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**THE NETWORK RAIL (LEEDS TO MICKLEFIELD
ENHANCEMENTS) ORDER**

**Summary of Level Crossing Safety
Summary Proof of Evidence
of
Andrew Cunningham**

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Author	Andrew Cunningham on behalf of Network Rail
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The Network Rail (Leeds to Micklefield Enhancements) Order*CD 7.22 -Summary of Level Crossing Safety Proof of Evidence***1 PERSONAL DETAILS****1.1 Qualifications and Experience**

1.1.1 I am Andy Cunningham, a Route Level Crossing Manager (RLCM) employed by Network Rail to manage level crossing risk within the North & East Route, part of the Eastern Region. I have 23 years' experience working within the railway industry, becoming a Level Crossing Manager (LCM) in 2012. My roles and responsibilities during this employment were to conduct maintenance activities, risk assessments on level crossings alongside managing the enhancement and renewals work, along with other aspects relating to "Off Track" works within the railway industry.

So far as is relevant to this public inquiry, my role includes the sign off and approval of LCM Assessments on level crossing risk and condition of assets, and to oversee the inspection and maintenance regime.

2 SCOPE OF EVIDENCE

2.1 My proof of evidence deals in detail, the current risks and imported risks at five level crossings that will be affected by the Trans Pennine Route Upgrade (TRU) project.

3 LEVEL CROSSINGS**3.1 Location**

3.1.1 The five crossings are located on the Leeds to Micklefield route. All are situated in the Garforth area.

3.2 Rail Operations

3.2.1 The Railway has two operational lines over each level crossing Approx. 233 trains run daily over four of the crossings over 24-hour period, with passenger /freight trains traveling at varying speeds up to a maximum speed of 90mph. The 5th crossing sees approx. 63 trains daily with a line speed of 90mph.

3.3 Physical features of the Crossings

3.3.1 Two of the crossings (Garforth Moor and Highroyd's Wood) are currently closed under a temporary traffic restriction order (TTRO) on safety grounds. The Crossings each have/had wicket gates and a non-slip rubberised deck surface. Barrowby Lane, Garforth Moor, Peckfield and Highroyds Wood all have insufficient sighting of approaching trains Although Barrowby Lane has Miniature Stop Lights (MSL) fitted to mitigate the restricted sighting and

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Peckfield, being a Bridleway, has telephone mitigation for equestrian users. Sighting is currently compliant at Barrowby Foot crossings.

4 LEVEL CROSSING RISK

- 4.1 Level crossing risk is one of the highest risks on the railway. Electrifying the route and increasing train services will sufficiently increase risk at all the Crossings. Therefore, Network Rail is required to evaluate impact on risk and undertake measures to reduce risk so far as is reasonably practicable.
- 4.2 With Regulator (ORR) and DfT backing Network Rail has a long-term strategy to manage level crossing risk. The key option for reducing risk is by reducing the number of active/open crossings. In doing so, additional works are proposed to preserve the PRow network that would be affected by the closure of a crossing. This approach is further highlighted in the ORR's publication "Principles for managing level crossing safety" dated 15 June 2021.
- 4.3 Where a level crossing cannot be closed and remains open for use, even with sufficient mitigation measures in place, the risk remains high. Users do not always behave in a consistent, predictable or appropriate manner and the Rail Safety and Standards Board (RSSB) advise public behaviour is the highest cause of fatal incidents at level crossings.

5 RISK ASSESSMENT**5.1 Legal Requirement**

- 5.1.1 Network Rail has a legal duty to assess risk at all level crossings on a regular basis and when risk levels change. Risk assessments, both on a Quantitative and Qualitative nature are carried out by LCMs who must consider factors such as the frequency and speed of train, those who uses the crossing and how it is used, physical features including crossing approaches, sighting restrictions, weather conditions and the surrounding environment.
- 5.1.2 I set out how Quantitative and Qualitative assessment allows for a comprehensive and expert overview of safety risk and how the data is used to make informed decisions about options for improving level crossing safety.

5.2 Quantitative Risk Assessment

- 5.2.1 The All Level Crossings Risk Model (ALCRM) calculates Quantitative assessments. This industry approved Risk Model quantifies individual risk, collective risk and Fatality and Weighted Injury probability at all level crossings across the UK mainline rail network.

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5.2.2 Quantifying risk helps Network Rail to prioritise locations that require risk reduction mitigations and funding allocation. It also allows Network Rail to model the impact of rail projects (including implementing additional train services), third party projects (i.e. housing developments) and level crossing improvement proposals.

5.3 Qualitative Risk Assessment

5.3.1 Qualitative risk assessment involves the LCM applying structured expert judgement throughout the assessment of each level crossing. Evidence and data to support the risk assessment is collected from; site visit, applying local knowledge, using information sources, engaging with stakeholders, reviewing accident/incident history data and reviewing previous assessments. This is all documented in the full, in the “Narrative Risk Assessment” (NRA) for each crossing.

5.4 Key Inputs

5.4.1 There are a number of key inputs into the level crossing risk assessments, including:

- Crossing type
- Amount of rail use (number of trains) – a new train count is undertaken for each new NRA.
- Speed and variation of speed of approaching trains
- Amount of public use including use by vulnerable and/or encumbered users who may need more time to cross safely – a new census of user is conducted for each NRA.
- Warning time, and whether it is sufficient for users to cross safely.

6 RISK AT THE CROSSING**6.1 Modelled Risk**

6.1.1 The latest risk assessments result in higher risk scores on all five crossings. Factors that lead to a higher risk score at each Crossing include, very high train count, extremely high line speed, mixed rail traffic and local environmental factors.

6.2 Census details

6.2.1 User Census has been undertaken at each of the five crossings. A description of the various profiles of user, including child, vulnerable and encumbered

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users, dog walkers and adverse human behaviours, as a major contributory factor for incidents, with details of these user groups also captured within the census.

6.3 Previous incidents

6.3.1 The data also includes a history of incidents at each Crossing, including accidental human error as well as deliberate misuse, deliberate violations and acts of trespass at each crossing over the last ten years.

6.4 Optioneering

6.4.1 Specific to the five Crossings, I outline how the quantitative and qualitative risk assessment data has been used to inform decisions about the different options that have been modelled in ALCRM, to determine what, if any, risk reduction each will provide and whether any that may potential to come forward, may simply not prove reasonably practicable in the particular circumstances, thereby concluding why closure remains absolutely necessary.

6.4.2 Consideration of risk reduction balanced against Cost Benefit Analysis (CBA) to determine whether any of the options can be considered, concluding that the provision of MSLs would not suitably reduce risk to as low as reasonably practical and whether a bridge or underpass can be built in light of physical constraints and topography on site.

6.4.3 The outright closure of the crossings remains the preferred and safest solution, removing all risk. For this reason, it is the recommended option of ORR and DFT. However, in a positive attempt to preserve the PRoW network, as outlined in the "Principles for managing level crossing safety," alternative routes are considered as suitable diversions.

6.4.4 This can involve use of existing routes utilising other means of crossing the railway safely (such as an existing bridge) or the creation of new paths and bridges, where cost and site circumstances justify their provision.

6.4.5 The provision of MSL at level crossings can give sufficient warning to users of a crossing on the approach of trains. Although the red/green lights act as a warning system they do not actively prevent a person from walking out in front of a train. The effectiveness of MSLs therefore depend on users observing the warning and adhering to the warning provided. However, RSSB confirms their effectiveness is significantly reduced by;

- User characteristics: sighting impairments, restricted mobility, cognitive issues and distraction

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- Deliberate violations – deliberately ignoring red lights, playing ‘chicken,’ or people with suicidal intent
- Environmental factors, such as sun glare making it difficult for users to see the MSL indication

Consequently, MSLs do not remove risk and where train services are heavy, with trains approaching at varying speeds, the risk remains unacceptably high. That is the situation assessed at the five crossings and why the retention of the crossings protected by MSLs has not been proposed.

6.5 Recommendation

- 6.5.1 My evidence strongly supports closure of all five Crossings, being the only effective way to mitigate risk so far as is reasonably practicable. As noted above, the Crossings already have a high train count, an extremely high line speed, mixed speeds and train lengths– all which is proposed to increase if the order is made.
- 6.5.2 Even with MSLs at Barrowby Lane, before the implementation of additional high-speed trains, safety incidents already occur. There is also a history of misuse and safety incidents at nearly all the crossings; it is evident that this will increase should they remain open for use.

7 CONCLUSION

- 7.1 The conclusion in respect of each Crossing being retained, there are no technical solutions either available now or foreseeably, that could reasonably and practically be delivered in order to meaningfully eliminate or satisfactorily reduce safety risk in overall terms.
- 7.2 Consequently, my expert judgement concludes that there is a strong safety case for closing each of the Crossings and replacing them with a grade separated means of crossing the railway/diversion of the right of way.

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Witness Declaration

I hereby declare as follows:

- (I) This proof of evidence includes all facts which I regard as being relevant to the opinions that I have expressed and that the Inquiry attention has been drawn to any matter which would affect the validity of that opinion.
- (II) I believe the facts that I have stated in this proof of evidence are true and that the opinions expressed are correct.
- (III) I understand my duty to the Inquiry to help it with matters within my expertise and I have complied with that duty.

Signed:



Andrew Cunningham
Route Level Crossing Manager, Network Rail
2 February 2024