Benefits of Lighter Weight Trains

The rail industry now has use of new figures and methodology, researched and calculated by RSSB, which give an indication of the potential cost reductions on energy use and track degradation in terms of maintenance and renewals, through reduced train mass.

Historically, there has been no consensus on a quantified value of the benefit of reducing the mass of trains. While there is general acceptance that mass is important, without an agreed set of values for defining the benefit, procurers and manufacturers find it more difficult to make decisions on what vehicle features to put in specifications, or what technology to invest in.

In response, research by RSSB has provided the rail industry with a process and some examples of energy and track impact costs for typical trains on a comprehensive range of routes and service patterns. The research was undertaken for the Vehicle / Vehicle System Interface Committee (V/V SIC) as part of the rail industry’s research and development programme, funded by Department for Transport (DTF) and managed by RSSB on industry and government’s behalf. RSSB’s in-house expertise on infrastructure and rolling stock was engaged, which was cheaper than using external sources. The need to develop new modelling techniques was avoided as RSSB used the established Vehicle Track Interaction Strategic Model (VTISM) to derive values.

Looking at both the effects on track degradation in terms of maintenance and renewals and at energy demand, the team has come up with a series of outputs that allow monetary values to be calculated for reducing or adding weight on a train. The models were applied to a family of generic trains from Inter City to Metro types, each with their own differing characteristics. The values of mass from the track and energy costs were combined in the

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RSSB Events 2009

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
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<tr>
<td>22 Sept</td>
<td>Freedom to Train Workshop</td>
<td>York</td>
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<tr>
<td>30 Sept</td>
<td>DRACAS Seminar</td>
<td>RSSB London</td>
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For details of changes to Railway Group Standards view the Latest Updates page on the RGS Online website www.rgsonline.co.uk

You can subscribe to Information Bulletin on the RSSB website. http://www.rssb.co.uk/Publications/Lists/infosubform.aspx
The SRM templates, which are produced to help transport operators create a comprehensive risk profile for their assets, are due to be released in August. A tool for undertaking ‘Decisions’ and ORR guidance is also in the final stages of development.

The M&EE Networking Group remains responsible for all of RSSB’s Codes of Practice. The Group is also coordinating the publication of full Code of Practice documents on the www.rgsonline.co.uk website.

For a given fleet size, predicted annual mileage and service type, specific annual savings (or penalties) can then be computed for project business cases or tender adjudications on a consistent basis for both rolling stock modifications and the specification of new fleets.

The savings add up. For an Inter City or Inter Urban route, the net present value over 30 years is between approximately £25k and £40k per tonne reduction in mass. For a Suburban or Metro route, the value is between £7k and £12k.

The findings from the research will be shared with train specifiers, financiers and manufacturers and incorporated into the Key Technical Requirements document administered by V/V SIC. The members of the SIC believe the work demonstrates the industry’s commitment to embed its capability to deliver green transport in the future while at the same time avoiding unnecessary cost.

The research can be downloaded from the RSSB website (www.rssb.co.uk) under project T712 Research into trains with lower mass in Britain. For more information contact Bridget Eickhoff bridget.eickhoff@rssb.co.uk or Nikhil Kapur nikhil.kapur@rssb.co.uk

Network Rail contracted to research climate change impacts on its assets

The GB railway system faces a long term challenge: it needs to manage the risk represented by extreme weather events on the infrastructure, but at the same time secure increased capacity as well as value for money. The Falls of Cruachan derailment near Oban on 06 June 2010 is a recent illustration of the potential impacts of incidents on safety and reliability.

The cross-industry Technical Strategy Advisory Group (TSAG) is sponsoring research conducted by Network Rail itself to provide information on the likely effects of the climate on asset performance and safety, both infrastructure and rolling stock. Using the very latest UK climate projections (formerly known as UKCIP08) published in 2009 by the UK Climate Impacts Programme, it will enable a prediction of likely asset and system behaviour for the next 50 years.

Initial evaluations by RSSB suggest that the research – once implemented - will benefit the industry by at the very least avoiding £1billion in unnecessary extra cost between 2014 and 2044 to future-proof the infrastructure against a backdrop of increased impact from climate change.

More optimistically, it could potentially lead to avoiding all unnecessary extra cost to mitigate the changes in risk and some of the current costs associated with business interruption (for example through line closures) and material damage – a combined total cost avoidance of £3 billion.

Network Rail is currently working with the Met Office, using their data to help stress test thousands of miles of rail tracks, embankments and bridges to see if they can stand up to the patterns of extreme weather predicted over the coming decades. It's not cheap – the investigation itself will cost around £750,000. But when Network Rail point to savings of around £1billion over 30 years, then this kind of work starts to look like incredibly good value for money.

The research will be shared with train specifiers, financiers and manufacturers and incorporated into the Key Technical Requirements document administered by V/V SIC. The members of the SIC believe the work demonstrates the industry’s commitment to embed its capability to deliver green transport in the future while at the same time avoiding unnecessary cost.

For more information on these RSSB organised events, please contact Stella Okezie, conference manager on stalaya.okezie@rssb.co.uk.

For more information on the project, contact James Hardy, head of strategy support, at james.hardy@rssb.co.uk or go to the Research and Development section on www.rssb.co.uk or go to www.futurerailway.org.
SMIS 9.1

The Safety Management Information System (SMIS) is the industry’s national database for the recording of safety related events that occur on the network. Its use is mandatory for all Infrastructure Managers and Railway Undertakings operating on Network Rail managed infrastructure.

The collection of safety related data and turning it into intelligence and risk information assists the industry in analysing risk, predicting trends and focussing on major areas of safety concern. It is key to successful management, planning and decision making within the industry.

The SMIS database has become the backbone of industry safety data since its development began in 1997 with the mandatory reporting of events being specified in Railway Group Standard GE/RT8047. Over 1.6 million events have been recorded to date. On the basis of this extensive source of data, safety performance reporting and risk assessment has developed extensively within the individual companies and RSSB. It is the main source of data used in the development and updating of the Safety Risk Model.

RSSB, in conjunction with Network Rail, has recently implemented a significant project to upgrade SMIS. Known as SMIS 9.1, this project has provided the industry with the following benefits:

1. Improvements in the reporting of radio system failures and track/train control system events (AWS, TPWS etc.). This will result in better data being made available for analysis which will assist the industry in implementing action plans to mitigate the risk of these types of events occurring in the future.

2. Providing industry with the means to meet the ORR’s RIDDOR workforce data reporting requirements.

3. Improved data quality by establishing an electronic link with Network Rail’s national control logging system (CCIL). All incidents that are recorded in CCIL by Network Rail’s control centres are now downloaded daily into SMIS.

Building on the success of SMIS 9.1, RSSB is now investigating the feasibility of establishing a link with Train Operator’s control logging systems. An industry workshop has been arranged for early October and the findings of this will be made available to the industry in due course.

Screen shot of SMIS 9.1 displaying Network Rail’s CCIL data now available in SMIS.
The law requires companies to manage safety risk to a level that is as low as is reasonably practicable (ALARP). This involves making decisions about whether changes are needed to make things safer. Demonstrating that risk is ALARP can involve both subjective judgement and objective analysis.

The document Taking Safe Decisions, which was published in 2008 presents a framework for how the industry takes decisions that affect safety. The decision may involve balancing costs and savings, along with the impact this has upon safety risk using a quantified cost-benefit analysis (CBA).

RSSB has just launched a new online tool which supports safety decision making by helping to construct a CBA that is compatible with Taking Safe Decisions and ORR Guidance. This tool is available on the Risk Portal website at http://www.safetyriskmodel.co.uk/Bulletin/TSD%20pages/Taking%20Safe%20Decisions.aspx

The benefits of using this tool are:

> Greater confidence that quantified analysis supports ALARP judgements and is compliant with existing industry guidance.

> Reduces the cost of undertaking such analysis, usually undertaken with bespoke spreadsheets.

> Allows a better understanding of the relative costs and benefits and helps informed decision making.

> Production of a clear audit trail.

The tool is available at no cost to RSSB members but it is a requirement that users receive training in its use. This will be provided by RSSB. For non-member organisations there will be a charge for the tool and associated training.

For more information contact 020 3142 5494 or risk@rssb.co.uk
ORR Review of RSSB

RSSB has welcomed the publication of the review by the Office of Rail Regulation (ORR), which the RSSB Board requested earlier in the year.

The ORR review confirms high level across-the-board industry support for the work RSSB does, and RSSB’s readiness to support the industry in facing the challenges of the short and long term future.

The review process has also revealed RSSB’s achievements in making significant efficiencies to its own business operation continuously since 2003 while supporting the industry in improved safety and business performance.

The Board, which has chief executive level representation from across the rail industry, asked the ORR to undertake the review in line with RSSB’s constitution, because it had not been possible to secure a unanimously agreed budget for 2010/11.

Paul Thomas, Chairman of the RSSB Board said: We welcome the feedback from all stakeholders who took part in the consultation, and we look forward to responding to that feedback to support industry needs. I’d like to express my thanks to the ORR for its work doing this review, and we welcome the positive recommendations which the Board will consider going forward’.

‘The rail industry faces significant challenges in reducing long term costs, and maintaining and improving the business and safety performance of the industry is critical to the GB economy and its recovery.

RSSB can see it has a role supporting the industry to tackle these challenges and we asked the ORR to help ensure that we are in the best possible position to help the industry deliver this, through confirming our role and establishing a medium term funding arrangement. The review provides a good picture of the broad industry support for the products and services RSSB provides to support the industry, and shows we’re ready to help the industry work together on value-for-money challenges across the sector’.


GO/RT3119 Accident & Incident Investigation – Issue 2 - Summary of changes

Issue 2 of the accident and incident investigation standard GO/RT3119 was published on 4 September 2010, to come into force on 4 December 2010. The main changes relate to the categorisation of SPAD incidents.

The Traffic Operation and Management Standards Committee (TOM SC) had previously asked RSSB to research the way in which SPAD categorisations were allocated. This followed comments from some duty holders, who considered that Issue 1 of the standard did not adequately deal with circumstances where a driver may have had no reasonable way of preventing a category A SPAD from occurring.

As a result of the research and industry consultation, the new version provides better support to the categorisation process. It makes a clear distinction between the provisional categorisation made immediately following the event, and the final categorisation made as a result of the investigation. It also explicitly allows the lead organisation investigating a SPAD incident to change the final categorisation from a SPAD to an operating irregularity.

RSSB is now working to update SPAD data collection forms (RT3119A and RT3119B) so that they more accurately reflect and support the changes to GO/RT3119.

It is hoped that the changes made to this important industry standard will help to make the reporting and categorisation of SPAD incidents more accurate and less prone to conjecture or dispute. The use of the ‘provisional’ allocation at the outset also makes it clear to all concerned that the incident category is not confirmed and that it may therefore change once the lead organisation investigating has completed the investigation.
The GSM-R (IVRS) Handbook has been published by RSSB and will come into force from December 2010 and will be published in the November 2010 Railway Group Standard Catalogue.

The Interim Voice Radio System (IVRS) uses GSM-R as its carrier signal and allows early use of some of the functionality of GSM-R by enabling a Railway Emergency Call to be made by a train driver to a signal control centre.

Previously all the instructions for the operation of IVRS were contained in various documents and training materials published by different Network Rail Routes and Train Operators.

RSSB was asked to review, collate and update these documents and to publish these instructions on behalf of the Great Britain main line railway network. A useful handbook format, similar to the existing Cab Secure Radio Handbook has been developed for the benefit of its prime audience, train drivers and signallers. This handbook details the provision, functionality, operational usage and failure reporting procedures for IVRS.

Please contact the RSSB Enquiry Desk for more information at enquirydesk@rssb.co.uk

Publicising RSSB standards consultation dates on the web

The Rail Industry now has the opportunity to view consultation dates for RSSB standards changes on our website (www.rssb.co.uk).

RSSB is seeking to improve the information provided to those who may wish to be consulted.

By publishing a list of RSSB standards consultations dates planned for the next six months we aim to improve visibility of future consultations so stakeholders will have a better opportunity to respond.

The list can be found at http://consultation.rssb.co.uk/pdf/forthcomingconsultations.pdf

This link will appear in all future Bulletins.

The RSSB Standards Programme, providing the full forward plan for all standards change projects, will continue to be updated on a monthly basis and is available at: http://www.rssb.co.uk/SiteCollectionDocuments/pdf/rgs/standards-programme.pdf

For further information or any feedback on the list please contact Denise McDonald, standards planning and improvements manager, on 020 3142 5568 or email at denise.mcdonald@rssb.co.uk