

**TRANSPORT AND WORKS ACT 1992**

**TRANSPORT AND WORKS (INQUIRIES  
PROCEDURE) RULES 2004**

**THE NETWORK RAIL  
(CAMBRIDGESHIRE LEVEL CROSSING  
REDUCTION)  
ORDER**

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**SUMMARY**

**PROOF OF EVIDENCE**

**-OF-**

**MARK BRUNNEN**

Document Reference	NR27/3
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1. I am employed by Network Rail as the Head of Level Crossings. I set out my qualifications, experience and professional responsibilities in Section 1 of my Proof.
2. The purpose of the Order is to rationalise the number of level crossings in the County of Cambridgeshire. The proposals include the acquisition and use of land in connection with these changes, the construction of works, the extinguishment of existing public and private rights of way across the track, and the creation of alternative rights of way by grade separation.
3. The strategic case for seeking this order (and rationalising at-grade crossing points of the railway) is threefold:
  - a. Improved operational efficiency of the Network.
  - b. Increased safety of both rail users and those interacting with railway by reason of Public and Private rights across the operational railway.
  - c. More efficient use of public funds in accordance with "Managing Public Money".
4. In Section 3 of my proof I provide an overview of level crossings. Network Rail is responsible for approximately 6,000 level crossings. A level crossing is an intersection where a railway line crosses a road or path on the level, as opposed to one crossing over or under the other using a bridge or tunnel. There are many different types of level crossing. Level crossings have been present on the railway since it was first constructed; and from 1839 the Government introduced safety measures as well as standardisation for public level crossings. From 1863 onwards, new railway lines had relatively few level crossings.
5. Few changes were applied to level crossings or their interfaces for the next 100 years. Automatic barriers were first introduced in 1961; this change in crossing equipment made a major impact on the operating ethos of the railway as, while the duty to control the risk at a level crossing remained with the railway, it now placed responsibility for the safe use of a public crossing on the road user
6. Whilst the railway has continued to modernise and society has evolved, many level crossings have not. We are left with a level crossings legacy that remains today and an interface at odds with the cultural safety expectation of today's society. Trains which were once less frequent, slower and louder have been replaced by rolling stock which is significantly faster and quieter than predecessors. Once infrequent road traffic has also increased and continues to rise. Pedestrian level crossing users are more likely to be distracted when using level crossings.
7. In Section 4 of my proof I explain Network Rail's regulated functions. The activities of Network Rail are regulated by the ORR and by the Secretary of State under the Railways Act 1993 by virtue of its Network Licence dated 1 April 2014. As the operator and owner of the national rail infrastructure, Network Rail has a key role to play in railway safety and improving railway performance and efficiency. The Licence is a primary instrument through

which ORR holds Network Rail to account, and Network Rail must comply with it in all respects. The Licence includes the responsibility for managing safety on the network which extends to overseeing safety matters relating to its staff, contractors, train and station operators; those who come onto railway land or property, either as a private individual or a member of the public. The use of any level crossing is necessarily encompassed within this global responsibility.

8. Network Rail is under a duty (that is ultimately regulated and enforceable by ORR) to operate the rail network efficiently and safely, so far as is reasonably practical, and having due regard to all relevant circumstances, as well as to satisfy more generally the core needs of train operators and of rail users. In so doing, Network Rail contributes towards the successful development of the Government's integrated transport policy.
9. In Section 5 of my proof I address the wider context for the Order, including national policy and guidance. In particular, I note the ORR's "Strategy for regulation of health and safety risks – 4: Level crossings" which seeks to encourage crossing closure and states that the removal of crossings is always the first option to be considered in a risk control strategy. The ORR's "Periodic Review 2013: Final determination of Network Rail's outputs and funding for 2014-19" imposes a requirement to deliver level crossing closures to maximise the reduction in risk of accidents at level crossings, and provides funding for that purpose.
10. In Section 6 of my proof I describe Network Rail's level crossing policy and strategy. I explain that Network Rail policy is to seek to eliminate traverses across the railway at grade, wherever possible. The reduction of the number of level crossings on the network is an important strategic priority, consistent with the regulatory duties described in sections 4 and 5 of my proof. In "Transforming Level Crossings 2015–2040", Network Rail sets out a move away from reactive management of emerging single issues in isolation, in favour of a targeted strategic plan to improve safety.
11. In Section 7 of my proof I consider level crossing risk. Collectively, level crossings form the largest contributor to train accident risk on the railway network. There are broadly two groups of crossings: active crossings (where the user is warned of the approach of a train) and passive crossings (where no warning of train approach is given other than by the train driver who may use the train horn and the onus is on the crossing user to determine whether it is safe to cross the line). I explain a number of accessibility problems which arise at level crossings. I explain the accident statistics for level crossings and note that over the past 5 years, there has been an average of 253 near misses with non-vehicular users reported per year. It is widely acknowledged that removing 'at grade' railway crossings is both the most effective way of reducing risk at level crossings, and the only way to eliminate the risk completely.
12. In Section 8 I explain the approach to level crossing risk management. I describe the All Level Crossing Risk Model (ALCRM) which provides a quantitative assessment of risk. Alongside its quantitative assessment, Network Rail also incorporates a qualitative (structured expert

judgement) approach to assessing risk at level crossings. This helps to deliver a rounded and balanced analysis of risk. In August 2014, Network Rail introduced the Narrative Risk Assessment (NRA), which takes both the quantitative calculated risk recorded in ALCRM, and the qualitative commentary, enabling the risk assessor to reach and document balanced decision making of the risks and risk controls required. I explain that ALCRM has not been used to select or prioritise crossings for inclusion in this Order but note that implementation of the Order will result in a reduction in FWI on the network.

13. In Section 9 I consider human behaviour as it affects level crossing use, and risk control selection. I consider vulnerable users of level crossings and those who are otherwise encumbered. I note that a significant number of users fail to check for trains. I explain that user gender and age, and familiarity with a crossing, may affect risk. I explain some of the safety mechanisms and their shortcomings, and the risk of slipping or tripping on the crossing.
14. In Section 10 I consider whistle boards, sighting distances and line speed. Whistle boards are a legacy risk mitigation which instructs Train Drivers to sound the train horn where sighting of approaching trains is limited at a level crossing. Their presence does not eradicate all risk. A person's judgment of speed is intuitive and often based on daily experience of road vehicles. This can give a highly inaccurate perception of the speed of an approaching train. A reduction in the line speed will provide users with additional visual warning time of approaching trains and may improve safety. However, reducing line speed goes against operational efficiency and conflicts with the intention of Network Rail's Licence conditions; the expectation in government funding of Network Rail is that line speeds should increase to reduce passenger journey times, not be permanently reduced.
15. In Section 11 I address the effect of trains passing each other in the vicinity of level crossings on the safety of the use of those crossings. In Section 12 I address deliberate misuse and trespass at level crossings. In Section 13 I refer to the Rail Accident Investigation Branch's investigations of fatal incidents at crossings.