bisected by the railway lines, both extant and dismantled, the rivers and the roads in the area.

33. There is further common land recorded to the south-west of Moor Lane under reference CL10, which is referred to as the Church Lammas. The common land would be open to access on foot under the Countryside and Rights of Way Act 2000, although I was informed that section 193 of the Law of Property Act 1925 (the 1925 Act) is relevant, meaning that the common land has access right to 'air and exercise' for both equestrians and pedestrians. SBC has a role as successor to the Board of Management set up under the Metropolitan Commons Supplemental Act 1880 to preserve the commons.

34. FP18 runs generally northerly from Moor Lane through common land, over the crossing and north-north-westerly to a junction with Footpath 17 (FP17) and Footpath 19 (FP19). FP17 continues alongside the Wraysbury River to a junction with Bridleway 50 (BR50), which runs alongside the M25 from Moor Lane to Stanwell Moor. FP19 crosses the Wraysbury River by way of a footbridge and then runs north to join Footpath 16 (FP16), a short stretch linking to BR50, and Footpath 14 (FP14), which provides a link into the Moor, crosses the River Colne and links to Footpath 12 (FP12). Access to the bridge under the dismantled railway runs east from FP19 providing another link into the larger area of the Moor.

35. FP12 runs generally south through the Moor, crossing the River Colne. It joins Footpath 45 (FP45), which passes underneath the A30 and then, as Footpath 21 (FP21), over the railway line by way of bridges. FP21 then joins Moor Lane, passing the property Moor Lodge.

36. From FP45 to the south of the A30 Footpath 13 runs south-east, crossing the Staines Reservoir Aqueduct and then the railway line north-east of Wraysbury Gardens. This crossing of the railway line was referred to by NR as Moor Farm.

37. Although there was some discussion in the submissions regarding when FP18 first came into existence, I do not consider this to be relevant to the matters before me. I understand that the public rights of way were recorded on the Definitive Map and Statement under the provisions of the National Parks and Access to the Countryside Act 1949.

38. The crossing is referred to by NR as a passive level crossing. When it was last in use it had a level crossing deck with wicket gates and Stop, Look, Listen (SLL) signs on either side of the crossing. The current passenger and freight services lead to approximately 84 trains/day passing over the crossing, with 2 passenger trains per hour, in each direction, between 05:30 and 23:30, up to a line speed of 60mph. Passenger service, freight trains and ad-hoc engineering trains may run over the full 24-hour period, at varying speeds.

39. In 2014 NR approached SCC regarding their safety concerns and desire to divert or extinguish FP18. An application was made for a temporary closure under section 14(1) of the Road Traffic Regulation Act 1984 (RTRA) for a closure on safety grounds. The temporary closure, which was stated to be a "*...reasonable interim solution to ensure that there are no other fatalities on this crossing whilst a permanent solution is sought...*" has been extended 14 times by the Secretary of State, that is every 6 months as required, with NR meeting the associated costs. Section 14(1)(b) of the RTRA relies specifically

on the "likelihood of danger to the public". It is noted that SBC has never petitioned SCC or the Secretary of State to re-open the crossing.

40. Whilst there were concerns that removal of some of the crossing infrastructure had pre-judged the outcome of this decision, I am satisfied that this was undertaken as part of a works programme. Given that the route was subject to the temporary closure order it was not unreasonable that infrastructure was not reinstated. I am satisfied that appropriate crossing infrastructure could be reinstated should I determine that this draft Order be not made.

Whether it is reasonably practicable to make the crossing safe for use by the public

41. I understand that the NR policy for managing level crossing risk takes account of a number of relevant matters, which are recorded in the Narrative Risk Assessment (NRA) for each crossing. The NRA records the quantitative risk assessment arising from the All Level Crossing Risk Model (ALCRM), which was developed in conjunction with Rail Safety & Standards Board (RSSB), alongside the qualitative information arising from observations of relevant Level Crossing Manager. I note doubts about the robustness of the model raised by SNHS, among others, in relation to reliability of ALCRM. The risk model is an industry standard and, as such, I am satisfied that it is appropriate to place reliance on the data arising.

42. As the qualitative NRA process was introduced after the temporary closure of the crossing, the December 2020 NRA was produced on the basis of information that would be relevant if the crossing were open. It sets out that when carrying out a level crossing risk assessment in line with NR and ORR policy, one must look to eliminate the hazard through the hierarchy of risk controls. Risk controls should, where practicable, be achieved through the elimination of level crossings in favour of closure, or in providing bridges, underpasses, or diversions if no suitable alternative routes exist.

43. The NRA highlights frequent trains, very significantly insufficient sighting, vulnerable use, a high level of potential accidental human error, previous deliberate misuse, much variation in train speeds, and no adequate protection to allow for re-opening without additional mitigation, which would have residual risk. The predicted risk assessment rating from ALCRM is C4[7], which NR indicated to be high to medium. Taking account of the availability of alternative routes, to which I shall return, closure via extinguishment of the crossing was seen as the option to be taken forward, with a positive cost benefit analysis (CBA) and removal of unacceptable risk to the public.

44. The objectors, in particular those who live nearby and had formerly used the crossing, were of the view that the crossing was safe to use, with a clear view along the railway in both directions. It was accepted that there had been two fatal accidents involving a child in 2003 and an older walker in 2008 but argued that the users had not felt unsafe on the crossing themselves and that further works could be undertaken to improve safety sufficiently to allow the crossing

[7] Collective risk is a measure of the total harm, or safety loss and is expressed in terms of Fatalities and Weighted Injuries (FWI) per year, reported in numeric form and ranked from '1 to 13' where '1' represents the highest risk and '13' representing nil risk. The risk to the individual crossing user is the level of risk a single typical user is exposed to per year of use of a level crossing. It is calculated as the 'probability of fatality' and expressed as a letter, ranked from 'A to M' ('A' representing the highest risk and 'M' representing nil risk).

to reopen. There was concern that, in proposing to make the draft Order, inappropriate account had been taken of a reported suicide at the crossing, which had not occurred; I have taken no account of it at this stage in considering the draft Order.

45. The decision point is where an individual would reasonably decide to cross and is a minimum of 2m from the track, generally identified by the SLL sign. The sighting distance is the distance that a user can see in both directions when looking for approaching trains. When standing at the decision point on the down side, that is the Moor Lane side, looking towards the down direction train approach, that is towards trains leaving Staines, sighting is restricted by the railings on the rail bridge 3/66 over the River Wraysbury, which is 22 metres from the crossing. With a line speed of 60mph, when sighted at 22m, a train will reach the crossing in 0.82 seconds. NR calculated that the crossing traverse length was 9.9 metres, giving rise to a traverse time of 8.33 seconds with regard to able-bodied, unencumbered pedestrians. I agree with NR that this sighting deficiency puts users walking from south to north over the crossing at high risk of train strike.

46. As I was unable to access the crossing to view the bridge myself, I asked NR to provide further information on bridge 3/66 to assist. Inquiry Document number 10 (NR Note 8) provides photographs from the decision point, elevation and cross-section drawings and measurements, as well as video stills taken as a train passed through the crossing[8]. Unusually, the Inquiry also benefitted from photographs of the lower structure of the bridge from the water[9]. I am satisfied from the evidence, and in particular this additional information, that the sighting distance is directly affected by the bridge railings. I am also satisfied from the evidence that this bridge is a structural railway feature, which cannot be altered or removed.

47. The professional opinion of the SCC Officer remained as set out in the original recommendation on the application made to SCC, which was that the crossing was unsafe and, therefore, that an Order should be made. It was following cross-examination of the relevant NR witnesses on the safety case, and improvements that could be made, that SBC withdrew their objection to the draft Order[10]. They were, at that point, satisfied with NR's consideration of available safety mitigation in reaching the decision to extinguish FP18.

48. Although of the view that the crossing was already safe for use by the public, a number of objectors made suggestions for improvements, which they believed could make it safer and so allow the reopening. Several referred to improvements which had been made to the Moor Farm crossing relatively recently and a copy of the 2 October 2019 NRA relating to this crossing was submitted. I understand the tendency to compare these crossings, as they are in such close proximity, and I visited the Moor Farm crossing as part of my site visits to understand the issues. However, the risk assessment for every crossing will be an individual tailored assessment based upon the specific facts of that crossing. I accept the argument of NR that it is not possible to simply import the changes on one crossing onto another to achieve results. However, I shall briefly consider the main points raised.

[8] Inquiry Document number 11 (NR Note 9) contains the video
[9] Inquiry Document number 36
[10] As set out from paragraph 18

Vegetation cutback

49. Given the current overgrowth, due to the length of time that the crossing has been unavailable for use, it is unsurprising that there is an impression that cutting it back would lead to improvements for users. However, I agree with NR that even if the vegetation was cut back it would not overcome the issue of the sighting distance, which arises from the bridge abutment, not vegetation.

Crossing deck

50. The crossing is over a double-track electrified railway with 750 volts DC third rail. The alignment of FP18, and of the deck was about 66° to the rails, as noted in the Rail Accident Investigation Branch Rail Accident Report[11] (RAIB Report). There was discussion around the possibility of moving the decking further to the north-west, however, I agree that there is insufficient leeway in the legal alignment of FP18 to ameliorate the sighting deficiency.

51. The nature of the crossing deck is such that it has to provide for the four rail lines to bisect it. The RAIB Report identified, as causal factors to the 2008 incident, that the surface of the crossing was slippery; and that NR had not added a non-slip surface to the crossing, as considered in 1996 and requested in 2005. I understand the criticism that work to improve the decking surface had not been carried out at the time it was identified as an item of work and I am satisfied that an appropriately surfaced deck could be provided again, having been provided prior to the closure. However, that of itself would not ameliorate the issue of sighting distance.

52. This was one of several issues subject to lengthy cross-examination with regard to the June 2015 RSSB document, Research into the causes of pedestrian accidents at level crossings and potential solutions. It was identified as an 'S1' type intervention by reference to Appendix G of that document, with items V1, V2, V5, T3 and P1 also discussed. It was clear that there was suspicion that NR had not taken account of all possible options to make the crossing safe to open. Whilst I am aware that some objectors still hold such concerns, I am satisfied that the further information[12] requested by SBC, regarding historic decision-making processes, assisted in clarifying that the relevant possibilities had been appropriately reviewed.

Access points

53. The NRA noted that the paths leading from the gates up a shallow incline to track level were unmade and uneven, with loosely laid ballast. I agree with those objectors who said that it would not be difficult to alter the surface, although the inclines would undoubtedly remain in this landscape. However, this also would not improve the sighting distance on the downside line.

Whistle boards

54. There were whistle boards located on either side of the crossing, which would be the point NR calculated to be the optimum distance allowing sufficient warning time, with the train driver sounding the train horn to warn potential crossing users of the approach of the train. I am satisfied that such whistle

[11] Rail Accident Investigation Branch Report 27/2008, December 2008
[12] Inquiry Document number 9

boards could be reinstated but this places the onus on the train driver to act on the signage and the user to react appropriately.

55. Whistle boards on the railway line approaching the crossing are the point at which train drivers sound the horn to warn crossing users of trains approaching except in the Night-time Quiet Period (NTQP) between the hours of 00.00 and 06.00[13]. The NTQP was introduced due to the harm that train horns sounding through the night caused to local residents versus the perceived risk at crossings at those times.

56. Although objectors took the view that the train whistle should provide sufficient warning, I agree with NR that in this location train whistles may be obscured by the background noise. Whilst people may be used to the background noise in their locale, I found that even in a period of lower travel due to Covid-19 lockdown restrictions, there was significant background noise arising from traffic on both the M25 and the A30 as well as from Heathrow Airport. As the train driver should not use the horn during the NTQP, unless a person is seen at a crossing, there is no warning given by the trains passing the whistle boards and sighting of an approaching train in this period relies on the user.

57. I am not satisfied that the whistle boards provide sufficient protection to overcome the sighting deficiency. They were in place during the period within which the most recent incident occurred at the crossing in April 2008 and the RAIB Report notes that the train driver also sounded his horn on sighting people on the crossing. Despite this a fatality occurred, with a witness saying that they had not heard the horn.

Other Mitigations

58. There was concern that NR had not done all that they could to look for solutions which would allow the crossing to remain open, with mention of Overlay Miniature Stop Lights (OMSLs), Automated Obstacle Detection systems, such as Light Detection and Ranging (LIDAR) or radar, and the possibility of other solutions being available or developed.

59. I am satisfied that those giving evidence on behalf of NR were the appropriate industry experts to assist the Inquiry as to possible solutions. Taking account of the submitted evidence, including CBA, I am satisfied that there is no feasible current solution which would make the crossing safe for users. Whilst I understand the hope that there may be solutions on the horizon, I am not satisfied that keeping a temporary closure in place for any longer than has already been the case is reasonable or proportionate.

Line speed/train number changes

60. It was suggested that the 60mph line-speed could not be met, due to the proximity of the railway station at Staines and, therefore, the ALCRM results may be incorrect. I see no reason why the ALCRM inputs, which take account of through-train speeds as well as stopping train speeds, were incorrect. As a result, I am satisfied that I can place reliance on the outcome.

61. In relation to the idea of reducing train numbers, in order to reduce the risk profile, I agree with NR that this would not be justifiable. The operational

[13] When the crossing was open the NTQP was slightly longer and ran from 23:00 to 0700

efficiency of the railway must be maintained, with public safety addressed by other means, wherever and however it is possible to do so.

Bridge or tunnel

62. A grade separated crossing, above or below the line of the railway, is a solution for a level crossing. The BHS suggested that there had formerly been an underpass in this location, which could be reinstated. In the alternative it was suggested that a footbridge be provided, including access for horses.

63. Although the common land on either side may have a right allowing use by horses, I do not consider that the evidence shows that there has been a crossing of the railway line for such use since recording of FP18 on the Definitive Map and Statement[14]. Whilst the Ordnance Survey (OS) base map on the MAGIC mapping supplied by the BHS annotates an 'underpass' in this location, there is no indication of such on the ground.

64. The Common land register maps held by SCC on an older OS base map do not show an underpass. It is notable that the annotated subway to the south, joining 2 parts of the Lammas, CL10, is coloured as part of the common land whilst the railway bisects the 2 areas of CL31 at the crossing. The route over the crossing is recorded as a public footpath and I am not aware of any formal claim to record higher rights. I am satisfied that the CBA demonstrates that a footbridge would not be a viable option in this location and that there is insufficient evidence to support a requirement to provide alternative access for horse riders as a result of this proposal.

Other matters regarding reasonable practicability

65. The application for an Order was made in Control Period 5 (2014- 2019)[15], when NR sought to reduce level crossing risk by 25%, including through closure of crossings. NR confirmed that in the current spending period, Control Period 6 (2019 – 2024) (CP6), that there is no funding available for any mitigation works. I agree with objectors that if the draft Order was not made, and the crossing reopened, then replacing former infrastructure, such as the crossing deck, could be funded through normal maintenance regimes.

66. Taking account of the requirements for NR to manage public money responsibly, alongside the CBA, I am satisfied that there is no business case for any of the mitigations that could make the crossing acceptably safe. The simpler mitigations, such as those discussed above may be capable of being met through contingency funding, but this would not alter the unacceptable safety risk arising from the sighting deficiency.

67. Whilst funding would not be available in CP6, I can see no reason why it could not be brought forward as a project under the subsequent budgeting period. Nonetheless, this would lead to at least another 3 years of temporary closure and I am not satisfied that this is an appropriate solution given that the CBA identified no reasonably practicable mitigations.

68. Some people made the point that neither the RAIB Report nor ORR had made a recommendation to close the crossing following that investigation. Whilst this is

[14] Which records the location and status of public rights of way
[15] The term Control Period refers to NR's budgeting period

true, the RAIB Report recognised that the difficulty of closing the crossing, which in this case has taken 7 years, with applications to the local highway authority being rejected, an application to the Secretary of State and a public Inquiry. It noted that the continued availability to members of the public as a footpath, was an underlying cause of the accident. The decision on this draft Order is made on the basis of the most recent information available to me.

69. SBC indicated it had concerns in relation to NR's historic engagement, particularly with regard to the transparency of its options analysis and decision-making processes, as set out in the SBC's evidence, with members of the public sharing similar concerns. As a result, SBC felt that the public interest in the proposal meant that the decision-making needed to be subjected to scrutiny. Following that process SBC accepted that it would not be reasonably practicable to implement mitigations in order to render the crossing safe, given that neither a footbridge nor underpass would be physically or financially feasible; and secondary mitigations would neither prove sufficiently effective nor CBA-compliant.

Conclusions

70. I am satisfied that there is a sighting deficiency on the Down line. Taking account of all relevant matters I consider that it is expedient to make the Order in the interests of the safety of members of the public using, or likely to use, the crossing. I understand that objectors feel that the crossing is safe to use and wish it to be reopened. However, I am satisfied that it is not reasonably practicable to make the crossing safe for use by the public.

Arrangements for appropriate barriers and signs to be erected and maintained

71. Due to the temporary closures, which have now been in force for some seven years, the crossing is for all practical purposes inaccessible. Fencing across the former gateways, along with significant overgrowth, severely limit even the ability to inspect the area. Whilst concerns were raised about potential for access at another point a little to the north-west of the crossing, I consider this a matter for NR in relation to their normal maintenance and inspection regime.

72. NR confirmed that if the Order was made, it would continue to maintain the fencing in at the crossing, preventing future use. The sign at Moor Lane indicating a terminus point for FP18, would also be removed. I am satisfied that the arrangements for appropriate barriers and signs to be erected, or removed, and maintained are in place.

The alternative routes

73. Unsurprisingly the majority of objections were made by residents of Moor Lane, local to the crossing who had been accustomed to using it in the past and wished to do so again. The main use was for access to the Moor, primarily for recreation, such as dog walking, bird watching and botany. The Staines Moormasters indicated use connected with the management of grazing animals on the main part of the Moor, to the east of the disused railway.

74. SNHS indicated that FP18 provided immediate access to Unit 13 of the Staines Moor Site of Special Scientific Interest (SSSI), which is the section to the west of the dismantled railway. The June 2010 review of the nature conservation

objectives for this part of the site identified tall fen habitat as the key designated interest feature and in good condition. This habitat is in the south of the area, occupying a relatively small area. At that time the management of this part of the SSSI was supported by a Countryside Stewardship agreement, with very light grazing. The route also provides access to the largest area of anthills; Butts Pond, where a rare diving beetle is found; and the Yeoveney Ditch, with its 300-year-old willows. These are all located in the north of the main part of the Moor.

75. The 2015 Risk Assessment and 2020 NRA report a nine-day census undertaken at the crossing from 12 January to 20 January 2013. Saturday 19 January was the busiest day, with 129 pedestrians (69 westbound and 60 eastbound). It noted that as the crossing is susceptible to seasonal flooding, it would be expected that during the drier months pedestrian usage would be far higher.

76. As the 2020 NRA notes, due to the temporary closure, another census could not be carried out. Calculations of likely crossing numbers were made from census counts on the alternative crossing points in the vicinity: the Moor Lane road bridge to the northwest; FP21 at the railway overbridge south-east of the crossing; and the Moor Farm level crossing, further to the south-east. NR were of the view that, if reopened, the levels of use at the crossing would be similar to those recorded in 2013.

77. It is difficult to clarify the latent desire to use a particular route, which will be specific to the location. However, given that the majority of use is likely to be from the local residents of Moor Lane I consider the overall volume of use unlikely to change, as the change in number of residents will be low unless there are significant building works. I note there are apparently several blocks of flats planned, however, with the constraints of common land to the north of the A30 bridge it seems likely these would be on the Staines side, with FP21 likely to be the closest access to the Moor. If to the west of the M25, where there are business premises which could potentially be redeveloped, the closest access would be BR50 and/or FP17.

78. The draft Order identifies the alternative route as Moor Lane, part of BR50 and FP17, providing a link to FP19 north-west of the crossing. The other alternative route discussed during the Inquiry was FP21 to the south-east. I walked these routes during both my accompanied and unaccompanied site visits.

Moor Lane & FP17

79. There was concern that people would not wish to use Moor Lane, due to the corner leading to the bridge over the railway line and traffic on the road. I am conscious that my site visits were undertaken at times when normal traffic may not have been on Moor Lane, due to the coronavirus restrictions. Nevertheless, this is a cul-de-sac route which is unlikely to have high levels of vehicular use and with a 30mph speed limit.

80. I recognise that people may find walking this route noisier, as it runs closer to the M25 than the crossing itself. However, even bearing in mind that I was making site visits during somewhat unusual times, when vehicular use may have been lower, I found that whilst not a pleasant walk from a noise perspective this did not prevent me hearing cars approaching on the bridge, in either direction. Whilst there were no lorries during the times I was there, which

I understand traverse to and fro the businesses situated to the west of the M25, I consider I would similarly be aware of those. Crashmap data shows one accident on Moor Lane, which occurred 20 years ago and involved 2 vehicles. It appears to have been at or near the junction leading underneath the M25 and did not involve pedestrians.

81. NR recognised that, unlike the majority of Moor Lane, the section to the north-east of the railway bridge had no footway (pavement) alongside the carriageway. Agreement was made with SCC, as the highway authority, to fund improvements on this section of the road in connection with the proposal. The funding agreement arose following a December 2015 site visit, which included some local residents.

82. Although some queried whether the funding, set out in a signed agreement between NR and SCC[16], would be sufficient for the proposed works I consider that SCC are best placed to understand the cost issues. They have signed the agreement and I am satisfied that I can place reliance on this document in relation to planned improvements to the identified alternative route.

83. The other matter related to use of FP17, which runs alongside the Wraysbury River and, as evidenced from my site visits and photographs supplied to the Inquiry, subject to flood events. It was argued that users would not find this to be a useful alternative crossing and improvements should be made. The landowner, who lives to the west of the river and footpath and also owns land to the east of the river, was concerned about additional use of FP17, which had been observed since the temporary closure of the crossing in 2014.

84. As SCC noted FP17 is already a public footpath, not a new footpath being placed on the land, over which SCC already has a duty in relation to maintenance. The availability of FP17 would not be affected by the extinguishment or not of FP18. However, NR and SCC agreed to fund a fence to the west of the footpath; this would not be a 'security' fence, as the landowner suggested, which would require additional works and permissions. I am satisfied that fencing should resolve concerns regarding potential mixing of dogs and livestock; it remains open to the landowner whether or not to accept that time-limited offer.

85. Another issue raised in relation to this route was that people sometimes congregated at the junction of Moor Lane and BR50, where there is a gate preventing unauthorised vehicles from continuing along the bridleway. There was evidence of inappropriate use of the area with visible littering, which I was informed sometimes included drug and alcohol litter. Whilst I understand that such matters may inhibit use of this alternative by some users this is an existing matter on existing highways. It is a management and/or enforcement issue and I do not consider that it should have significant weight in relation to the appropriateness of the alternative route.

86. It was suggested that the section of FP18 leading to crossing from the south-west could be diverted to avoid use of Moor Lane. NR confirmed that this had been looked at during their development of the application but the constraints arising from land use to the south of the Moor Lane railway bridge, where there is a pond, prevented this. As FP18 crosses common land, on which there is already a right to air and exercise I do not consider that there would be any

[16] Inquiry Document numbers 13 & 14, NR Notes 11 & 12

advantage in diversion of the footpath over this land. It is appropriate that it be extinguished as part of this process.

FP21 & the continuation to the Moor

87. To the south-east of the crossing there is access onto the Moor using a bridge over the railway line and then under a bridge carrying the A30. This access is further for residents of properties north of the A30. This end of Moor Lane is serviced with footways and, given the emerging picture was that the destination was this main part of the Moor, whether as an end in itself or as part of a circular route, it remains generally accessible via this alternative. There are parking spaces at the entrance to FP21, which provide additional assistance to users in gaining access to this land. Whilst there was concern that parking could cause congestion problems there was no evidence that such had occurred in the 7 years since the temporary closure of the crossing, despite anecdotal evidence of an increase in footfall on the Moor during the recent period of government health restrictions.

88. The other matter raised was the gradient on the overbridge in comparison to the crossing, which as a 'level' crossing remains at the level of the railway. I agree with objectors that the gradient may make use of this route more difficult for some users; however, I weigh this against the danger to those users in taking access over the crossing, which does not provide sufficient sighting to the south-east for able-bodied users, let alone those who may be more vulnerable users in NR's terms.

89. In relation to access for management of animals grazing on the Moor I note that the animal pen is situated close to the A30 bridge. This makes sense, as the route followed by the right of way is available for managed vehicular access to and from the Moor, which could include the collection and release of animals or access for veterinary care. I do not consider there is evidence that environmental harm would be caused to the SSSI due to the Order. Access for grazing, referred to in the review of Unit 13, could not be via FP18 in any event, there being no means to facilitate safe crossing for livestock.

90. Overall, I am satisfied that this route provides another alternative to that formally identified by the draft Order.

Other matters

Equality Act 2010

91. The BHS raised concerns NR had not taken appropriate account of the public sector equality duty (PSED), placed on them by the Equality Act 2010 (the 2010 Act). NR were concerned with regard to use of the crossing by vulnerable users, who may be classified as such due to their age and/or disability. These are protected characteristics under the 2010 Act, which establishes a general duty on public authorities, which includes my role, to have due regard when carrying out their functions, to the need: to eliminate unlawful discrimination, harassment, or victimisation; advance equality of opportunity; and to foster good relations.

92. It was suggested that the duty could be met through provision of an Access Impact Assessment, which I agree could have been helpful. However, there is no requirement as to how the PSED is met and, as helpfully indicated by the

BHS, the 'due regard' element allows consideration to be proportionate. Having due regard means consciously thinking about the three aims of the Equality Duty, as set out above, as part of the process of decision-making.

93. An argument from some objectors was that the crossing should be open for use in particular for older people, who were less able to use either of the alternative routes discussed above. It is clear that NR were taking account of such users, referring to vulnerable users in their NRA. Indeed, one of the reasons for their concern over use of the crossing was that such users were more likely to be involved in an incident in that location. The footbridge option was discounted in part on the basis that a ramped structure may be required to meet the requirements of the 2010 Act. Although I understand that the landowner moved more recently to willingness to sell land for a footbridge, the CBA of acquisition and construction, alongside the issue of adverse ground conditions and susceptibility to flooding, removed that option.

94. The BHS believed there was a lack of an appropriate assessment of the mitigation and other alternatives, also suggesting that the SLC had not been provided with appropriate information. I note that the SCC report to the SLC included information in the "EQUALITIES AND DIVERSITY IMPLICATIONS" section which made clear that they had taken account of equality and diversity issues. They were content that the agreed improvements, referred to earlier, were in line with the Rights of Way Improvement Plan for Surrey regarding the principle of least restrictive access, with FP17 providing a suitable alternative route and no significant equality or diversity implications. Whilst the BHS may disagree with that conclusion, I am satisfied that the public bodies involved in this matter have had due regard to their PSED.

    It was said that removal of the crossing had particularly impacted some local residents, preventing them from exercising as they had previously. I recognise that changes to routines, including dog walks or general air and exercise can be disruptive. I am particularly aware that longer routes can impact on those less mobile. However, I bear in mind that to the south-west of the crossing there are other areas of common land, such as the Church Lammas, open for air and exercise. There are clear walked routes to and from the Moor Lane area under discussion and walks around the ponds here. Anyone unable to access the Moor via the two alternative routes has other local access available.

95. In my consideration of the draft Order, I have my own PSED in mind. Although closure of the crossing would lead to some users having to travel further if wishing to make similar journeys to those previously available, I am satisfied that it would also improve their safety, as the identified alternative crossings of the railway are grade-separated. In weighing the positives and negatives in relation to these matters I do not find that closure of the crossing would have disproportionate negative impact on those with protected characteristics.

Flooding

96. Flooding was clearly an issue in relation to FP17, with the landowner concerned that works by the Environment Agency (the EA) may have made ground conditions worse in this area; this is a separate matter outside the remit of the Inquiry. It was also said that the access via FP21 was often subject to flooding, with both alternatives suggested to be less usable due to flooding than FP18.

97. During my November 2020 site visit I found flooding on parts of FP17, FP19 and FP18 on the common land to the north-east of the crossing. I did not find the section of FP45 onto the Moor, under the A30 bridge, to be flooded at that time, although there are photographs of flooding in this area. I asked for flooding information to be provided and this showed that the EA identified the majority of the area being within Zone 3, which is high risk for flooding, with the remainder Zone 2, that is medium risk.

98. Taking account of the evidence as a whole it appears that when the alternative routes would be flooded the route of FP18 would be in a similar situation. I do not consider that the potential for flooding makes the alternative route substantially less suitable for users than the existing route.

Compensation

99. The crossing is situated within the area of interest to the Colne Valley Park Community Interest Company (CVPCIC). CVPCIC aims to maintain and enhance the Colne Valley, said to be the first taste of countryside to the west of London.

100. FP18 was part of one of the promoted 20 Short Walks and CVPCIC were of the view that the alternative routes were inadequate replacements, being longer and subject to the matters already discussed above. In relation to the walks, I note that CVPCIC have altered their walk description to include the identified alternative route, FP17 and Moor Lane. Whilst this is a longer route, I do not consider it significantly so in terms of a planned walk of this nature. It has continued to be used as part of CVPCIC's promoted routes, rather than being withdrawn as unsuitable. I consider that the change in distance more relevant to those living locally and I have taken these matters into account above.

101. By virtue of the section 121(2) of the 1980 Act, section 28 applies to rail crossing extinguishment orders. Section 28 provides for compensation to be payable where it can be shown that the value of an interest in land has depreciated as a result of an order or where a person has suffered damage by being disturbed in his enjoyment of land in consequence of the making of an order. The term "interest" is defined in section 28(5) to include rights over land, whether those rights are enjoyed by virtue of an interest in land, by agreement or by licence. Compensation would only be payable to landowners or those with any other legal basis to sue for the effect the extinguishment on them.

102. As compensation is a post-confirmation matter it is not directly before me. As funding has been agreed between SCC and NR to improve the alternative route I consider this reasonably meets the CVPCIC suggestion that NR should provide mitigation and compensation. The suggestion of investment or an annual contribution that could be used to improve landscape and attractiveness of any alternative route or routes to access the Moor is, in my view, an entirely separate matter, not relevant to my consideration.

Alternative route summary

103. I do not consider it sufficient to simply show that an alternative route exists; that route must provide a reasonable alternative, taking account of the relevant local circumstances, which will be different in every case. Additional distance and time will be inconvenient to some users and may curtail or prevent their former use of the area. Although FP17 is subject to flooding this appears from

the data to be little different to the situation users would find on FP18 and I note that the landowner indicated there had been increased use of FP17 following the temporary closure, suggesting that at least some people have found the alternative to be appropriate for them.

104. I understand that recreational use is important in relation to exercise, wellbeing, physical and mental health, with concerns that older residents in particular were seeing a decrease in footfall and neighbourly greetings. I note that when the application was first submitted to SCC the relevant Officer took the view that the Order should be made. As the highway authority for the area, I place weight on that recommendation. SBC took the view, following securement of the funding for the proposed improvement works, that the northern alternative route could be made sufficiently safe for users. Having accepted that the evidence indicated that the crossing could not be made safe through reasonably practicable means, they were satisfied that the alternative routes offered an acceptable compromise.

105. Taking account of the relevant matters, I am satisfied that there are appropriate alternative routes available, with improvements now secured for the northern route. These routes provide alternatives for all users, whether in connection with their rights of common, their recreation, work, or study purposes. I agree with those objectors who are of the view that there are negative outcomes to closure of such a route. However, I do not consider that in this case that there is such a significant adverse effect on users that this should weigh against the making of the Order.

Other matters

106. There was discussion about diverting the route further to the north-west, with the idea that in being further from the abutment the sighting deficiency would be reduced. The tests for diversion of a right of way over a railway are set out by section 119A of the 1980 Act. Whether it would be subsequently possible to create a crossing over the railway at a different location, if the Order was made, would relate to separate tests, set out under sections 25 or 26 of the 1980 Act. The draft Order relates to extinguishment and I must make my decision on the tests in the relevant part of 1980 Act, which is section 118A, therefore I have not taken further account of these matters.

107. There was unhappiness that decisions were understood to have been taken at a local level, to keep the crossing open, which were not being followed through. Decisions to support, or not to support, closure may be local political decisions or public votes. However, this decision on behalf of the Secretary of State must take account of the evidence available to the Inquiry.

Conclusions

108. I am satisfied with regard to the arrangements for barriers, subsection (4)(b) of the 1980 Act, as set out from paragraph 71 above. As discussed above, I am satisfied that it is not reasonably practicable to make the crossing safe for use by the public.

109. In relation to overall expediency, I must have regard to all the circumstances and in doing so I have taken account of the effect of permanent closure of the crossing on those living locally. I have taken account of the setting and use of

the crossing in the past, which would no doubt resume if it was reopened, and matters associated with use of the alternative available routes.

110. Having regard to these and all other matters raised at the Inquiry, and in the written representations, I conclude that it is expedient that the Order should be made subject to the modification to the date in the title. The Order will be dated at the time that it is made.

Formal Decision

111. The Order be made subject to the following modifications, which do not require advertisement:

- In the title to the Order:
  - replace text "*...2019*" with text "*...2021*"
- Order to be dated on the day that it is made.

Heidi Cruickshank

Inspector

APPEARANCES

In Support of the Order:

Mr J Lopez	of Counsel *on behalf of* Network Rail Infrastructure Limited
who called:	
Mr J Greenwood	Head of Liability Negotiation
Mr D Hajnus	Liability Negotiations Manager
Mr S Pead	Level Crossing Manager

In Objection to the Order:

Mr A Abu Warda	
Mr G Freeman	Spelthorne Natural History Society
Ms L Fuller	
Mr P Graham	Colne Valley Park Community Interest Company
Mrs D Jones	Senior Countryside Access Officer, Surrey County Council
Ms S Jones	
Mr M Matthews	Staines Ramblers
Mr B Milton	British Horse Society
Cllr S Mooney	Surrey County Council
Mr A Murphy	
Mr E Sloane	

Interested Parties:

Mr J Darby	of Counsel *instructed by* Spelthorne Borough Council
who called:	
Mr C Hatton	Planning Officer (Strategic Planning), Spelthorne Borough Council
Mr I Wilks	

DOCUMENTS

1 The Order

2 Opening remarks on behalf of NR

3 NR1: Crashmaps Report

4 NR2: SCC Officers Report Extract

5 NR3: Moor-Opening-190121

6 NR4: Note on Seasonal Flooding

7 NR5: Note on RAIB Reports & attachments

8 NR6: Note on the Prospects of Re-Opening the Crossing

9 NR7: Note on the Consideration of Various Options at the Crossing

10 NR8: Note on the Line Cross-Section and Bridge 3/66

11 NR9: Video of Train Passing the Crossing

12 NR10: SCC PROW Priority Statement 7th edition

13 NR11: NR Letter of Undertaking

14 NR12: FFNRA – Funding Agreement NR/SCC

15 NR13: Note on LIDAR and OD crossing type

16 NR14: NR Closing Statement

17 NR – Photos Moor Lane

18 NR – T936 Research Brief, Enhancing Accuracy and Functionality of ALCRM

19 Mr Abu Warda Objection 1 February 2021

20 Mr Abu Warda Map showing proposed fenceline

21 SNHS information on Staines Commons Steering Group

22 SNHS Managing risk at level crossings

23 SNHS Proof of evidence

24 SNHS Closing submissions

25 Lynda Fuller email

26 Colne Valley Park Staines Moor walk number 20

27 SCC Statement for the Public Inquiry

28 SCC Officer Report, 23 April 2015

29 SCC Closing Submissions

30 BHS Statement of objection, 26 January 2021

31 Memorandum of understanding

32 Equality Act access impact assessment information & example

33 ORR Consultation on 'Principles for managing level crossing safety' guidance, January 2021 & consultation draft

34 RSP7, Level Crossings: A guide for managers, designers and operators, December 2011

35 Cllr Mooney Statement

36 Mr Murphy – photograph of bridge

37 SBC opening submissions

38 SBC enews, 29 January 2021

39 SBC statement withdrawing objection, 29 January 2021

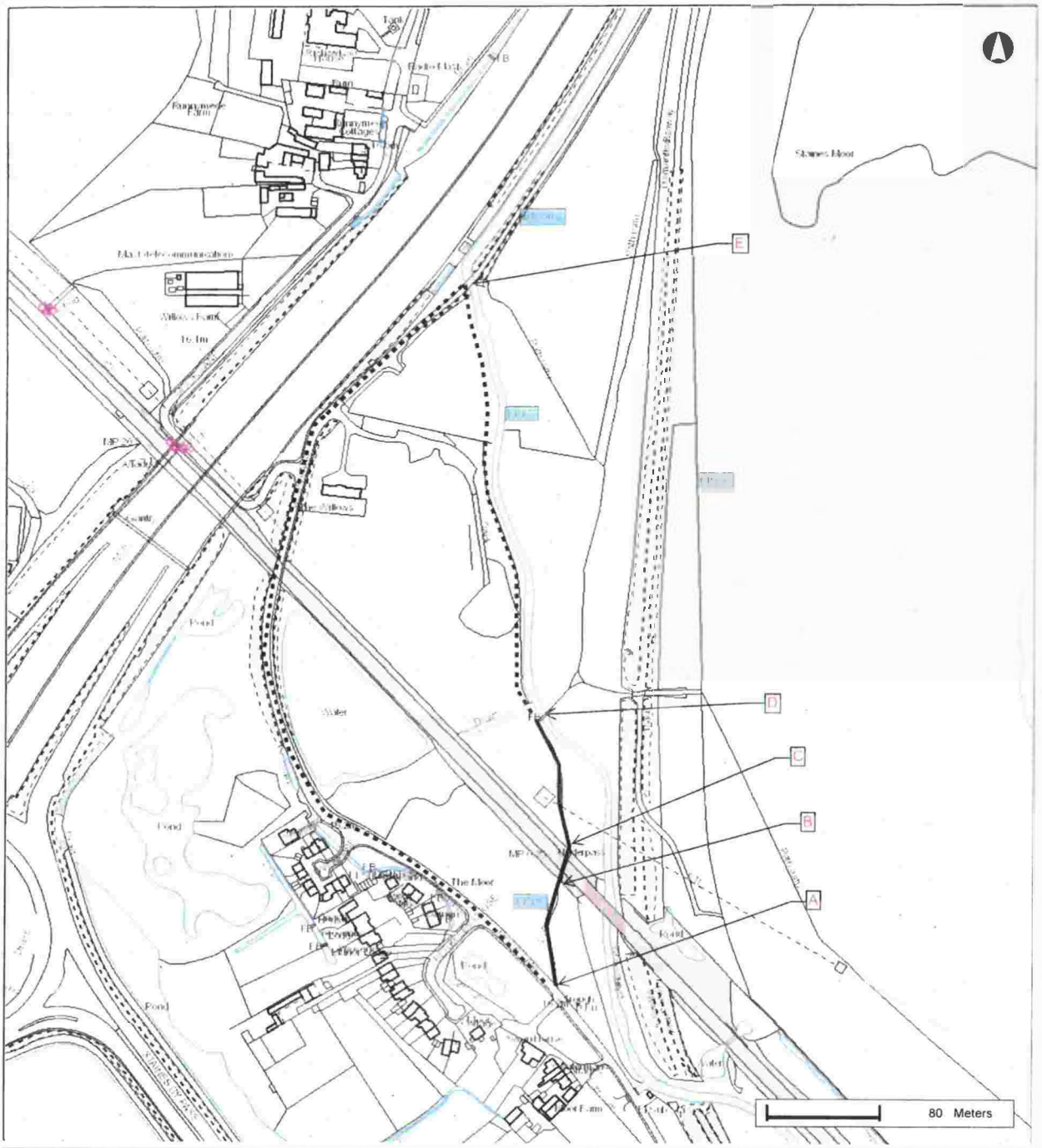
40 SBC further statement, 1 February 2021

41 Mr I Wilks comments

42 SBC Application for costs against NR

43 NR15: NR Response to Cost Application

44 Post-Inquiry Note relating to RSP7 Guidance



Scale 1 : 2,500

Legend

BLACK BOLD LINE - path to be extinguished

BLACK DASHED LINE - alternative route

A	B	C	D	E
Junction of Moor Lane and Footpath 18 X 502742.79834 Y 172695.75926	X 502745.44418 Y 172770.50420	X 502752.72024 Y 172791.67091	Junction of Footpath 17 and Footpath 18/ Footpath 19 X 502727.98477 Y 172886.25964	Junction of Bridleway 50 and Footpath 17

Footpath 18 Staines/Moor Lane level crossing Order Plan

A copy of the Order and Order map may be seen free of charge at the Countryside Access Office, Surrey County Council, Merrow Depot, Merrow Lane, Guildford GU4 7BQ (by appointment Tel 0300 2001003)

Map not to original scale

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (LEEDS TO MICKLEFIELD ENHANCEMENTS) ORDER

DOCUMENT CD.01.21.10

Appendix to Proof of Evidence of Jerry Greenwood, Head of Infrastructure Liability

On behalf of Network Rail Infrastructure Limited

Mountsorrel BW LC section 118A Order Decision 27.08.2019

Date 06 February 2024

The Planning Inspectorate

Order Decision

Inquiry opened on 4 June 2019

by Mark Yates BA(Hons) MIPROW

an Inspector appointed by the Secretary of State for Environment, Food and Rural Affairs

Decision date: 27 August 2019

Order Ref: ROW/3209333

- This Order is made under Section 118A of the Highways Act 1980 ("the 1980 Act") and is known as the Leicestershire County Council Public Bridleway I20 (Part) Parish of Barrow Upon Soar Rail Crossing Extinguishment Order 2017.
- The Order was made by Leicestershire County Council ("the Council") on 4 December 2017 and proposes to extinguish a section of Bridleway I20 in the parish of Barrow upon Soar, as detailed in the Order Map and Schedule.
- There were ten objections outstanding at the commencement of the inquiry.

Summary of Decision: The Order is confirmed subject to modifications set out below in the Formal Decision.

PROCEDURAL MATTERS

1. I held a public inquiry into the Order on 4-6 June 2019 and undertook both unaccompanied and accompanied visits to the site and the surrounding area.

2. The Council adopted a neutral stance at the inquiry and the case in support of the confirmation of the Order was made by Network Rail Infrastructure Limited ("NR").

3. There are two errors on the additional map within the Order[1], which proposes to show the alternative route available to the public. Firstly, the route is shown through properties and not along the highways concerned. Secondly, the one-way system within the village means that it is not possible for horse riders or cyclists to travel northwards along the carriageway of Grove Lane[2]. There is nothing to suggest that anyone was prejudiced by these matters.

4. I take the view that it is not appropriate to insert a new map into an Order to remedy errors with the original version. It is nonetheless open to me to modify this map. The options are that the alternative route and the map key are modified, or the map is struck out. Bearing in mind that there is no requirement for this additional map and the difficulty of showing the different options on it, I consider it appropriate for the context plan to be struck out.

5. It became apparent that the Planning Inspectorate had not forwarded the proof of evidence for one of NRs witnesses (Mr Greenwood) to the other parties. Arrangements were put in place for this to be circulated a few days before the inquiry opened and I gave some additional time on the opening day of the inquiry for people to read it.

[1] Known as the 'context plan' and having the reference number '2340C'
[2] It may be permissible for a person to push a cycle along the footway

MAIN ISSUES

6. The Order was made as it appeared to the Council expedient that a section of bridleway should be stopped up in the interests of the safety of members of the public using it or likely to use it. If I am to confirm the Order, I will need to be satisfied that it is expedient to do so having regard to all the circumstances, and in particular to:

   (a) whether it is reasonably practicable to make the crossing safe for use by the public, and
   (b) what arrangements have been made for ensuring that, if the Order is confirmed, any appropriate barriers and signs are erected and maintained.

7. Whilst particular regard should be given to those matters set out above, other factors may be relevant when determining whether it is expedient to extinguish the section of bridleway included in the Order. Paragraph 5.49 of Defra Circular 1/09 ("the Circular") outlines that these may include "*the use currently made of the existing path, the risk to the public of continuing such use, the effect that the loss of the path would have on users of the public rights of way network as a whole, the opportunity for taking alternative measures to deal with the problem, such as a diversion order or a bridge or tunnel and the relative cost of such alternative measures*".

REASONS

8. The Order proposes to permanently stop up a section of Bridleway I20, where it passes over the Mountsorrel level crossing ("the crossing"), between its junctions with Sileby Road (point A) and Footpath I24 (point B). Further to the north, I20 links with Footpath I23 and continues north westwards to Melton Road/Paudy Lane and beyond. Point A is located towards the eastern extent of the village of Barrow upon Soar. To the south of Sileby Road in this locality is the River Soar.

9. Work has commenced on land to the north of the crossing in relation to the Poppyfields development, which will comprise of 291 dwellings. To the east of the crossing there are industrial units and the Lafarge works on the southern of the railway lines and British Gypsum works on the northern side of the lines.

10. The crossing passes over the Midland Main Line, which comprises of four lines for passenger and freight trains. There are two additional railway lines under the control of Lafarge Aggregates, and these are located nearest to Sileby Road.

Public Use of the Crossing

11. As outlined below, the crossing has been closed on a temporary basis since 2008. The only available information regarding the extent of the use of the crossing arises from a census undertaken over a period of nine days commencing on 25 March 2006. It is noted that nine hours of data was lost due to a person tampering with the camera. Subject to this issue, the camera recorded 358 people using the crossing during the nine-day period, which equates to an average of around 40 users per day. It is stated[3] that ten cyclists and two horse riders used the crossing during this period with the remainder of the users being pedestrians.

[3] At paragraph 2.7.3 of NRs 2019 risk assessment

12. NR relies on statistical data regarding the average figures for the occupancy of houses in the UK, the number of dependent children within households and the percentage of homes having a dog in support of its view that the Poppyfields development would give rise to a significant increase in use of the crossing and that some of this use will involve vulnerable users. Following the completion of the development it is believed that use could rise to over 80 users a day. Reference is also made to visitors to properties on the development. NR says that even without the Poppyfields development there has been natural growth in the village population and estimate that the number of users could have risen to 50-60 people a day if the crossing had been open.

13. Any increase in the number of users gives rise to a greater risk that an accident will occur, but it could also be supportive of the need for a means of crossing the railway in this locality. I accept that the development will lead to an expectation that there will be an increase in use of the crossing. However, I am reluctant to place too much reliance on the average figures involving households in the UK. The nature of the crossing and the locations of facilities within the village may serve to influence use to some extent. It is nonetheless the case that the figures put forward by NR are stated to be on the conservative side.

The Safety of Members of the Public Using the Crossing

14. The Midland Main Line comprises of two fast lines with trains travelling at speeds of up to 110 mph and two slow lines allowing for speeds of up to 65 mph. During operational hours, eight trains per hour pass over the fast lines (four in each direction) and two pass over the slow lines (one in each direction). There are additionally between twenty and fifty freight trains a day.

15. Two additional lines are used by Lafarge and are outside of the control of NR. They consist of a reception line and a loading line. Trains travel at speeds of up to 15 mph on these lines and on average there are between eight and ten arrivals and departures per day. In addition, there are shunting movements during the day which lead to trains moving over the crossing and sometimes stopping on the crossing.

16. An investigation was undertaken following a near miss on the crossing involving a pedestrian in 2008. The recommendation of the Railways Inspector (Mr Tilly) who investigated the matter was that the crossing should be closed. It has subsequently been the subject of temporary closures under the Road Traffic Regulation Act 1984. Some weight should be attached to the findings of Mr Tilly following his investigation of the crossing. However, the same cannot be said to apply to the temporary closures. The extension of the temporary closure was requested by the Council in order to find a solution and this was granted by the Secretary of State for Transport without comment on the merits of the permanent closure of the crossing.

17. Self-closing gates and signage informing people to 'stop, look and listen' were in place prior to the closure of the crossing. The main witness called by NR to speak on safety was Mr Briggs. He outlines that this type of signage is usually placed at decision points. A decision point is where it is reasonable to expect a user of the crossing to make the decision to cross. These signs place reliance on users deciding whether it is safe to cross and heeding the warnings whilst continuing to look and listen when crossing. NR draws attention to research and incidents showing that people do not always look at signage or crossing

equipment and can fail to look for trains when crossing. There may also be instances when people are unwilling to wait to cross for various reasons.

18. Attention is drawn to the risks associated with vulnerable users of level crossings. Vulnerable users are classed as those people who are unable to use a level crossing quickly and effectively and are not fully aware of the dangers at crossings. These include people with impaired mobility, unaccompanied young children, people with ear phones, dog walkers, people with a pushchair, cycle or leading a horse. The near miss incident of 2008 is stated to have involved an elderly person walking a dog.

19. The total distance of the crossing is stated to be 29 metres. Taking 1.2 metres per second as an average speed of a walker[4], the time taken to traverse the crossing would be 24 seconds. Mr Briggs outlines that at this speed a user requires 1,200 metres of sighting of a train approaching to cross safely. In the case of the average speed of a vulnerable user[5], allowing for a crossing time of 36 seconds, 1,800 metres of sighting is stated to be required.

20. Details have been provided of the sighting distances available at this crossing in each direction. In terms of vegetation, this can be removed to some extent in order to improve the sighting of trains. A reasonable user may also be expected to take into account adverse weather conditions, such as fog, when deciding whether to use the crossing. However, the curvature of the railway reduces the visibility of trains from both sides of the crossing to varying degrees in normal weather conditions. Visibility to the west from the northern side of the crossing is further affected by the Grove Lane overbridge. On the south side there will be occasions when visibility is obscured by trains using the sidings. NR also draws attention to trains obscuring the view on the different lines and the potential for people to assume that there is no risk if a train on one of the lines has passed over the crossing.

21. The evidence of NR is that the best available sighting is obtained by looking to the west from the northern side of the crossing and this allows a person to see as far as 660 metres. Therefore, even where visibility is at its greatest, there would be insufficient notice of an approaching train and not enough time to cross the lines in certain circumstances. It is clear the available sighting distances pose a greater risk to vulnerable users. I find this to be a matter of significant concern. NR also points to the diverse speeds of trains leading to problems in a user appreciating how far an approaching train is away.

22. Mr Greenwood highlights patterns of behaviour of people on level crossings. Of particular note are the examples of misuse and trespass at level crossings. He has provided photographs showing youths standing on level crossings, sitting on the decks, walking up or down the rails, chasing each other and playing 'chicken' on the lines. Whilst there is clearly the risk that such behaviour could happen at the crossing, no evidence of misuse has been provided at this location.

23. The 'All Level Crossing Risk Model ("ALCRM") is a computer-based application used by NR to assist in directing risk management at level crossings. This provides a risk result consisting of a letter (A-M for individual risk) and number (1-13 for collective risk). The risk is deemed to be higher towards A and 1. Mr

[4] As recommended by the Office of Road and Rail

[5] Mr Briggs says the current view is that the time for a vulnerable user to traverse a crossing should be increased by 50%.

Briggs outlines the problems with the ALCRM system at the time of an assessment carried out in 2007, which was the last risk assessment undertaken prior to the closure of the crossing. This is stated to have not accurately reflected the nature and use of the crossing for a number of reasons.

24. In order to measure the risk a further risk assessment was undertaken in 2019 on the basis that the crossing is still open. This assessment recorded an ALCRM score of B2 based on the 40 daily users recorded in the 2006 census. Use of the crossing by the 80 projected people (see paragraph 12 above) would give an ALCRM score of B1. I consider there to be some uncertainty in projecting the level of use when the crossing has been closed for many years. Nonetheless, even using the 2006 figures, the risk assessment categorises the crossing as being of a very high risk.

25. It is clear that the crossing poses a substantial risk to members of the public using it. This is borne out by the findings of Mr Tilly and the evidence of the witnesses for NR. It is apparent from the ALCRM score that the crossing continues to pose a high risk to the public. Further the objectors at the inquiry all accepted that the level crossing is unsafe.

Whether it is Reasonably Practicable to Make the Crossing Safe

26. Mr Briggs says that there is a need for a refuge to demark the different sets of lines, but it is not possible to make provision for one of the required dimensions for bridleway users in this location. Although a telephone system was previously in place, it is stated that this could not advise people of trains using the sidings. The Council also outlines that records of phone calls during the period covered by the census revealed that only 1 in 5 people contacted the signaller via the telephone as requested to do so before crossing. I accept that the provision of a NR employee at the crossing 24 hours a day is not a viable option.

27. Miniature stop lights can be employed at level crossings that are linked to the signalling system. These lights are triggered by approaching trains and there may also be an audible warning. They give a warning time of around 40 seconds. However, such a system is considered by NR to be impracticable in this location given the different line speeds and the absence of a decision point between the slow and fast lines. In terms of the use of whistle boards to warn users of an approaching train, these are subject to a maximum position of 400 metres from the crossing. After this distance they serve no useful purpose. They are also not recommended on lines with speeds of over 100 mph or where there are more than two tracks.

28. Mr Greenwood points to the use of a speed restriction in this locality being contrary to the requirement in NR's licence for operational efficiency. The slowing of trains can have a knock-on effect for the network causing congestion and delays. Compensation is paid by NR for delays experienced by train operators. It is also felt that speed restrictions may encourage users to believe they have more time to cross the railway lines.

29. The evidence of NR is that none of these measures could be employed in this location to make the crossing safe. This view is not challenged by the objectors. Instead the objectors consider that an alternative means of crossing the railway lines, as addressed in paragraphs 47-53 below, should be put in place.

Fencing and Signage

30. Following the temporary closure of the crossing people have been prevented from using it by palisade fencing. Ms Bedford of NR is not aware of any incidents of vandalism with this fence. The evidence of NR is that fencing is maintained at least every 12 months. If there is an incident it will be reviewed more regularly. Should there be no further issues within the next 12 months, it will revert to being examined annually. It is not felt that any additional signs would be required if the Order is confirmed.

31. I have no reason to doubt that the fencing would continue to be maintained in order to physically prevent access to the crossing should the section of bridleway be permanently extinguished. If it is considered appropriate to do so the Council could erect suitably worded signage informing the public of the closure of the crossing and the alternative route available.

Other Expediency Issues

Safety and operational efficiency

32. NR has a statutory duty to ensure safety on the railway. The duty of care extends to trespassers as well as lawful users of the crossing. Additionally, it has a duty in its network licence to improve operational performance and efficiency. This will include ensuring that trains run on time and compensation is payable if trains are delayed for whatever reason.

33. It is apparent that the primary concern of NR is safety. Nonetheless, an accident on a crossing is likely to impact on operational efficiency. NR outlines how an accident not only disrupts trains on the Midland Main Line, but it also potentially impacts on the wider train network.

The impact of the loss of the section of bridleway

34. A range of potential reasons for people wishing to use the bridleway have been put forward by the parties. However, there is little evidence regarding the purpose behind the previous use of the crossing. The 2006 census only provides information regarding the number of people using the crossing at that time.

35. The longstanding temporary closure of the crossing has meant that people have had to make use of alternative options. It is apparent from the photographic evidence that the section of I20 to the north of the railway remains well used in conjunction with the existing footpaths. Nonetheless, it seems to me that consideration needs to be given to the likely use that would occur if the crossing were open. The nature of I20 to the north of the railway lends itself more to use by off-road cycles. Clearly, the census information recorded that the equestrian use was limited.

Distance

36. The shortest distance in order to travel between the north and south sides of the crossing by an alternative route is around a mile. In terms of pedestrians this is via the footways of Sileby Road, Grove Lane and Melton Road to ultimately join Footpaths I23 or I24. Cyclists and equestrians travelling northwards have to ride along Sileby Road, South Street and Melton Road before joining I20. When travelling southwards cyclists and horse riders would travel a similar route but this would incorporate Grove Lane.

37. In terms of access to local amenities, most of those mentioned lie to the west of the crossing in or near to the centre of the village. There is no apparent benefit of using I20 as a quicker route to reach a range of destinations such as local schools and shops. The main bus service[6] through the village has stops positioned both to the north and south of the railway. There would nevertheless be some disadvantage for someone wishing to walk or cycle southwards over the crossing to access any of the industrial sites located on Sileby Road.

38. I find it likely that a significant proportion of the use of the rights of way network to the north and south of the crossing is for recreational purposes, such as dog walking. In that sense people would have to take a detour to connect with rights of way on the other side of the railway. However, it is apparent that for walkers at least there is a high concentration of public rights of way to use on each side of the railway. In terms of the network to the north, the existing rights of way will be retained within the Poppyfields development with additional routes provided.

39. To the south of Sileby Road there are paths in the locality of the River Soar. I note that there was opposition to the closure of the crossing from some residents of Sileby Road at the consultation stage. Looking at the network of rights of way in the area, there is the potential for the closure to have a greater impact on residents of properties to the south of the crossing. It is also apparent that there may be times when the flooding stated to occur on occasions restricts use of the ways near to the River Soar. However, there is a lack of evidence from local residents to indicate that the permanent closure of the crossing will have a significant impact on their use of the rights of way network.

40. I consider the issue with horse riders and cyclists to be less about the extra distance required to connect with the bridleway network and more to do with the need to ride for a greater distance on public roads, which I address below. Whilst Ms Bedford has provided details of the locations of the nearest riding schools, it is unlikely that this provides the complete picture on equestrian use. As is the case for Mrs Allen, there may be people whose horses are stabled at other locations within riding distance of I20.

Safety and enjoyment

41. There are footways located on both sides of Sileby Road. A 30 mph speed limit is in place in the locality of point A, which changes further to the east to a 40 mph limit. I also noted the existence of speed humps in places. Reference has been made to the presence of parked cars on the footway. Although not a matter within the control of NR, if parked cars are parked in such a manner as to force people to deviate onto the road, it would potentially impact on the safety of pedestrians. Nonetheless, the northern footway of Sileby Road is generally wide, and I did not encounter any problems with access during my visits to the area.

42. I did not find Sileby Road to be heavily trafficked during my visits to the site, but I accept that the position may be different at certain peak times. No details have been provided of any accidents involving pedestrians, cyclists or horse riders in respect of the alternative routes. Mrs Allen gave evidence regarding the attitude of some motorists when held up by horse riders but

[6] The No. 2 service between Loughborough and Leicester

raised no significant safety concerns. Such conduct may impact more on the enjoyment aspect than on safety. Whilst riders will have to ride on roads elsewhere as part of a riding circuit, the closure of the crossing would lead to horse riders and cyclists having to ride a greater distance on roads. The section of I20 to the north of the crossing is likely to provide a more enjoyable experience to riding on the village roads.

43. The issue of cyclists and horse riders using the local roads needs to be compared with the alternative of traversing the crossing. As outlined above, the present crossing poses a significant risk to the public, and this particularly applies to vulnerable users such as cyclists and horse riders. It is apparent from the census material that there was little use of the crossing at the time by horse riders. Whilst some people such as Mrs Allen may be prepared to use the crossing with a horse, other people were for the most part deterred from doing so.

Cul de Sac

44. Paragraph 5.48 of the Circular advises care should be taken to avoid the creation of a cul de-sac that encourages trespass onto the railway. The closure of the crossing would lead to the creation of a cul de sac bridleway. However, this only materially impacts on horse riders and cyclists as pedestrians can use I20 in conjunction with the existing footpaths. There have been no reported incidents involving people gaining access to the crossing since the erection of the palisade fencing and there is nothing to suggest that the situation will change in the future.

45. Whilst Ms Bedford draws attention to a conservation area being a point of interest served by I20, I consider this to be mainly applicable to pedestrians. I do not see it being a reason for recreational horse riders or cyclists choosing to travel down I20 towards point B. In terms of the concerns of Mrs Allen in relation to Ordnance Survey maps, these will be updated at some stage if the Order is confirmed. I would expect map users to be able to determine where the bridleway terminates once the maps are updated.

46. The creation of a cul de sac section of bridleway is an unsatisfactory outcome for cyclists and horse riders. However, this has to be weighed against the safety of these users and the previous use of the crossing. I address below the potential alternative options previously considered to maintain a link.

Alternative Options

47. NR have had meetings with the Council, landowners and user groups and public engagement events were held to discuss various options should the crossing be permanently stopped up. Details have been provided of fourteen options that have been considered. I have addressed miniature warning lights, the manning of the crossing and speed restrictions in paragraphs 26-28 above. A number of the other proposals involve the provision of a foot or bridleway bridge at the existing crossing point or at the private road known as Pingle Nook. The latter is located near to an industrial estate on Sileby Road. Some of the proposed footbridge options were considered in conjunction with the provision of a link for equestrians and cyclists on the northern side of the railway between Bridleways I20 and I4.

48. The least favourable options appear to be those that proposed to place a bridge at the existing crossing point. NR also draws attention to practical problems

regarding the acquisition of land and obtaining planning permission. A bridge would either block a private access road or need to be built in a garden. These matters are stated to be applicable to a footbridge and it is apparent that the impact would be greater in terms of a bridleway bridge. One of the options for a bridleway bridge would necessitate the purchase of two properties.

49. There is some support for the provision of a footbridge at Pingle Nook. The main issues appear to be the difficulty in tracing ownership of some of the land and the refusal by others to sell land to accommodate the bridge. In my view, this is the most viable option for the provision of a crossing of the railway. However, a footbridge by itself does not take account of the needs of cyclists or horse riders. The impact of a bridleway bridge in this location would again be greater and require the need to remove garages or provide a ramp near to the industrial units. It is also telling that there is no support for the provision of a bridleway bridge from equestrians.

50. Additional concerns are stated to have been raised by the Council regarding the narrow entrance to Pingle Nook given the private vehicular use of it and reference is made to incidents involving vehicles. Ms Bedford also points to the problems that would be encountered in getting machinery such as cranes on site and the need to close the railway lines for a period whilst any bridge is put in place. However, the difficulties in arranging for the works to be undertaken in relation to the construction of a bridge are not insurmountable.

51. In terms of proposals to create a replacement bridleway link, the British Horse Society favoured a new route parallel to the northern side of the railway on land outside of the control of NR. Mrs Allen spoke in favour of a bridleway link between I20 and I4 at the inquiry. However, Ms Bedford outlines that other horse riders disagreed with this option on safety grounds and it is opposed by the owners of the land in question. She says that British Gypsum raised serious health and safety concerns about a route along their western boundary. It would also impact on their ongoing aspiration to construct sidings to the north of the railway. The enhancement of alternative bridle routes and creation of new routes is also stated to have been rejected by affected landowners.

52. Mr Billson, on behalf of Barrow upon Soar Parish Council, considers the restoration of a private underbridge at the site of Hayhill Lane to be the most appropriate option. From my observations of the site there would appear to be significant difficulties in providing a route from Sileby Road given that it would pass through part of the Lafarge site. There would also need to be a lengthy creation on land to the north of the railway to provide a bridleway connection. The information supplied by NR is supportive of the bridge being partly infilled in 1979 and two pipes being taken through the underbridge in 1987. There is also a conveyor belt in this location that would possibly need to be relocated. NR says that the costs of removing the surrounding material, relocating the pipes, bringing the bridge up to a suitable standard and providing appropriate drainage would be considerable and cost more than a bridleway bridge.

53. NR has provided reasons why each alternative proposal is not a viable option. Some of these points are accepted by the objectors. It seems to me that a footbridge would be the most achievable option, but this would not assist with horse riders or cyclists. A bridleway bridge would be more problematic given the size and design required for such a structure within the potential locations.

Further, a bridleway bridge is not favoured by users, including horse riders. Nor is any single proposal favoured by the objectors. I consider there to be nothing to show that a bridleway link on the northern side of the railway or the restoration of the Hayhill Lane underbridge could be a realistic option at the present time.

Bridge or tunnel Order

54. If a crossing is deemed unsafe, a recommendation can be made to the Secretary of State that a bridge or tunnel Order is made. Such an Order would not apply to the alternative link on the northern side of the railway lines, between I20 and I4, favoured by some. As can be seen from the example of a recent decision of the Secretary of State for Transport presented to the inquiry, the costs of implementing a bridge or tunnel needs to be considered against the benefits for the public. If an Order is made, NR has to use its best endeavours to comply with the Order. NR asserts that it could not comply with any Order made within the required timeframe for a variety of reasons.

55. In addition to the budgetary constraints highlighted by Mr Greenwood, there are significant problems that would need to be overcome to provide an alternative crossing of the railway for all users. On the basis of the information provided to me, I find that there is no reasonably practical alternative means of crossing the railway in this locality to warrant the recommendation that a bridge or tunnel Order should be made.

Whether it is expedient to confirm the Order

56. I have concluded that the crossing poses a significant risk to the safety of the public and the evidence of NR is supportive of there no practical means of making the crossing safe. The alternative route available will be less convenient to the public than proceeding directly across the railway lines but this has to be balanced against the safety of the crossing. Further, I am not satisfied that there is a reasonably practical alternative means of crossing the railway lines that would make provision for all types of users.

57. Having regard to my various conclusions, I find that the evidence weighs more heavily in favour of it being expedient to confirm the Order. It follows that I conclude that the Order should be confirmed. I have reached my view on the circumstances in this case and my decision should not be taken to set a precedent for other cases involving an alternative route of a similar distance.

OTHER MATTERS

58. Mr Billson suggested at the inquiry that a permissive bridleway could be created along a fenced corridor over land owned predominately by British Gypsum to provide a link between I20 and I4. This arrangement could cease should British Gypsum wish to do so for operational reasons. It would not create a public right of way in perpetuity but would provide a valuable bridleway link. Whether it is viable option would be a matter for any interested parties to pursue.

59. I note from a consultation response to the planning application for the Poppyfields development that Mrs Allen requested that the footpaths through the site are upgraded to bridleway status. This appears to be consistent with the aim of condition 5 in the planning permission regarding support for the use of non-car use. The Council confirms that the paths through the site are to be improved. Whilst not a matter for me to determine, the upgrading of I24 to

bridleway status would remove the cul de sac element of I20. This is a matter again that any interested parties could pursue.

CONCLUSION

60. Having regard to these and all other matters raised at the inquiry and in the written representations I conclude that the Order should be confirmed with modifications.

FORMAL DECISION

61. I confirm the Order subject to the following modifications:

- Delete the final paragraph of the preamble to the Order, namely "*Plan No. 2340C attached to this Order shows alternative highways available to the public*".
- Strike out Plan No. 2340C in the Order.

Mark Yates

Inspector

APPEARANCES

For NR:

Mr J. Lopez	Counsel instructed by NR

He called:

Mr V. Briggs	Route Level Crossings Manager
Ms S. Bedford	Liability Negotiations Manager
Mr J. Greenwood	Head of Liability Negotiation

Objectors:

Mr J. Howells	Chairman of the Leicestershire Local Access Forum
Mr M. James	Chairman of Leicestershire and Rutland Ramblers
Mr R. Billson	For Barrow upon Soar Parish Council
Mrs V. Allen	President and Networks Officer of Leicestershire & Rutland Bridleways Association and District Access & Bridleways Officer for the British Horse Society

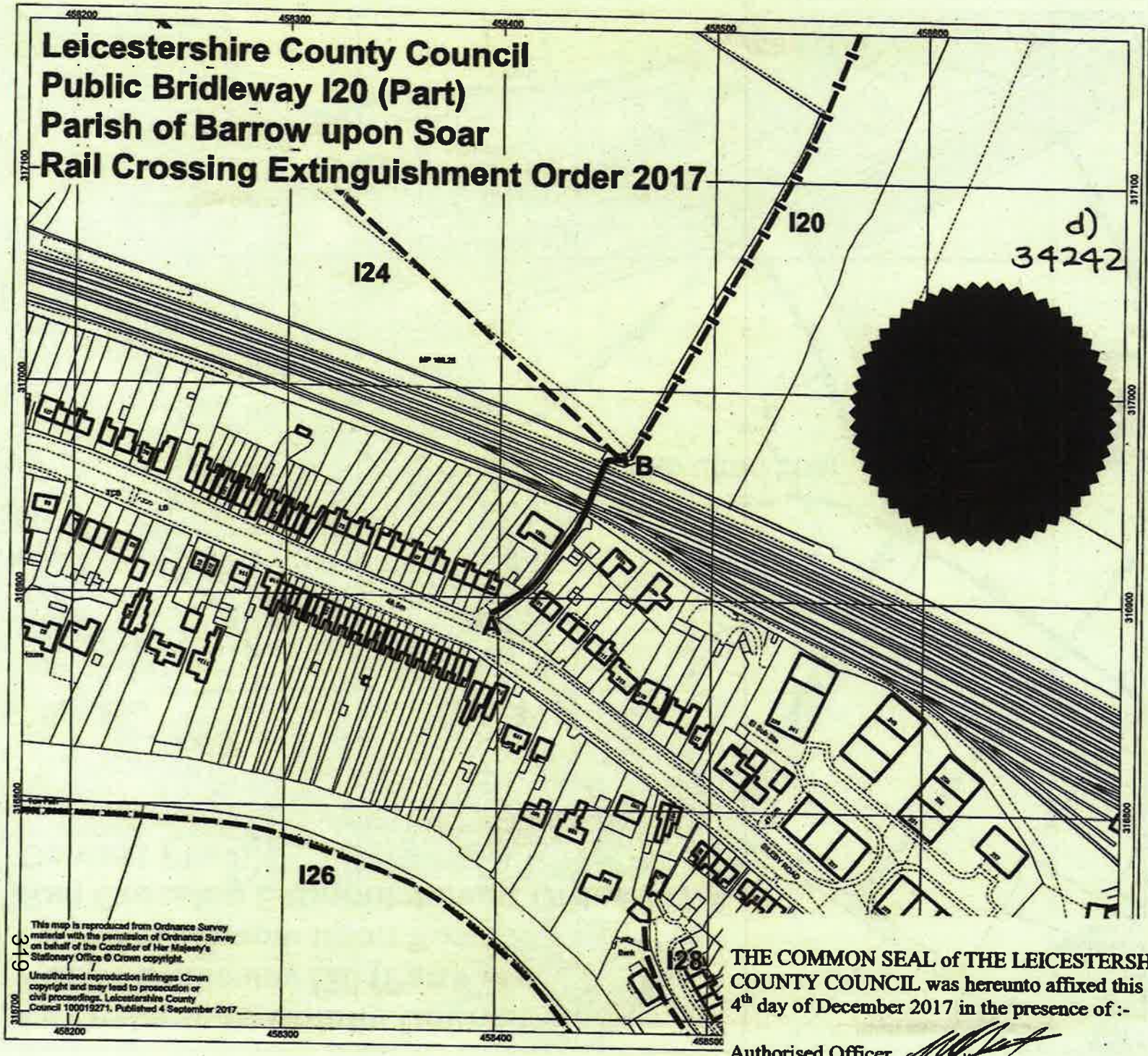
For the Council:

Ms N. Varia	Solicitor employed by the Council
Mr E. McWilliam	Rights of Way Access Manager

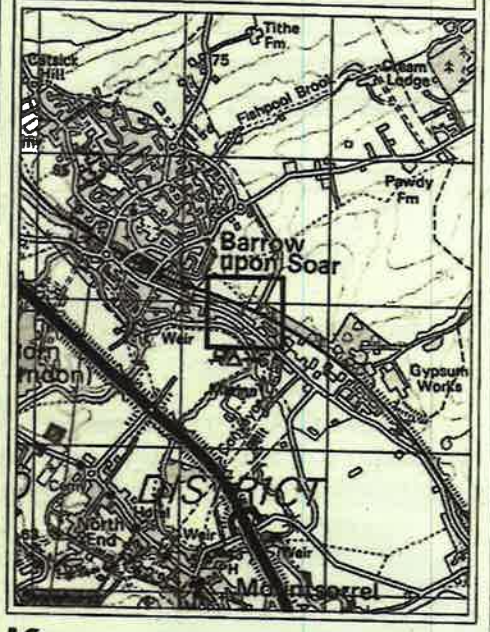
DOCUMENTS

1. Opening statement on behalf of the Council
2. Alternative routes map
3. Legislation extracts
4. Extract from 'Managing Public Money'
5. Extract from 'Network Rail's Licence on Operational Efficiency and Safety'
6. Case of Ramblers Association v Kent County Council [1990]
7. Submission from Mr Billson
8. Extracts of plan and photograph for culvert 54
9. Details of routes in the locality
10. Photographs in relation to Grove Lane
11. Options plan
12. Plans for the Poppyfields development
13. Plans of suggested modifications
14. Temporary Traffic Regulation Order correspondence
15. Closing submissions of the objectors
16. Closing submissions on behalf of NR

Leicestershire County Council
Public Bridleway I20 (Part)
Parish of Barrow upon Soar
Rail Crossing Extinguishment Order 2017



Location Plan



Key

- Public Bridleway Proposed to be Extinguished (A-B)
- Unaffected Public Bridleway
- Unaffected Public Footpaths

Environment & Transport Department,
County Hall, Glenfield,
Leicestershire LE3 8RJ
email footpaths@leics.gov.uk
Phil Crossland, Director

Leicestershire County Council

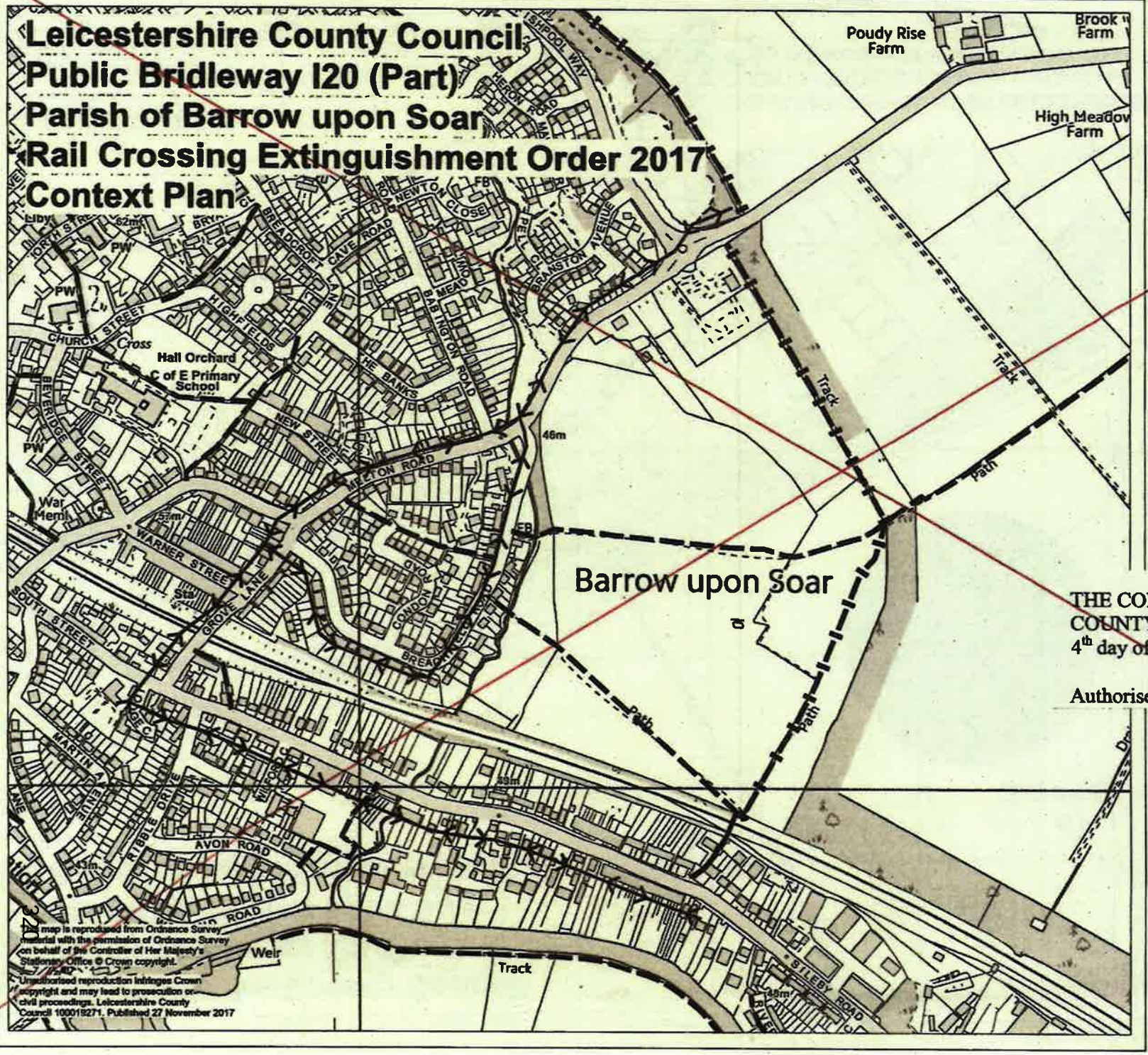
THE COMMON SEAL of THE LEICESTERSHIRE COUNTY COUNCIL was hereunto affixed this 4th day of December 2017 in the presence of :-

Authorised Officer

Plan No.2340

Scale 1:2500

Leicestershire County Council
Public Bridleway I20 (Part)
Parish of Barrow upon Soar
Rail Crossing Extinguishment Order 2017
Context Plan



Key

- Existing Public Footpaths
- Existing Public Bridleways
- Bridleway to be Extinguished
- Alternative Routes via Existing Highways for Equestrians, Cyclists and Pedestrians

2) 34242

THE COMMON SEAL of THE LEICESTERSHIRE COUNTY COUNCIL was hereunto affixed this 4th day of December 2017 in the presence of :-

Authorised Officer

Environment & Transport Department,
County Hall, Glenfield,
Leicestershire LE3 8RJ
email footpaths@leics.gov.uk
Director Phil Crossland

Leicestershire County Council

Plan No.2340C

Scale 1:6000