RSC
Railway Safety Commission

RSC Annual Report 2013

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The RSC are grateful to Neil Dinnen for allowing us to use his copyright images in this report.

Foreword

In accordance with Section 28(3) of the Railway Safety Act 2005, the Railway Safety Commission (RSC) is required to present an annual report to the Minister for Transport, Tourism & Sport. This is the Annual Report for the year 2013 and, in addition to providing information on the activities, administration and governance of the RSC; it presents statistical data on the safety performance of the various railway organisations operating in Ireland during the year under review.

The RSC continues to participate with the National Safety Authorities of the other Member States of the European Union in the on-going development and implementation of the European railway safety regulatory framework. During 2013 the RSC provided technical advice to the Department of Transport, Tourism & Sport (DTTAS) in regard to transposition of European Directives into national law. In addition, during the 2013 Irish Presidency of the EU the RSC provided technical support to the Permanent Representation of Ireland to the EU in regard to the development of planned improvements to rail transport regulation in the European Union, which is referred to as the 4th Railway Package.

EU Regulations mandate the manner in which railway Infrastructure Managers and Railway Undertakings are to be supervised to ensure that they apply and comply with their respective approved Safety Management System (SMS). The RSC audit and inspection regime ensures that duty holders' compliance with their respective SMS is supervised in compliance with the common safety method specified in Commission Regulation (EU) No.1077/2012.

The RSC's Workforce Planning Strategy update of April 2013 to DTTAS contains a clear statement on technical expertise required to execute the tasks arising from its legally mandated functions for regulation of railway safety. However, derogation from the Employment Control Framework (ECF) constraints and the embargo on public sector recruitment has yet to be secured. Therefore, it did not prove possible during 2013 to engage, on a permanent basis, the required number of competent persons to ensure business continuity. This deficiency was identified as a significant issue in the follow-up audit of the RSC by the European Railway Agency, which was conducted in the last quarter of 2013.

The measures that the RSC have implemented to mitigate this continued and significant risk to its corporate ability to fulfil its regulatory duty were explained in detail in the Annual Report for 2012. The graduate engineers who were placed on secondment with the RSC by Engineers Ireland in 2011 and 2012 have continued to grow in knowledge and experience, and this has enabled the RSC to further reduce its dependence on high-cost external experts for the execution of core activities.

Two additional graduate engineers were seconded to RSC by Engineers Ireland in January 2013, thus bringing the team strength up to the required number, but the graduate training and development programme will not be fully completed until the end of Q3, 2016. However, the RSC is on target to reduce its requirement for external support to sustainable levels in the latter half of 2015 provided agreement can be reached on the retention, for the long-term, of the professional railway expertise that has been developed to meet the specific business needs of the RSC.

In March 2013 the derogation for Ireland on separation of railway infrastructure and train operating activities expired. Work that had commenced in 2012 on re-organising Iarnród Éireann into separate Infrastructure Manager and Railway Undertaking business divisions, to comply with EU requirements, was completed in Q1, 2013. This significant change in organisational structure was undertaken in compliance with Iarnród Éireann's internal change management controls, the whole process being subject to independent safety validation.

The internal re-organisation of Iarnród Éireann into separate business divisions also required the development and implementation of an individual SMS for each division; a key step in the successful delivery of this project. Conformity assessment of each SMS was completed during Q1, 2013; compliance with requirements being confirmed in the granting of a safety authorisation to the IÉ Infrastructure Manager business and the issuing of safety certificates to IÉ Railway Undertaking business by the RSC.

In terms of those areas that were outlined in the 2012 Annual Report as the focus for particular attention during 2013, the RSC has delivered on its responsibilities as follows:

- On-going technical support to DTTAS in the amendment of railway safety legislation to ensure compliance with EU Directives
  - S.I. No.444 of 2013, European Union (Railway Safety) Regulations, was signed into effect by the Minister on 25th November 2013
- Continuing professional development of graduate engineers so as to avert any shortfall in specialist technical human resources that might impair the RSC in delivering on its obligations under EU and national legislation:
  - Growth in knowledge and experience of the graduates seconded to the RSC in September 2011 and June 2012 has led to a reduction in the

Foreword

dependence on high-cost consultants to undertake core activities;
  - a further two graduate engineers were seconded to RSC by Engineers Ireland in January 2013
- Completion of the conformity assessment of safety management systems (SMS) for the separate Infrastructure Manager (IM) and Railway Undertaking (RU) business divisions of Iarnród Éireann (IÉ):
  - Safety Authorisation of IÉ-IM and Safety Certification of IÉ-RU was granted on 22nd March 2013
- Engagement with the RPA in the assessment of the new works for the LUAS Cross-City (LCC) extension:
  - The development of parameters for safety authorisation of the light rail project commenced in 2013, and guidance documents are to be updated accordingly during QI & Q2, 2014
- Extension of safety management system (SMS) principles to the self-contained heritage railways with a view to improving supervision of safety for those railways:
  - A one-day workshop was held on 20th January 2013 for the purpose of briefing all heritage railway organisations on the requirements to develop an acceptable SMS, in conformity with revised guidelines published by the RSC, as a precondition for safety certification.
  - Heritage railways are in the process of developing their respective SMSs and it is envisaged that Safety Certification will completed in Q1, 2014, in time for commencement of their 2014 operating season.
- Continued work on railway safety and interoperability legislation and technical rules with objective of achieving complete conformity with EU Directives:
  - On-going technical support was provided to DTTAS and stakeholders in drafting of the European Communities (Railway Infrastructure) Regulations: scheduled to complete Q1, 2014
- Legal separation of the RAIU from the RSC so as to fully comply with EU requirements:
  - Comments on draft European Union (Investigation of Railway Accident and Incidents) Regulations circulated by DTTAS were submitted by RSC in December 2013 with a view to implementing separation of functions by end of Q1, 2014
- On-going development of processes and procedures in conformity with ISO 17020 requirements to enable RSC achieve accreditation:
  - Corrective actions, required to address findings arising from a cross-audit of the RSC by the European Railway Agency (ERA), were implemented during 2013. Progress was reviewed by ERA in a follow-up audit conducted in Q4, 2013, and resulted in positive outcomes

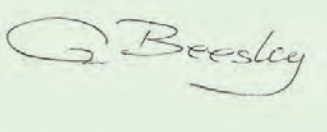
In regard to safety of Iarnród Éireann infrastructure, eleven landslip and rock fall events affecting the operation of the railway line were reported for year 2013, significantly up from the four similar events reported for the previous year. This has raised the level of concern regarding the impact of abnormal weather events on the railway infrastructure, and the RSC will continue to pursue implementation of the recommendations made to IÉ as a result of its March 2011 audit of railway cuttings and embankments.

Safety performance of IÉ train operations was adversely affected by a marked increase in the number of signal passed at danger (SPAD) events on running lines; up from eight events in the previous year to eighteen events in 2013. Although this is a worrying trend, it must be recognised that Automatic Train Protection (ATP) is only available on 99 track-km (4.6%) of the Iarnród Éireann network. A further 900 track-km (41.6%) of the network is equipped with a Continuous Automatic Warning System (CAWS), but the remaining 1,166 track-km (53.8%) of the network is not yet equipped with any form of driver warning or ATP system.

Mindful of the factors that contributed to the fatal railway accidents which occurred at Santiago de Compostela, Spain (24th July 2013), and in The Bronx, New York, USA (2nd December 2013), and the fact that safe working of trains on over 50% of IÉ track-km is highly dependent on strict obedience to railway signals by train drivers; the RSC will during 2014 undertake a review of the risks associated with the current IÉ signalling and telecommunications systems. This review aims to identify those areas where risk reduction measures, such as installation of ATP, are required, thereby informing prioritisation of future safety investment in Ireland's railway system.

In March 2012 the RSC commissioned independent consultants to conduct a review of circumstances that may inhibit early identification of critical safety information during an investigation of an accident or incident. This review was eventually completed in December 2013, and the RSC then appointed an independent chairperson to oversee implementation of the recommendations made in their report.

In conclusion, it is appropriate to thank each member of the RSC team for their commitment and support in fulfilling our statutory duties during 2013, and thereby enabling the RSC to deliver on its mission "To advance the safety of railways in Ireland through diligent supervision and enforcement".



Gerald Beesley
Commissioner for Railway Safety
March 2014

1. The Railway Safety Commission

1.1. The Origin and Role of the Railway Safety Commission

The Railway Safety Commission (RSC) was formally established on 1st January 2006 in accordance with the requirements of the Railway Safety Act (RSA) 2005, and it is the Competent Authority responsible for:

- Safety Supervision of railway organisations in compliance with Directive 2004/49/EC and Regulation (EU) No.1177/2012;
- Conformity Assessment of Safety Management Systems and safety authorisation of Infrastructure Managers and safety certification of Railway Undertakings in compliance with Directive 2004/49/EC and Regulations (EU) No.1158/2010 and (EU) No.1169/2010;
- Safety Assessment of new and significantly altered structural sub-systems and vehicles in compliance with Directive 2008/57/EC;
- Certification of Entities in Charge of Maintenance in compliance with Regulation (EU) No.445/2011;
- Certification of train drivers in compliance with Directive 2007/59/EC;
- Certification of Advisors for carriage of dangerous goods on rail in compliance with S.I.651 of 2010;
- Authorisation of cableways in compliance with S.I. 470 of 2003 (as amended by S.I. 766 of 2007);
- Developing the railway regulatory framework in accordance with Directive 2004/49/EC; and
- Application of enforcement measures in accordance with Part 7 of the Railway Safety Act 2005.

In the context of the Railway Safety Directive (Directive 2004/49/EC) the RSC is the National Safety Authority for the railway sector in the Republic of Ireland. As the independent regulatory agency charged with oversight of the safety of all railway activities in the State, the RSC is required to ensure that each railway organisation operating in the State understands and effectively manages the risk to safety associated with its activities. This is achieved in three ways, viz.:

Conformity Assessment — Assessing Safety Management Systems (SMS) to ensure that they conform to all requirements prior to awarding safety authorisation or safety certificates, and assessment of new railway infrastructure and rolling stock to ensure safety compliance prior to placing in service.

Compliance Supervision & Enforcement — Auditing compliance with the procedures and standards prescribed in each approved SMS, and inspection of railway assets to assess compliance with fitness for purpose criteria. Compliance with safety recommendations is assured through the monitoring of implementation plans and by taking enforcement proceedings where necessary; and

European & Legislative Harmonisation — Supporting the harmonisation of legislation with European Directives and Regulations, and ensuring that the consequent implementation of related technical and procedural measures conforms to mandatory European requirements.

1.2 Structure and Organisation

The RSC is a small, specialist technical organisation staffed with professional engineers supported by a two-person administrative team. A flat reporting structure promotes and facilitates the free-flow of information and ideas, encouraging consultation and creative thinking. Not only does this enable the RSC to meet the requirements of those functions mandated by European and national legislation, but it also provides the flexibility needed to respond effectively to immediate and unforeseen work demands.

It is essential that an adequate corporate capability for both regulation of railway safety by the RSC and investigation of railway accidents by the RAIU is established and maintained. In order to guarantee that such capability is available in the respective organisations a cadre of professional staff, with railway-specific technical knowledge and experience, is required in order to perform the mandatory functions. In view of the risk that a shortfall in technical capacity presents to the ability of the RSC in delivering on its regulatory duty to supervise railway safety, steps have now been taken to contract in specialist technical resources.

1.2.1 Skills Shortfall

In a paper presented to the Department of Transport in November 2010 the RSC identified the organisational structure and staffing level required to perform its mandatory functions in respect of supervision of railway safety under European and national legislation. The level and quantum of technical expertise required to meet these obligations was confirmed in the Workforce Planning Strategy 2012-14, which was submitted in July 2012; and was again clearly stated in the April 2013 update of the

Workforce Planning Strategy submitted to the Department of Transport Tourism & Sport.

A further downward revision in the Employment Control Framework (ECF) figure applicable to the RSC was advised by the Department of Transport Tourism & Sport in February 2013. This imposed a reduction from 13 to 11 in the number of positions that are permitted to be filled by permanent public sector employees. The net effect of this revised ECF figure is to constrain the number of permanent technical posts to nine (six in the RSC and three in the RAIU) once the requirements for financial control and administration (two persons) are taken into account.

Furthermore, under the current embargo on public sector recruitment, it has not been possible to obtain authority to fill vacancies for railway safety Inspectors so as to bring the number of specialist technical experts on the permanent staff up to the approved staffing level under the ECF.

Consequently, the shortfall in technical experts permanently employed in the RSC remained at 50% of the requirement throughout 2013.

This shortfall in technical resources continues to present a significant risk to the RSC's ability to carry out its mandatory functions and deliver on its regulatory duty to:

(i) supervise railway safety in accordance with the requirements of Directive 2004/49/EC, and in compliance with Commission Regulation 1077/2012;
(ii) undertake conformity assessment of safety management systems in compliance with Commission Regulations (EU) No.1158/2010 and (EU) No.1169/2010; and

(iii) assess applicants' control of risk prior to granting authorisation for the placing in service of new or significantly altered vehicles and structural sub-systems in accordance with the requirements of Directive 2008/57/EC.

1.2.2 Risk Mitigation Measures

In order to mitigate this very real risk, and to ensure that tasks mandated under European and national legislation are successfully delivered, the RSC implemented a graduate training & development programme, under a partnership agreement with Engineers Ireland, which commenced in September 2011. These arrangements were explained in detail in the Annual Report for 2012.

The four graduate engineers who were placed with the RSC by Engineers Ireland (two each in September 2011 and June 2012) have continued to grow in knowledge and experience, and this has already enabled the RSC to commence 'right sizing' its cost base by reducing its dependence on high-cost external experts for execution of core supervision activities.

Two additional graduate engineers were placed with the RSC in January 2013, thus bringing the team strength up to the required number, but the training & development programme will not be fully completed until the end of Q3, 2016. Therefore, until such time as the graduates are fully proficient, there will still be a requirement to contract-in consultant specialists under framework arrangements in support of conformity assessment and authorisation functions, particularly in specific technical areas such as rolling-stock and railway signalling.

The bespoke graduate training & development programme is a key component of the RSC workforce planning strategy. Its objective is to ensure that adequate railway-specific technical knowledge and skills are available within the RSC so as to deliver on legally-bound duties with the minimum recourse to external consultants. The RSC has already delivered on three of the four specific outcomes of the programme, which are:

(i) to facilitate the development of bespoke skills for regulation of safety in the Irish railway sector;
(ii) to provide a positive contribution to graduate employment; and
(iii) to permit an on-going reduction in the quantum of costly external support.

1.2.3 Risk to Business Continuity

The fourth outcome of the graduate training & development programme (to buy time - at least until mid-2014 - before the employment of staff would have to take place) has been achieved only in part. Although time has certainly been bought before a decision on recruitment needs to be addressed, derogation from the ECF constraints and the embargo on public sector recruitment has yet to be secured. Therefore, to date it has not proven possible for the RSC to engage, on a permanent basis, the number of competent specialists that are required to keep the RSC fully operational from September 2015 onward. This particular deficiency was identified as a significant issue in the follow-

up audit of the RSC conducted by the European Railway Agency during the last quarter of 2013.

Placement of each of the six graduate engineers with the RSC is limited to 45 months, and the respective contracts for the three pairs of graduates are due to expire in September 2015, March 2016, and September 2016. Although the immediate risk has been mitigated, there is no agreed plan in place for the retention of the railway expertise that has been specifically developed to meet the business needs of the RSC. A sufficient number of professional engineers, with the competence to act as railway safety Inspectors, are essential if the RSC is to deliver on its legally-bound duties and thereby ensure that any risk of non-compliance with European railway safety legislation is averted.

1.2.4 Professional Development

The graduate training programme is only a part of the overall drive to enhance knowledge and skills within the RSC team. Each team member is encouraged to partake in activities recognised by professional engineering bodies as contributing to continuing professional development. During 2013 the following professional advances were achieved:

- Commissioner elected a Fellow of the Institution of Railway Signal Engineers (FIRSE)
- Deputy Commissioner elected a Fellow of the Institution of Engineers of Ireland (FIEI)
- One graduate engineer awarded the registered professional title of Chartered Engineer (CEng)
- One graduate engineer awarded a Masters in Management (MiM) from Smurfit Business School, UCD

1.3 Railway Accident Investigation Unit

Section 55 of the Railway Safety Act 2005 provides for the establishment of a Railway Accident Investigation Unit (RAIU) within the RSC which, although it forms part of the RSC and shares administrative resources, has independence in the function of investigating railway accidents and incidents. While enabling legislation has yet to come into force, it is planned that the RAIU will be legally separated from the RSC during 2014 in order to fully comply with EU requirements. The purpose of an investigation into a railway accident or incident it is to determine the direct and immediate causes of the occurrence (including contributory factors relating to actions taken by persons involved, or the condition of rolling stock or technical installations); underlying causes relating to skills, procedures, and maintenance; and root causes relating to the regulatory framework and application of safety management systems; and, where necessary, to make safety recommendations the objective of which is possible improvement of railway safety and prevention of accidents. Investigation by the RAIU is strictly 'for cause', that is to say it seeks to identify the full facts of an incident and why it occurred with a view to preventing recurrence. The Railway Safety Directive specifies, in terms of loss and injury, a minimum threshold above which investigation is mandatory. Investigation of incidents of lesser impact is discretionary.

The RAIU initiated six formal investigations into railway accidents and incidents in 2013:

Iarnród Éireann:

- Operating irregularity in the Dundalk-Newry section of the Dublin-Belfast mainline on 23rd March 2013
- DART passenger doors - wrong side failure of interlock circuits on 10th August 2013
- Signal Passed at Danger (SPAD) at Millstreet, Killarney Junction - Killarney section on 8th December 2013
- Collapse of platform canopy at Cork (Kent) station on 18th December 2013
- Failure of protection equipment at Gortavogher level crossing, Limerick - Athenry line, on 19th December 2013

LUAS

- Flash fire on LUAS tram approaching Bus Aras stop on 7th November 2013

During 2013 the RAIU published three reports into accidents and incidents that they formally investigated:

Iarnród Éireann:

- Collision of tractor with train at XE-020, Limerick Athenry line on 20th June 2012 - published 17th June 2013
- Detonation of fog signals in cab of DART train at Bray station on 6th March 2012 - published 19th September 2013

LUAS

- Collision of tram with bus at Abbey St / O'Connell St on 16th September 2011 - published 28th February 2013

2. Functional Performance

This section of the annual report deals with the performance of the RSC in its three key work areas: Conformity Assessment and Authorisation to Place in Service; Compliance Supervision and Enforcement; and European and Legislative harmonisation

2.1 Conformity Assessment and Authorisation to Place in Service

Activities under this heading comprise two principal strands, assessment of Safety Management Systems (SMS) and Authorisation to Place in Service (APS) new or significantly modified railway infrastructure and rolling stock.

2.1.1 Safety Management Systems (SMS)

In conjunction with the internal re-organisation of Iarnród Éireann into separate Infrastructure Manager and Railway Undertaking business divisions, their SMS arrangements were revised. Separate SMS documents for each business division were submitted to the RSC for conformity assessment and the RSC granted Safety Authorisation to the Infrastructure Manager and issued Safety Certification (Parts A and B) to the Railway Undertaking on 22nd March 2013.

Northern Ireland Railways revised their SMS to align with the new Iarnród Éireann arrangements, and a renewed Part B Safety Certificate, covering their activities within the State as a Railway Undertaking, was issued on 30th August 2013.

In Q4 2013 Balfour Beatty Ireland Limited commenced the preliminary stage in making an application to the RSC for Safety Certification (Parts A and B) to permit them to operate as a Railway Undertaking in connection with their contract for the maintenance and operation of on-track machinery on the Iarnród Éireann network.

2.1.2 Authorisation to Place in Service

Infrastructure authorisations on the Iarnród Éireann network during 2013 included a new road bridge at Garrycastle, near Athlone, (detailed design authorised on 8th May 2013), and another new bridge near Tralee, which formed part of the Tralee by-pass project (authorised on 14th August 2013). Authorisation was also granted during 2013 for the preliminary design of a new bridge over the Maynooth line in place of Reilly's level crossing. This particular bridge will permit the closure of Reilly's level crossing which, in addition to enhancing railway safety and operations, will be a major improvement for road traffic in and out of Dublin on the N3.

The re-development of Pearse Station, Dublin, which included a new passenger entrance, was opened on 9th April 2013. This scheme was authorised for placing in service in full compliance with the Directive 2008/57/EC. New stations at Hansfield and Oranmore were respectively opened to passenger traffic on 28th June 2013 and 29th July 2013.

Rolling stock authorisations included the following:

- Re-introduction of 2-car DART operations with 8100/8300 Class EMUs – authorised 22nd May 2013
- Conversion of MK3 Electric Generator Vans to work with DeDietrich Enterprise stock – authorised 10th July 2013
- Locomotive No 4, Waterford & Suir Valley Railway (heritage railway) — authorised 2nd August 2013
- Flexible train formations of Iarnród Éireann 22000 Class Inter-City Railcars — authorised 4th October 2013

In addition, the RPA were granted authorisation to test a Road-Rail Cleaning Vehicle on the LUAS network, and Iarnród Éireann cleared the concept stage for a hybrid in-cab signalling system to work in conjunction with their existing CAWS and ATP systems.

Further details on the status of various authorisations are presented in Appendix 4.

2. Functional Performance

2.1.3 Guidelines

During 2013 the RSC published the following guidance documents:

RSC-G-009-E	Guideline for the Process of Authorisation for Placing in Service Railway Sub-Systems
RSC-G-15-C	Guidelines for the safety assessment of new Heavy Rail rolling stock
RSC-G-021-C	Guideline on European Vehicle Numbering and National Vehicle Register in Ireland
RSC-G-022-R2.0	Guidance for Operators of Heritage and Minor Railways
RSC-G-027-A	Guideline for the Certification of Entities in Charge of Maintenance
RSC-G-028-A	Guideline for the development of a Safety Management System for Light Rail
RSC-G-029-A	Guideline for the development of SMS for Railway Undertakings and Infrastructure Managers
RSC-G-030-A	Application Guide for Safety Certification/Authorisation

2.1.4 Train Driver Certification

Iarnród Éireann submitted updated applications to be recognised as Training Centre and Examination Centre in August 2013. Following review of the application and discussions with the applicant, further documentation is required before recognitions can be made. It is expected that another updated application will be made in early 2014

2.2 Compliance, Supervision and Enforcement

A fundamental work stream for the RSC is the supervision of duty holders to ensure that Railway Organisations (Infrastructure Managers and Railway Undertakings) maintain compliance in the application of their respective approved safety management system (SMS).

The RSC use various sources to assist in targeting its supervision activities and these include:

a) Mandatory requirements
b) Previous RSC Supervision activities and outputs from the same;
c) RSC's own professional judgement
d) Industry safety concerns, typically arising from accidents and incidents, nationally and internationally;
e) Complaints and representations by, or on behalf of, passengers or affected parties; and
f) Reactive monitoring, including post-incident compliance inspections.

Using information from the above sources the RSC develops multi-annual and annual supervision plans, which include all the activities necessary to effectively oversee the duty holders under its remit. These plans include, supervision meetings, auditing of processes and the duty holder's SMS, undertaking sample asset inspections and conducting reactive activities such as following up on accidents, incidents, dangerous occurrences, or public and other third party complaints.

2.2.1 Compliance Auditing (Pro-active Supervision)

The RSC undertook the following audits on Iarnród Éireann (IÉ) in 2013:

- The Management of Bridge Structures – Audit conducted February 2013;
- Accident & Incident management and emergency preparedness - Audit conducted March/April 2013
- The Management of Rolling Stock Brake Maintenance – Audit conducted May-July 2013
- The Management of Vegetation on the IÉ Network – Audit conducted September 2013

The RSC undertook the following audit on Transdev (LUAS) in 2013:

- The Management of Contractors – Audit conducted February 2013

Audits commenced but not completed in 2013

- The Management of Tram Driver Training & Competence – Audit conducted September 2013

Audit Title	Major Non-compliance	Minor Non-compliance	Action Required
The Management of Contractors working on the LUAS network	0	0	7
The Management of Bridge Structures	0	5	13
Accident Management and Emergency Preparedness	0	4	10
Rolling Stock Brake Maintenance	1	5	14
The Management of Vegetation on the IÉ Network	0	2	6

- IÉ's Management of its Overhead line and Power Systems – Audit conducted November 2013
- IÉ's Management of Training & Competence – Audit commenced December 2013

All audits resulted in recommendations being made and the table below presents a summary of these, in terms of audit outcomes as a result of findings. *(see table above)*

In accordance with Section 76 of the Railway Safety Act, Iarnród Éireann and Transdev have submitted Implementation Plans in respect of these. The Implementation Plans have been accepted by the RSC, and both organisations have already implemented, or are in the process of implementing corrective actions which are being monitored by the RSC.
The implementation of corrective actions is monitored by the RSC on an on-going basis through regular safety review meetings with duty holders. A three-tier status flagging regime is applied in the following manner:

OPEN — Feedback from duty holder is awaited, or actions have not yet been completed

COMPLETE — Duty holder has advised that it has taken measures to implement the remedial action and has supplied evidence for the RSC to evaluate if the recommendation can be closed

CLOSED — Based on evidence supplied by the duty holder, the RSC is satisfied that the necessary remedial measures have been taken and that work has been completed to the extent required to close the recommendation.

		Audit Outcomes	
	Audit Reports	Non-compliance identified	Action Required
2009	5	8	76
2010	5	11	37
2011	11	22	96
2012	9	22	61
Total to 31-12-12	**30**	**63**	**270**
Status at 31-12-12	OPEN	**49**	**184**
	COMPLETE	9	44
	CLOSED	5	47
2013	**5**	**17**	**50**
Total to 31-12-13	35	80	320
Status at 31-12-13	OPEN	**60**	**205**
	COMPLETE	9	46
	CLOSED	11	69

Audits conducted in 2013 produced recommendations covering 17 'non-compliance' and 50 'action required' issues. In regard to non-compliance issues, 6 items were cleared off the 'open' category and another 6 issues were closed during the year. In the same period 29 items were cleared off the 'open' category for 'action required' issues, and a further 22 issues were closed. Changes that took place during 2013 in the number and status of recommendations arising from audit outcomes are illustrated in the table below.

2.2.2 Post Incident Inspections (Reactive Supervision) to Serious Incidents

The RSC operates an on-call roster whereby an RSC Inspector is always available 24 hours a day, 364 days a year, to respond to an accident or incident notification. In 2013 the RSC received a total 70 calls and mobilised to 9 of these incidents. The majority of these (42) originated on the IÉ network with a further 26 involving the LUAS network.

Other than those incidents where deliberate self-harm was indicated, all incidents notified were investigated further. This typically required site inspections, interviews with personnel, and review of safety documentation. In any instance where safety was deemed to be at risk the RSC sought the necessary assurances from the relevant entity that mitigation measures had been put in place.

2. Functional Performance

Excluding cases of trespass, or where self-harm was indicated, there were no fatal accidents on the IÉ network in 2013, but there were several incidents that under slightly different conditions could have resulted in serious consequences:

- 17th January 2013 - Collision of train with silage bale that had apparently been maliciously placed on the track at Carrownree occupation level crossing between Ballymote and Collooney on the Dublin - Sligo line
- 17th February 2013 - Serious injury to a person who fell between a train and the platform at Tara Street station
- 16th September 2013 - A significant fire on a LUAS maintenance vehicle
- 7th November 2013 - A fire occurrence on an in-service tram approaching Bus Aras stop*
- 18th December 2013 - Collapse of the canopy roof above platform 1 & 2 at Cork (Kent) Station*
- 31st December 2013 - Substantial rock fall at Waterford (Plunkett) Station*

* These particular incidents are subject to on-going investigation by the RAIU to establish cause(s).
In the first of these serious incidents, on 17th January, a passenger train collided with a round silage bale. Fortunately, the train was not derailed, but the driver's cab sustained damage and the incident resulted in significant service delays. The second serious incident occurred at Tara Street station, Dublin, on 17th February when an individual stumbled and fell between a train and the platform edge. As a result the individual concerned sustained serious life changing injuries.

There were two serious incidents involving structural failures. The first of these was the collapse of the platform canopy at Cork (Kent) station on the 18th December, and the second was the failure of the cliff face at Waterford (Plunkett) station on 31st December, which resulted in a considerable rock fall. The RSC undertook an inspection of both locations and monitored IÉ's response to these occurrences.

2.2.3 Monitoring of Technical Issues

Where certain technical issues emerge, RSC Inspectors may decide to monitor the actions being taken by the relevant duty holder to address possible safety concerns. Typically this is through RSC attendance at meetings or risk assessment workshops, and by inspection of assets or operations. In 2013 there were a small number of issues that were subject to such supervision activity, which included:

- Modifications to BT22C bogies under Mk3 Electric Generator Vans
- Master Controller fault on LUAS Trams
- Abnormal wear on Intercity Rail Car (ICR) axle journal bearings
- Axle cracks identified on Type 401 LUAS Trams
- Wrong-side failure of door interlocking circuit on the DART 8100/8300 fleet
- Fire occurrence on an in-service tram approaching Bus Aras stop

The RSC will continue to monitor these and similar occurrences to obtain assurance that duty holders are managing risks that may arise from time to time.

2.2.4 Inspections

The RSC undertook a number of other inspections of Iarnród Éireann and Transdev (LUAS) in 2013, which focused on:

- Railway assets with particular reference to rolling stock, stations, and level crossings
- Freight depot working at Ballina
- Train crowding / passenger loading inspections
- Event Management
- Tramway infrastructure and bridges

In addition, where the occasion permitted, RSC Inspectors took the opportunity to travel in locomotive and railcar cabs to assess operations and the condition of the permanent way.

The RSC also carries out inspections on all operational self-contained heritage railways. Outcomes of audits that were carried out in 2012 were discussed at a one-day workshop held on 20th January 2013 for the purpose of briefing all heritage railway organisations on the requirement for them to develop and introduce safety management systems.

2.2.5 Supervision Meetings

In 2013, as part of the RSC's Supervision Programme, a number of high level supervision meetings were held with senior managers from the principal duty holders, namely, Iarnród Éireann (IÉ) Infrastructure Manager, IÉ Railway Undertaking, and Transdev (LUAS). Safety performance, including a review of accidents and incidents, was reviewed and discussed along with actions being taken to prevent re-occurrence.

The RSC also monitors duty holders' implementation of recommendations made by the Railway Accident Investigation Unit (RAIU) following their independent 'for cause' investigations.

2.2.6 Industry Concerns

In March 2012 the RSC commissioned GL Noble Denton of London to conduct a review and inquire into circumstances that may inhibit early identification of critical safety information during an investigation of an accident or incident. Following various delays this review was eventually completed in December 2013, and the RSC then appointed the Chairman of the Railway Safety Advisory Council to chair a cross-industry working group and oversee implementation of the recommendations made in the GL Noble Denton report.

The RSC continues to maintain formal and informal contact with its peer regulatory and investigatory bodies in Europe, North America and Australasia. All accident reports and safety advisory notices received from these peer organisations that were deemed relevant to duty holders were circulated by the RSC.

The four tragic railway accidents that occurred in July 2013, namely, the oil train derailment at Lac-Mégantic, Canada, on the 6th July which resulted in 47 fatalities; the derailment at Brétigny-sur-Orge (outside Paris) on the 12th of July in which 7 persons lost their lives; the high-speed derailment at Santiago de Compostela, Spain, on the 25th of July in which 79 people were killed; and the head-on train collision at Granges-près-Marnand, Switzerland, on the 29th July in which one of the train drivers lost his life all serve as a reminder that safety should always be paramount in thought and actions.

The RSC reviewed these accidents in some detail, identifying learning points which were relayed to Iarnród Éireann for their review and action. It is fair to say that the world-wide railway community was acutely aware of the significance of these accidents which have high-lighted the importance of compliance with long-standing safety rules and regulations, and further emphasised the need to adopt modern technology in extending the application of positive train protection.

2.2.7 Public representations

The RSC always gives the highest attention to representations concerning railway safety made by the public, passengers or others. The RSC endeavours wherever possible, to deal with the matters directly, however, when necessary the RSC seeks additional information from the duty holder(s) in order to provide a full and comprehensive response.

In 2013, the RSC received 69 direct or indirect representations relating to a range of heavy and light rail infrastructural and operational matters. This represented a significant increase on the number received in 2012 (35) but was more in line with previous years, e.g., 55 in 2011. Of these, 62 representations related to Iarnród Éireann (IÉ) operations or infrastructure with the 6 of the others pertaining to the LUAS (Dublin light rail) system, and 1 relating to safety on a heritage railway. A small number of these did give cause for concern and the RSC acted immediately to ensure that corrective action was taken by the relevant duty holder.

Some 15 representations related to the levels of crowding on IÉ trains and almost all of these were received following the rationalisation of train formations towards the latter end of the year. On foot of these representations the RSC commenced passenger loading inspections, and this activity will continue into 2014. Findings from individual inspections have been brought to the attention of IÉ and, while these are more in relation to passenger comfort as opposed to safety, IÉ continue to monitor its services and make adjustments (add carriages) where deemed appropriate.

The remainder of the representations gave no immediate or specific cause for safety concern, but all representations were investigated and responses issued. The RSC continues to track representation topics on an ongoing basis to identify any recurrence or trends that might indicate a need for further attention.

2.2.8 Enforcement activity

Section 7 of the RSA 2005 provides for a number of enforcement measures, ranging from requesting an Improvement Plan to a serving a Prohibition Notice. During 2013 the following enforcement measures were instigated by the RSC:

Section 76 of the RSA 2005 - Improvement Plan requested following:

- the RSC's audit of IÉ's management of Rolling Stock Brake Maintenance
- the RSC's audit of IÉ's management of Accident Management and Emergency Preparedness
- dangerous occurrences involving grab rails on-board IÉ's intercity railcar fleet
- the RSC's audit of IÉ's management of Bridge Structures
- the RSC's audit of IÉ's management of vegetation on the IÉ Network

The RSC did not issue any 'Improvement Notices' nor serve any 'Prohibition Notices' during 2013.

2.3 European and Legislative Harmonisation

In 2011, the European Commission expressed its concern regarding anomalies between the Railway Safety Act 2005 and the Railway Safety Directive which had not been adequately addressed by transposition. These included significant variances in terms and definitions used in the Act. In response to its duty under section 72 of the Act, the RSC provided ongoing and comprehensive technical support to the Department of Transport Tourism & Sport to address this issue, leading to the adoption of the European Union (Railway Safety) Regulations, SI No. 444 of 2013.
The RSC continued to positively contribute to the development of the regulatory framework for the European railway sector. Representatives from the RSC attended three meetings of the Committee on the Interoperability and Safety of the European Rail System on behalf of the DTTAS. The RSC is also represented on the Board and the financial committee of the European Railway Agency and it is active on the ERA audit committee. RSC staff also actively participate on two ERA working parties, one dealing with safety performance and the other with safety assessment and supervision.

The RSC was represented at the four plenary meetings of the National Safety Authorities network co-ordinated by ERA, and at two meetings of the International Liaison Group of Governmental Railway Inspectors. The Railway Accident Investigation Unit was represented at one plenary meeting of the National Investigating Bodies co-ordinated by ERA.

2.4 Road Rail interfaces

The RSC chairs the Road Rail Safety Working Group (RRSWG). This group facilitates the sharing of information and opinions on issues of safety at road-rail interfaces among its members, which include - railway undertakings, road authorities, the Gardaí, DTTAS, and road hauliers. There were two meetings of this group during 2013. In October the RSC attended a traffic seminar at An Garda Síochána training college in Templemore.
User-worked public road level crossings present a high-risk interface between members of the public and the railway, as responsibility for safe use rests with the road user. The risk associated with user-worked level crossings on public roads makes them an obvious target for ongoing and systematic risk mitigation and further safety investment.

3. Assessment of Duty Holder Safety Performance

3.1 Introduction

The safety performance of the duty holders in the Republic of Ireland is considered for the four principal railway sectors that the RSC regulates, namely heavy rail, light rail, industrial systems and the heritage railways. Each railway operator and infrastructure manager is obliged to notify railway incidents and accidents to the RSC. This data is used for assessing duty holder safety performance among other things.

3.2 Iarnród Éireann Network

At year end, the IÉ network in service was 1683 route-kilometres, the same as in the previous year. There were no significant changes to the network or to the operation of trains.

1011 level crossings were registered at the end of year 2013, compared with 1040 level crossings registered for the previous year.

Provisional figures for accident statistics are presented in detail in Appendix 2. Four deaths to trespassers due to railway vehicles in motion were reported, three due to apparent deliberate acts of self-harm.

There were no derailments on running lines and no collision of a train in service with a rail vehicle or buffer stop was reported. Nevertheless, a derailment occurred in a siding and one occurred within a possession. There were no divides of a train in service.

IÉ use a ranking tool to determine the degree to which each signal passed at danger (SPAD) had the potential to cause an accident. IÉ determine a weighted numeric score for each occurrence and the score dictates the level of internal investigation. Of the 18 SPADs reported for 2013, 4 were categorised as minor, 7 as moderate, 4 as serious and 3 as critical. These were the SPADs occurring on running lines, and do not include those that occurred in sidings or depots.

There was a significant increase in reported SPADs on running lines, from 8 events in the previous year to 18 events in 2013. This has given rise to concern within the RSC, which will pursue this matter further in 2014 as part of its audit of the maintenance and operation of the traffic control and signalling system.

There was one collision of a train with a motor vehicle at an occupation level crossing on the Limerick to Ennis line, resulting in no injuries. There were no collisions of trains with the gates of an attended level crossing.

There were 23 strikes to bridges over the railway, significantly up from 11 on the previous year. There were 72 strikes to bridges under the railway in 2013, compared with 61 the previous year.

Eleven landslip and rock fall events affecting the operation of the railway line were reported for year 2013, significantly up from the 4 events reported for the previous year. This has given rise to concern within the RSC, which will continue to pursue implementation of its recommendations to Iarnród Éireann arising from its audit of March 2011 on railway cuttings and embankments, and will feature in the RSC's inspection programme for 2014.

There were 10 incidents of fire and smoke on trains reported, up from 4 in the previous year, none of which resulted in injury to any passengers.

The number of reported train collisions with large animals was 29 in year 2013, a slight rise from 26 in the previous year. Of these incidents, the majority tend to involve deer. There was one broken rail on a passenger line for the year 2013, which occurred at Bray Head tunnel number 4.

3.3 LUAS

The LUAS urban light railway system consists of two separate double-tracked lines. The Green line is 16.5 km long and runs from St. Stephen's Green to Bride's Glen: 95% on dedicated right-of-way with 14 signalled and 2 un-signalled road level crossings. The Red line is 19.7 km long, running from Saggart to The Point (Dublin docklands): 60% on dedicated right-of-way with 41 signalled road level crossings.

3. Assessment of Duty Holder Safety Performance

The total kilometre run for year 2013 was 3.8 million, compared to the figure for the previous year of 3.99 million km.

30.5 million passenger journeys were completed in year 2013, compared to 29.4 million passenger journeys completed in the previous year.

The following events were recorded in passenger service during the year 2013:

- 38 minor road traffic accidents
- 8 minor contacts with a member of the public (6 pedestrians, 1 cyclist and 1 motor scooter rider)
- 1 attempt to set trams on fire
- 1 maintenance vehicle destroyed by fire
- 1 fire under a tram bogie
- 1 failure of overhead contact line support & 1 pole struck
- 1 cracked tram axle
- 1 failure of tram master controller
- 24 occasions where a tram driver passed a stop signal without authority

The number of road traffic accidents (RTA) almost doubled from 24 in the previous year to 38. The great majority of RTAs tend to occur on the Red Line. The number of contact incidents with a person remained steady. Although a number of injuries were reported, none were classed as serious.

There were 446 emergency brake applications, which is consistent with the average for the past three years. There were 48 activations of the emergency handle, only three of which were justifiable. The total number of public disorder and vandalism incidents decreased significantly from 3,047 in the previous year to 2,300 in year 2013, primarily due to the disruption of a gang involved in tampering with ticket vending machines.

3.4 Industrial Railways

No incidents were reported for the year 2013.

3.5 Heritage Railways

No incidents were reported by a heritage railway in 2013. Whilst the safety performance of the sector was generally satisfactory, the RSC is working with a number of heritage railway operations to improve their safety standards.

4. Corporate Governance and Administration

4.1 Introduction

Corporate governance comprises the systems and procedures by which enterprises are directed and controlled. In this regard, the RSC has adopted and is compliant with the Code of Practice for the Governance of State bodies, as published by the Department of Finance.

4.2 Finance

Funding for the RSC is provided in part by the Department of Transport Tourism & Sport by a Grant-in-Aid and in part by a safety levy on the railway undertakings. In 2013 the Grant-in-Aid funding amounted to €0.68m. In 2008 the RSC invoked the provision of section 26(1) of the Railway Safety Act 2005 and made regulations to impose a safety levy on each of the Railway Undertakings. These regulations are made annually, and the regulations for 2013 are contained in Statutory Instrument No. 68 of 2013. The application of funds in the past three years is illustrated below:

4.3 Statement on Internal Financial Control

The RSC acknowledges responsibility for ensuring that an effective system of internal financial control is maintained and operated. The system can provide only reasonable and not absolute assurance that assets are safeguarded, transactions authorised and properly recorded, and that material errors or irregularities are either prevented or would be detected in a timely manner. Maintaining the system of internal financial controls is a continuous process and the system and its effectiveness are kept under ongoing review.

4.3.1 Financial Control Environment

2013 is the eighth year of the RSC's existence. Processes and procedures to ensure a strong internal control environment are continually under review and development. A number of measures have been identified to assist in creating this environment and steps have been taken to embed them in the RSC:

		2011 (€ million)	2012 (€ million)	2013 (€ million)
Budget	**RSC**	2.11	2.26	1.91
	RAIU	0.68	0.57	0.60
	Total	**2.79**	**2.83**	**2.51**
Grant-in-Aid	**RSC + RAIU**	0.99	0.89	0.86
Levy Requirement	**RSC**	1.80	1.94	1.65
Levy Refund b/f		-0.51	-0.76	0
Levy Order amount		**1.29**	**1.18**	**1.65**
Operating costs	**RSC**	1.57m	1.72m	1.90m*
	RAIU	0.46m	0.43m	0.62m*
	Total	**2.03m**	**2.15m**	**2.52m***
GiA application	**RSC**	0.53m	0.46m	0.25
	RAIU	0.46m	0.43m	0.60
Levy application	**RSC**	1.04m	1.18m	1.65
Levy Refund b/f		**0.76m**	**0**	**0**

RSC accounts for 2012 were subject to audit by the Comptroller and Auditor General and were approved by them in February 2014.
*** subject to audit by the C&AG**

- Clear definition of management responsibilities;
- Establishment of formal procedures for monitoring the activities and safeguard the assets of the organisation;
- Adoption of the principles of corporate governance contained in the Code of Practice for Governance of State Bodies;
- Compliance with Internal Audit requirements to advise the RSC on discharge of its responsibilities for the internal financial control system.

The RSC confirms that all appropriate procedures for financial reporting, internal audit, procurement and asset disposal are being carried out.

4.3.2 Tax Compliance

The RSC is compliant with regard to its tax obligations.

4.3.3 Travel and expenses

The RSC is compliant with all relevant Department of Finance circulars on travel, subsistence and associated expenses.

4.4 Irish Language commitment

The RSC is committed to implementing the relevant parts of the Official Languages Act 2003. RSC signage and stationery are currently in both Irish and English.

4.5 Freedom of Information

The former Railway Inspectorate division, forerunner of the RSC under the aegis of the Department of Transport, was subject to the Freedom of Information Act. It is expected that the RSC will be included among the organisations governed by this Act by 2013. In the meantime, the RSC is committed to conforming to the principles of this Act.

4.6 Customer charter

The Customer Service charter was updated in 2011 and is available on the RSC website. This charter describes the level of service a customer can expect from the RSC. One customer service complaint was received in 2013. This was dealt with in accordance with our procedure. However, as the complainant was not satisfied with our response we have now advised them to consult with the Ombudsman on the matter.

4.7 Risk Management

The RSC has a risk management system in place to review key risks to its business.

4.8 Code of Ethics and Business Conduct

A Code of Ethics and Business Conduct is in place for the Commissioner and all staff and it is being adhered to.

4.9 Statement of Strategy 2012-2014

In 2012 the RSC produced their third Statement of Strategy. This document is the triennial Statement of Strategy of the Railway Safety Commission (RSC) for the years 2012 to 2014. Its purpose is to present management, staff, stakeholders, and the public with a clear understanding of the strategic direction that the RSC is adopting to meet its statutory duties and achieve its business objectives. The activities of the Railway Accident Investigation Unit (RAIU) are not covered by this document, as it is planned that the RAIU will be legally separated from the RSC as soon as possible in order to comply with EU requirements.

4.10 Website

The RSC maintains an active website at www.rsc.ie
The RAIU maintains an active website at www.raiu.ie

5. Looking Forward

The task areas that will be the focus of particular attention for the RSC as it continues to deliver on its responsibilities under European and National legislation during 2014, are as follows:

- Continued technical support to the DTTAS in the finalisation of railway accident investigation regulations to ensure harmonisation with EU Directives
- Implementation of the legal separation of the RAIU from the RSC so as to fully comply with EU requirements
- Continuing professional development of graduate engineers so as to ensure that adequate railway-specific technical knowledge and skills are available within the RSC
- Further development of processes and procedures in conformity with ISO 17020 requirements to enable RSC achieve accreditation in 2014
- Completion of the conformity assessment of the Balfour Beatty Rail Ireland safety management system (SMS), and consequent safety certification of BBRI
- Undertake a comprehensive review of the risks associated with the current Iarnród Éireann signalling and telecommunications systems
- Roll out of ECM certification for all Iarnród Éireann passenger and locomotive fleets
- On-going engagement with the RPA in the assessment of the new works for the LUAS Cross-City extension
- Conformity assessment of safety management systems (SMS) submitted by each of the self-contained heritage railways, and consequent safety certification of those organisations;
- Co-operation with the DTTAS in the amendment of legislation and development of functions for economic regulation of the railway sector in compliance with EU Directives

The objective of all RSC activities during 2014 will be in accord with its mission **"To advance the safety of railways in Ireland through diligent supervision and enforcement."**

Appendix 1

Appendix 1: Iarnród Éireann Operating and Infrastructure Statistics 2003-2013

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Staff	5,833	5,590	5,462	5,114	4,933	4,845	4,499	4,254	4125	4063	3768
Train-km passenger	12,245,000	11,777,000	13,034,000	14,505,000	16,060,000	18,044,657	16,190,950	16,582,606	17,008,042	17,339,870	16909702
Train-km freight	2,705,000	3,350,000	4,953,000	3,737,000	772,000	1,034,173	946,374	341,954	360,299	355,311	531643
Train-km total	14,950,000	15,217,000	17,987,000	18,242,000	16,832,000	19,918,501	18,182,358	17,691,837	18,066,007	18,392,846	18270014
Total passenger journeys	35,558,000	34,550,000	37,653,000	43,350,000	45,513,000	44,646,000	38,800,000	38,225,000	37,375,000	36,919,000	37,131,000
Million Passenger -km total	1,601	1,582	1,781	1,872	2,007	1,976	1,681	1,678	1,639	1,583	1,568
Route Km	-	-	-	1657	1657	1657	1665	1683	1683	1683	1683
Track Km	-	-	-	2110	2110	2110	2141	2165	2165	2165	2165
Level crossings	-	-	-	1171	1126	1095	1069	1050	1018	1040	1011

Appendix 2

Appendix 2: Iarnród Éireann Rail Incidents and Injuries 2003–2013

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Railway operations: passenger fatal injuries											
Fatal injury to passenger due to a train accident, not at level crossing	-	-	-	-	-	-	-	-	-	-	-
Fatal injury to passenger due to a train accident at level crossing	-	-	-	-	-	-	-	-	-	-	-
Fatal injury to passenger travelling on a train, other than in train accident	-	-	-	-	-	-	-	-	-	-	-
Fatal injury to passenger attempting to board or alight from train	-	-	-	-	-	-	-	-	-	-	-
Railway infrastructure: third party fatal injuries											
Fatal injury to third party at a level crossing involving a train	-	1	-	-	1	1	-	2	-	-	-
Fatal injury to third party at a level crossing not involving a train	-	-	-	-	-	-	-	-	-	-	-
Railway operations: employee fatal injuries											
Fatal injury to employee at a level crossing due to train in motion	-	-	-	-	-	-	-	-	-	-	-
Fatal injury to employee due to train in motion (other than at a level crossing)	-	-	-	-	-	-	-	-	-	-	-
Fatal injury to employee not due to train in motion	-	-	-	-	-	-	-	-	-	-	-
Railway infrastructure: employee fatal injuries											
Fatal injury to employee at a level crossing due to train in motion	-	-	-	-	-	-	-	-	-	-	-
Fatal injury to employee due to train in motion (other than at a level crossing)	-	-	-	-	-	-	-	-	-	-	-
Fatal injury to employee not due to train in motion	-	-	-	-	-	-	-	-	-	-	
Railway operations: fatal injuries to other persons											
Fatal injury due to train in motion not at level crossing	-	-	-	-	1	-	-	-	-	-	-
Fatal injury to customer or visitor, no train involved	-	-	-	-	1	-	-	-	-	-	-
Fatal injury involving train in motion on railway or level crossing											
where trespass or suspicious death was indicated	10	11	8	7	5	8	3	8	7	5	4
Railway operations: non-fatal injuries to passengers											
Injury to passenger travelling on train due to a railway accident not at level crossing	-	-	12	-	-	-	2	-	-	-	-
Injury to passenger travelling on train due to railway accident at level crossing	-	1	-	-	-	-	-	-	-	-	-
Injury to passenger attempting to board or alight from train	69	65	48	55	50	43	17	64	46	41	39
Injury to passenger travelling on train, other than due to a railway accident	66	70	73	41	35	22	40	28	10	27	43
Railway infrastructure: third party non-fatal injuries											
Third party at level crossing injury involving a train	-	-	-	-	1	-	-	-	1	2	-
Level crossing user injury not involving a train	-	3	4	-	1	1	1	-	2	5	1
Railway infrastructure: non-fatal injuries to other persons											
Injury to customer or visitor to premises	84	71	74	72	70	54	56	85	113	116	193
Injuries to other persons including unauthorised persons	2	1	1	-	1	-	-	-	-	5	3
Railway operations: non-fatal employee injuries											
Employee lost time injury involving train movement or train accident	12	7	4	15	7	8	13	11	7	13	5
Employee lost time injury while working on railway not due to train in motion	54	70	62	38	36	37	31	27	22	32	39**
Railway infrastructure: non-fatal employee injuries											
Employee lost time injury involving train movement or train accident	-	1	-	-	1	1	-	1	2	1	-
Employee lost time injury while working on railway not due to train in motion	55	48	38	31	42	42	34	30	23	32	41
Employee lost time injury while working at level crossing not due to train in motion	2	-	1	2	4	-	-	-	-	1	1
Entity in charge of maintenance and maintenance workshops: non-fatal employee injuries											
Employee lost time injury involving train movement or train accident	-	1	1	-	-	-	1	-	-	-	-
Employee lost time injury while working on railway not due to train in motion	48	43	38	30	36	27	21	10	18	10	14

Appendix 2 cont.

Appendix 2: Iarnród Éireann Rail Incidents and Injuries 2003–2013

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Railway operations: train incidents											
Derailment of train on or fouling running line	12	5	5	9	7	3	3	1	-	1	-
Derailment in possession on running line (including possessions)	4	1	2	4	1	2	1	1	-	-	1*
Derailment in IÉ siding	58	46	19	16	8	12	4	14	4	4	1
Derailment in private siding	6	4	4	3	4	-	4	2	2	1	-
Train collision with passenger or goods train on running line	-	-	-	1	-	-	-	-	-	-	-
Train/railway vehicle collision in station or possession movement	2	-	1	1	-	1	1	-	-	1	1*
Train collision with a motor vehicle at a level crossing	1	2	2	1	4	4	-	2	1	2	1
Train collision with pedestrian at a level crossing	-	-	-	-	1	-	-	1	-	-	-
Train collision with attended gates at a level crossing	2	4	2	2	2	1	-	1	-	-	-
Train collision with road vehicle obstructing the line (not at a level crossing)	2	-	-	-	-	-	-	-	-	1	-
Train collision with large animal(s) on the line	43	40	42	43	42	33	20	24	35	26	29
Train collision with other obstacle on the line	4	10	8	5	9	17	10	1	7	6	7
Main signal passed at danger where warning was given in time	32	29	36	25	22	12	18	14	4	7	16
Other signal passed at danger where warning was given in time	19	12	9	9	10	10	5	8	2	1	2
Railway operations: rolling stock incidents											
Fire or smoke on locomotive or other rolling stock	9	11	8	13	27	13	6	9	8	4	10
Train dividing in running	1	-	3	-	1	1	1	-	-	1	-
Rolling stock door incident	3	-	-	1	11	4	1	1	2	1	8
Failure of rolling stock axle or axle-bearing	-	-	-	-	-	1	-	-	2	-	-
Infrastructure incidents											
Broken Rail on passenger running line	3	1	6	4	1	2	2	4	2	1	1
Broken Rail on freight only line or siding	4	1	-	1	-	1	2	-	-	1	2
Broken or cracked fishplate	511	254	380	332	358	187	160	109	42	88	49
Track misalignment or buckle	6	-	1	5	1	-	3	1	-	4	3
Class 1 ultrasonic defect	81	35	31	29	21	27	47	41	2	5	15
Bridge under the railway struck by road vehicle	137	123	203	194	140	86	98	92	90	61	72
Bridge parapet over the railway struck by road vehicle	6	13	12	23	40	26	16	14	15	11	22
Landslip or structural failure affecting operations	2	-	4	10	4	-	11	3	-	4	4
Gate or barrier at level crossing hit by road vehicle	12	35	18	21	37	24	23	31	17	15	25
Road vehicle hit by barrier at level crossing	12	20	12	8	6	4	5	7	4	4	6
Total building fire	2	-	-	-	9	3	5	2	2	1	6

Appendix 3

Appendix 3: LUAS Statistics
Dublin Light Rail Operating and Accident Statistics 2005-2013

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013
Tram Km (000)s	2,500	2,661	2,751	2,744	2,695	3,082	3860	3990	3880
Road Traffic Accidents (RTA)	36	24	28	32	23	30	30	24	38
Contact of person with tram	8	21	18	20	18	22	13	7	8
Collision tram/tram	1	-	-	-	-	-	-	-	-
Derailment in depot	4	-	3	1	-	-	-		
Derailment on mainline	1	1	-	-	1	2	-	-	-
Other injury event						1	-	-	-
- First Aid	5	1	3	1	5	2	1	-	1
- Medical Attention	10	9	11	4	20	15	9	7	12
- Hospital care	2	2	2	1	4	3	1	-	-
- Fatality	-	-	-	1	-	-	1	1	-
Total Injuries	17	12	16	7	29	20	12	8	13
Emergency Handle	14	20	22	43	108	41	103	95	48
Emergency Brake	946	747	540	435	350	374	478	414	446
Signal passed at danger								30	24
Door opening at wrong side		9	4	2	3	2	1	1	4
Trespasser riding on outside of tram				9	8	33	25	13	10

(- denotes Zero)

Note: The first complete year of LUAS operation was 2005

Appendix 4

Appendix 4: Approvals granted by RSC in 2013

Infrastructure Projects	Project Phase			
	Concept	Preliminary Design	Detailed Design	Operation Commission
Athlone – New Overbridge at Garrycastle		√	√	
Bridge Parapet Upgrades – Sligo Line & Waterford Rosslare Line				√
Iarnród Éireann Hybrid System for train protection	√			
Maynooth Line – new Overbridge adjacent to Reilly's Level Crossing		√		
Oranmore – New Station – Limerick Galway Line				√
Pearse Station Redevelopment				√
Tralee by-pass – new Overbridge				√

Rolling Stock Projects	Project Phase				
	Concept	Prelim Design	Detailed Design	Test & Commission	Service
Iarnród Éireann – Introduction of 2 car DART operations					√
Iarnród Éireann – Conversion of Mk 3 Generator Vans					√
Iarnród Éireann — Inter-City Railcars flexible formations					√
Iarnród Éireann — Ultrasonic Testing Wagon					√
RPA— Road Rail Cleaning Vehicle for LUAS network				√	
Waterford & Suir Valley Heritage Railway – Locomotive No. 4					√

Appendix 5

Overview of Energy Usage in 2013

In 2013, the Railway Safety Commission consumed 138,325 KWh of the energy in our building, Trident House, consisting of:

- 43575 KWh of electricity;
- 94750 KWh gas.

Actions Undertaken in 2013

In 2013 the RSC undertook a number of initiatives to improve our energy performance, including:

- Ensuring all equipment is turned off at the end of the day
- Encouraging all staff members to reduce their energy consumption

Actions Planned for 2014

In 2014 the RSC intends to further improve our energy performance by undertaking the following initiatives:

- Maintaining staff awareness of energy consumption and the methods of reduction.
- Continuing to monitor energy consumption and look for new ways to reduce our consumption