



HMRI's Risk Profile Topic Strategy for Track 2006-07 to 2008-09

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1 INTRODUCTION

This document sets out HMRI's overall policy and strategy for securing adequate control of risk from track, which includes plain line and switches and crossings (S&C), on railways in England, Scotland and Wales.

It applies primarily to the activities of infrastructure controllers but extends to others involved throughout the lifespan of track, from design, through manufacture, supply, installation, inspection, maintenance and renewal.

Further details of the scope and the context for HMRI's strategic approach, including the relative priority afforded to Track by application of the HMRI Risk Profile Topic Planning process and the proposed work streams for developing and delivering this strategy, are set out in a supporting document. Contact the author for further details.

2 OVERVIEW OF CURRENT POSITION ON TRACK

In recent years there has been, and there continues to be, a public perception and concern about poor quality, and potentially unsafe, track on the national rail network. The serious incidents at Hatfield and Potters Bar fuelled public concern. The derailment incidents in October 2003 on London Underground Ltd. have served to extend concern to railways in general. Ongoing investigations, legal proceedings, and associated media coverage seem only to reinforce negative perceptions.

However, care must be exercised to ensure perceived risk is consistent with actual risk, and the most reliable indicators currently available lie in longer-term trends. For example the statistics show there was a substantial increase in broken rails on the national network over several years leading to a peak of 952 in 1998-9. However since 2000 the statistics show a major reduction to a level of around 300 per annum by 2004-5. Against historic levels of 600 to 700, current levels represent a forty-year low. This is clearly good news and reflects significant efforts by Network Rail and its predecessor. Although the incidence of rail breaks has significantly reduced, broken rails continue to be one of the key catastrophic accident risk precursors.

Network Rail have been involved in delivering major investments in track renewals, targeted at clusters of breaks and defects. This appears to have been made possible with targeted funding which starts to redress funding deficits in past years.

Work is also progressing to introduce proactive maintenance through development of automated track related inspection, focusing on geometry, component condition and rail integrity. The proactive inspection philosophy of these new technologies being explored is to 'measure, predict and prevent', compared with the almost universal current and historic reactive track maintenance regime of 'Inspect, Find and Fix'.

It is important to note that direct responsibility for track Inspection and maintenance has been brought under direct control of Network Rail, having previously been carried out through contractors with infrastructure companies.

In considering track risks and associated accident precursors on the national network, HMRI have used information from the RSSB Safety Risk Model (SRM) and associated Risk Profile Bulletin (RPB) updates. Analysis of this information, provided in the supporting document to this overview, identifies the following catastrophic accident risk precursors which will be used as a focus within this strategy: Gauge Spread; Track Twist; Broken Rails (including within tunnels); Buckled Rails; Broken Fishplates; Track maintenance staff errors; Cyclic top, and S&C defects.

At the present time, HMRI have not carried out a similar analysis of track risk with London Underground (LUL). This is because directly comparable data to that in the SRM does not exist. Data collected since the PPP (2003) is roughly comparable and will therefore be useful into the future, but at present is too immature to provide the basis for a reliable analysis. Prior to 2003 comparable accident precursor data is difficult to extract from the different data sources kept at that time. HMRI work has begun with LUL and the Infracos to devise the best means of finding information to inform HMRI's strategy.

The overall condition of LUL track, including plain line and S&C, is a concern for both LUL and HMRI. Compared to the national rail network, LUL track is generally older, has wooden sleepers sitting on inferior ballast, with short-length, jointed bullhead rail. LUL carries more passengers every day on forty times less track miles than Network Rail. Axle loads and speeds are less, but the track is more intensively used.

The degraded nature of the track asset on LUL has led to HMRI devoting considerable resource to both planned inspections and incident investigation, which in some instances has resulted in enforcement activity. Although track renewals are now happening at unprecedented volumes, HMRI will continue to monitor this programme and focus on those aspects of plain line and S&C, which are believed to pose the most significant catastrophic accident risk.

Despite the different characteristics of the LUL system, the significant track risk accident precursors are considered to be the same as those described above for the national network.

Other railway infrastructures on Metro systems, light rail and Minor Railways will also share the same accident risk precursors but with different risk profiles. When compared with the national network, this group can be generally categorised as having less kinetic energy and consequently the overall profile of catastrophic risk is likely to be lower. That said the characteristics of some individual systems challenge this generalisation, for example some Metro systems, including the SPT Glasgow Underground and the Tyne and Wear Metro carry large numbers of passengers in difficult environments underground. Further work is therefore proposed to enable better assessment of the track risks posed by these systems, including

consideration of the network conditions and the level of technical expertise available to support inspection and maintenance.

Similar work is proposed to consider the relative risks posed by the Channel Tunnel Rail Link (CTRL).

3 HMRI POLICY ON TRACK

HMRI's overall policy on Track, including Plain Line and S&C is:

- To ensure track risks are being managed within the requirements of the law;
- To provide an effective, fair and independent challenge of the management of catastrophic risk, with work activities prioritised on a risk basis;
- To direct our work activities so that they effectively contribute to continuous improvement, so far as is reasonably practicable, in the management of catastrophic track risk accident precursors;
- To ensure that our work activities complement and add value to those carried out by legal dutyholders and other stakeholders with an interest in the management of track risk; and
- To continue developing our understanding of catastrophic accident track risks and engage with industry dutyholders at appropriate levels, so as to most effectively influence industry priorities according to the profile of risk.

4 STRATEGIC AIMS ON TRACK

HMRI will seek assurance that catastrophic accident track risk is being effectively managed on all relevant railway infrastructures¹ and join with the industry in sharing the assurances with the public.

More specifically the following strategic aims have been identified to deliver HMRI's overall policy objectives on track, including plain line and S&C:

- Ensure catastrophic accident track risk precursors in existing systems are being adequately controlled;
- Ensure catastrophic accident risks from new track are minimised through appropriate design and installation;
- Ensure that information and intelligence on track risk precursors are used effectively to prioritise targeted programmes of work;
- Encourage and engage with the industry to promote suitable research to identify and promulgate good practice and innovative approaches, to track accident precursor risk reduction;
- Engage with industry to promote understanding of the interaction between vehicle and track, and the importance of complimentary standards and levels of maintenance;

¹ Relevant railway infrastructures as defined in supporting document to this strategy.

- Ensure recommendations relating to the management of track risks from investigations of recent major incidents; from Rail Accident Investigation Branch (RAIB) investigations, as well as other HMRI and industry investigations are satisfactorily addressed;
- Undertake appropriate enforcement action on track issues in accordance with ORR's Enforcement Policy Statement;
- Ensure that HMRI's management arrangements for gathering information and intelligence, maintaining a competent organisation, planning, implementation, monitoring and review of its own activities on track including plain line and S&C issues, are suitable and effective; and
- To develop this Track Strategy through specific Development Actions

5 DELIVERING THE TRACK STRATEGY

HMRI will deliver the track strategy in a number of ways:

- Initial integrity issues will be delivered through statutory duties under the ROGS and Interoperability Regulations (Currently under review);
- Proactive inspection programmes, prioritised with a focus on catastrophic accident risk precursors for track including plain line and S&C, and delivered through individual dutyholder Inspection plans. The inspection programmes will consider track throughout its life, ensuring the dutyholder has appropriate risk controls and supporting management systems in place;
- Considering incidents that have occurred, with appropriate RAIB liaison, to identify shortcomings in the management of track risks and ensure suitable corrective actions are identified and acted upon; and take enforcement action in line with ORR's Enforcement Policy Statement. Also, as the Safety Authority, to monitor implementation of recommendations made by RAIB;
- Continuing current support to the RSSB Vehicle/Track Systems Interface committee and promulgating the findings of that committee to staff in HMRI;
- Continuing current support for research activities on light rail systems, through engagement with UK Tram Ltd;
- Review performance data related to track safety across all railways to determine any existing or emerging issues, to inform our strategy and work planning; and
- Development and review of this strategy by track topic strategist supported by the HMRI Track Integrity Strategy Group.