

2016 Annual Report

Tuarascáil Bhliantúil 2016



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Foreword

In compliance with Section 28(3) of the Railway Safety Act 2005 (RSA), the Commission for Railway Regulation (CRR) is required to present an annual report to the Minister for Transport, Tourism & Sport. This Report provides an overview of the activities of the CRR, including its regulatory functions, administration and governance for the year ended 31st December 2016.

The CRR has continued to exercise its functions throughout 2016 in accordance with Statute and Regulations. The methods by which safety management systems are assessed for conformity, new or significantly altered infrastructure and railway vehicles are assessed for compliance with safety requirements prior to placing in service, and railway organisations are supervised to ensure that they apply and comply with their safety management system are prescribed in European and national legislation. Activities conducted by the Commission during 2016 in fulfilment of these safety regulation requirements are detailed in Sections 2, 3 & 4 of this report. The CRR's activities in respect of its market regulatory functions under the Single European Railway Area Directive, as reflected in S.I. No.249 of 2015, are described in Section 6 and matters of corporate governance and administration are addressed in Section 7.

In December 2015 two new Non-Executive Directors were appointed to the Board of Iarnród Éireann (IÉ), and took up their roles in early 2016. Both are Chartered Engineers who previously held senior executive positions within the UK railway sector. This notable development has brought a wealth of railway safety, operational and engineering expertise to the Board, which is welcomed by the CRR.

As recorded in the CRR Annual Report for 2015, it had become clear that IÉ was adopting a noticeably different approach to safety regulation and an unacceptably strained working relationship developed, which prevailed throughout 2015. Interaction between IÉ and the Regulator did not improve during the first months of 2016 and, in the opinion of the CRR, deteriorated further. Steps taken during the year in addressing the CRR's concerns are described in Sub-section 2.7 of this report and, in particular, the progress that has been made through an open line of communication established with the Board has been beneficial. There is now a better understanding and heightened awareness of the CRR's safety concerns at Board level, which points to a more positive outlook.

In terms of those areas outlined in the 2015 Annual Report as the focus for particular attention during 2016, the CRR has delivered on its responsibilities as follows:

- Execution of supervisory functions in accordance with Statute and Regulations to maintain assurance that railway organisations comply with their legal obligations in regard to application and effectiveness of their respective Safety Management Systems
 - Supervision activities continued throughout 2016 across all entities regulated by the CRR;
- Monitoring railway organisations' implementation of CRR and RAIU recommendations aimed at the improvement of railway safety, applying enforcement measures where necessary to ensure compliance
 - Steady progress has been made in closing out recommendations with both business division of Iarnród Éireann reducing their backlog in all categories, and work in progress should see a further reduction in the backlog during 2017;

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- Continue engagement with the IÉ Railway Undertaking business for the roll out of Entity in Charge of Maintenance (ECM) certification to all passenger and locomotive fleet
 - This activity came to a stand in September 2016 due to Iarnród Éireann's decision not to proceed further at that time with Attestation of Conformity for its Inter City Railcar fleet;
 - On-going engagement with the IÉ Infrastructure Manager business in respect of the safety authorisation of the IEHS train protection system and the GSM-R train radio system
 - Progress with the IEHS project is slow, but the GSM-R project is going well with Phase 1 (the DART network) due to complete in 2017, and network rollout to proceed thereafter;
 - On-going engagement with Transport Infrastructure Ireland (TII) in the safety assessment of the new works associated with the LUAS Cross-City (LCC) extension
 - The process leading to Authorisation to Place in Service the LCC extension is progressing well, and the CRR is working with TII towards the operational date of December 2017;
 - Finalise with Translink - Northern Ireland Railways (NIR) and IÉ the requirements for the safety authorisation of the refurbished Enterprise fleet
 - Although technical problems arose with the refurbished vehicles when first returned to service, they were addressed and full service authorisation was granted in December 2016;
 - Engagement with Belmond Ltd for safety authorisation of the *Belmond Grand Hibernian* luxury tourist train
 - The Belmond tourist train project progressed to schedule with trial runs taking place in early August and the first tour commencing on 30th August 2016;
 - On-going monitoring of IÉ's compliance with the requirements of Directive 2012/34/EU in relation to the single European Railway Area
 - The CRR continues to develop its monitoring regime for the Infrastructure Manager multi-annual contract, which now includes targeting of specific items for deeper investigation of outputs and expenditure;
 - Substantial completion and implementation of internal processes and procedures relating to the CRR's Quality Management System (QMS)
 - The CRR has engaged external expertise to provide advice and support for implementation of its QMS, and a target date of June 2017 has been adopted to apply for ISO certification ;
 - Continuing co-operation with, and technical support to the Department of Transport, Tourism and Sport with particular reference to the implementation of the European 4th Railway Package.
 - Work has commenced in respect of transposing the recast and amended EU Directives into national legislation, a task that must be completed before the respective deadlines;

In order to ensure that adequate railway-specific technical and legal knowledge and relevant skills are available within the organisation two additional Inspectors were recruited to the staff of the CRR during Q1 2016 to fill vacancies. Further professional development of all CRR staff continues, and one engineering graduate has been engaged on a fixed-term contract under the CRRs graduate

training programme. Continuing professional development of the technical staff is contributing to a minimisation of the CRR's dependence on external experts for its core activities.

In accordance with Regulation 4(2) of S.I. No.444 of 2013, each infrastructure manager and each railway undertaking shall, not later than 30th June in each year, submit an annual safety report to the CRR concerning the preceding year. Statistical information relating to safety performance of the railway organisations, as submitted in such annual reports, will be analysed and published by the CRR in a separate report at the end of Q3, 2017. Statistical reports from previous years are available on the CRR's website www.crr.ie

A notable development during the year was the re-introduction from 21st November of regular passenger services over the double-track line between Islandbridge Junction and Glasnevin Junction, thus providing a through service from Newbridge and Hazelhatch, via Drumcondra, to Connolly, Tara Street, Pearse and Grand Canal Dock stations. As this project did not involve any substantial change to existing infrastructure, safety risk management and safety assurance was delivered in accordance with the procedures prescribed in the IÉ Infrastructure Manager's safety management system.



Photo: courtesy of Sean Kennedy

The CRR is a member of the International Railway Safety Council (IRSC) core group and participates at the annual conferences. As noted in its Annual Report for 2015 the CRR has been confirmed as the host organisation for the 2018 conference to be held in Dublin. A professional conference organiser has been engaged to assist the CRR in preparation for the 2018 event, and a presentation on plans for the 2018 event was made by CRR delegates to the IRSC core group during the IRSC 2016 conference held in Paris, France, in October and met with approval.

In conclusion, I would thank each member of the CRR's team for their contribution to the delivery of our statutory duties during 2016. Throughout 2017 the CRR will continue to pursue its commitment to advance railway safety, ensure fair access to the Iarnród Éireann network, and monitor the sustainability of the heavy rail infrastructure in Ireland.

Gerald Beesley
Commissioner for Railway Regulation
March 2017

1 The Commission for Railway Regulation

The Commission for Railway Regulation (CRR) is the competent authority with responsibility for supporting the State in meeting its obligations under the various EU Directives applying to the railway sector. It has responsibility for oversight of the management of safety by the various railway organisations that operate within the State and for monitoring sustainability of the Iarnród Éireann network and regulating access to that network.

The CRR's safety role is regulatory - it does not have an operational role in managing day-to-day safety on the ground; that duty lies with the various railway organisations. The CRR's statutory mandate is to ensure that each railway organisation has developed, implemented, and is complying with Safety Management Systems (SMS) that conform to legislative requirements.

In the context of Directive 2004/49/EC (the Railway Safety Directive) the CRR is the National Safety Authority for the railway sector in the Republic of Ireland. As the independent regulatory agency charged with oversight of all railway activities, the CRR 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:

- **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 or significantly altered railway infrastructure and rolling stock to ensure safety compliance prior to placing in service
- **Compliance Supervision & Enforcement** - Auditing compliance with 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
- **European & Legislative Harmonisation** - Supporting the harmonisation of national legislation with European Directives and Regulations, and ensuring that the consequent implementation of related technical and procedural measures conforms to mandatory European requirements.

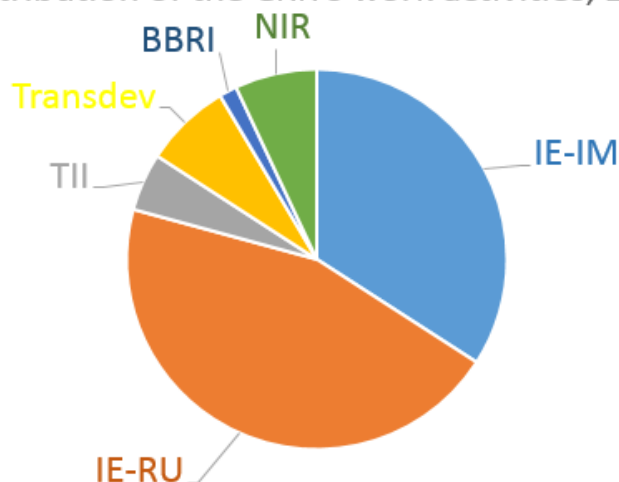
In terms of European Directive 2012/34/EU, as reflected in S.I. No.249 of 2015, the CRR is the Regulatory Body, Licensing Authority and Independent Monitoring Body for the heavy rail sector in the State. Regulatory functions include:

- **Licensing of Railway Undertakings** wishing to operate on the Iarnród Éireann network
- **Independent Monitoring** of the Multi-Annual Contract between the Minister and the Iarnród Éireann Infrastructure Manager business (Access revenue alone is insufficient to meet the steady state operating and maintenance costs of the network), and
- **Adjudication on complaints** regarding access to the Iarnród Éireann network.

The railway sector in Ireland includes one Infrastructure Manager (Iarnród Éireann) responsible for an operational network of 1,700 route-km, plus approximately 135 route km of non-operational lines; and four Railway Undertakings who operate on the Iarnród Éireann network (Iarnród Éireann, Northern Ireland Railways, Railway Preservation Society of Ireland, and Balfour Beatty Rail Ireland). In addition there is a 37 route-km light railway system in Dublin (LUAS) and there are nine self-contained narrow-gauge Heritage Railways of which three are currently not operational.

In terms of network size and extent of operations Iarnród Éireann (IE) is by far the largest railway organisation that the CRR regulates. It accounted for 79% of the CRR's work activities in 2016, and this is reflected in the content of this Annual Report.

Distribution of the CRR's work activities, 2016



2 Safety Management Systems

Until about 30 years ago, investigations into the causes of accidents focused primarily on technical and individual antecedents, e.g. equipment failure and human error. More recently, the involvement of organisational and systemic factors has been recognised and thereby the role played by board members, executives, managers and others has been highlighted.

Strategic decision making affects the allocation of resources and personnel and reflects the extent to which safety is valued within an organisation. As well as the potential to contribute to accident causation, higher-level decision-making has a major impact on organisational culture and business performance.

An organisation's Safety Management System (SMS) is an expression and result of the organisational culture and its values, vision, priorities, leadership, norms, etc. The SMS should be seen as an organisational value rather than a regulatory obligation. It should be 'owned' by the senior management and used as a tool by which safety can be continuously improved.

2.1 SMS Developments

2.1.1 Iarnród Éireann

Iarnród Éireann Infrastructure Manager (IE-IM) continued to operate throughout 2016 under the Safety Authorisation granted to it on 25th March 2013 by the CRR, which is valid for a period of five years subject to continuing compliance with SMS obligations.

Similarly, the four Railway Undertakings that conduct movements on the IE network, Iarnród Éireann Railway Undertaking (IE-RU), Translink – Northern Ireland Railways (NIR), Balfour Beatty Rail Ireland (BBRI) and the Railway Preservation Society of Ireland (RPSI), continued to operate during 2016 under their respective Safety Certificates, which were issued as follows:

Railway Organisation	Date Issued	Validity Period*	Expiry Date
IÉ-RU	25 th March 2013	5 years	24 th March 2018
NIR	1 st September 2013	5 years	31 st August 2018
BBRI	25 th August 2015	3½ years	23 rd February 2019
RPSI	19 th December 2014	5 years	18 th December 2019

* Subject to continuing compliance with SMS obligations

2.1.2 Light Rail Organisations

The LUAS continued to operate throughout 2016 under the Safety Management Certificate issued by the CRR on 13th March 2015 to Transdev Dublin Light Rail Ltd., which is valid for a period of five years

2.1.3 Heritage Railways

On 30th August 2016 the CRR issued a Safety Management Certificate to Lullymore Heritage and Discovery Park permitting it to operate its 965m loop of 3ft gauge railway.

2.2 SMS Compliance - Iarnród Éireann

The CRR has continued to successfully engage with key professional staff in both the Infrastructure Manager and the Railway Undertaking business divisions of IÉ and encourage them in taking steps to implement improvements for the benefit of railway safety. The vast majority of such key staff have been receptive to the CRR's guidance and directions.

The CRR's SMS audit regime, which is structured and executed in accordance with the requirements of Regulation (EU) No. 1077/2012, the Common Safety Method (CSM) for Supervision is designed to:

- Confirm the Duty Holder's application of and compliance with its approved SMS
- Determine effectiveness, suitability, and sufficiency of the SMS to demonstrate compliance with the applicable Common Safety Methods, and
- To identify matters of non-compliance and areas for improvement to the management systems, including advising on good practice

The approach adopted by IÉ in 2015 when responding to matters of safety management compliance identified by the CRR continued well into 2016, and the steps taken to address the CRR's concerns are described in Section 2.7 of this report. Despite the strained working relationship that prevailed, the CRR continued in its efforts to bring to closure those matters that IÉ had not fully addressed to its satisfaction by the end of 2015. The following sections describe the steps taken during 2016.

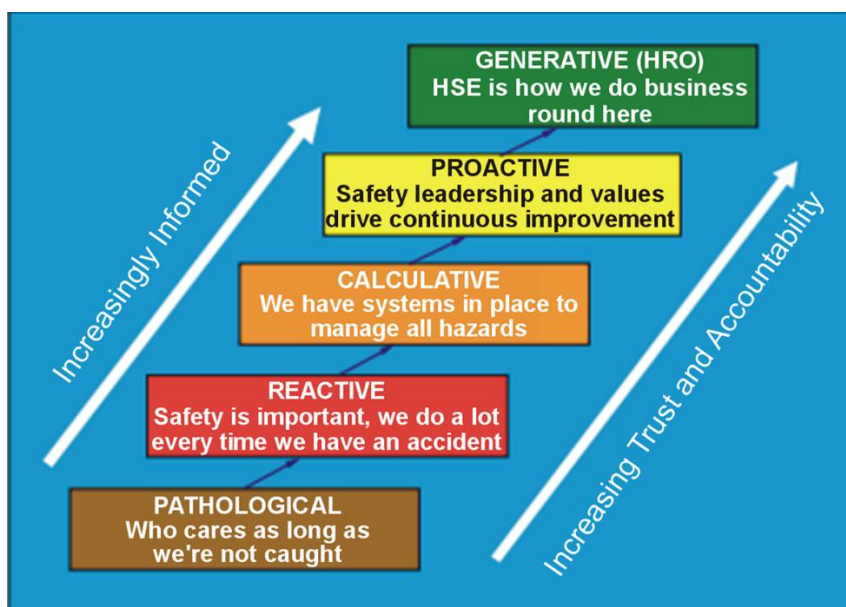
2.2.1 Strategic Management of Safety in Iarnród Éireann

As noted in our 2015 Annual Report, the CRR's audit of *Strategic Management of Safety within Iarnród Éireann* (the final report of which was issued in June 2015) identified a number of fundamental issues of longer term concern. One the significant outcomes related to the absence of reporting by Safety Managers to meetings of the IÉ Board, which resulted in a follow-up Inspection by the CRR, details of which are presented in sub-section 2.2.2 below.

Two other significant issues, one relating to the formation of a Safety Committee of the IÉ Board and the other to the definition of a vision for safety, are being dealt with through an open line of communication established with the IÉ Board. At a meeting with representatives of the IÉ Board that was held on 16th September 2016, the CRR was advised that IÉ would be addressing the first issue through a review of Safety Governance that it had committed to undertake.

The vision for safety is the foundation stone for fostering an organisational culture that recognises safety as a core value. Safety Culture is a facet of the organisational culture that reflects the relative values and priorities around safety in relation to other values and priorities. The IÉ Board has indicated its willingness to determine the level at which Safety Culture currently functions within the organisation, and the CRR remains available to provide guidance and support to IÉ as the company navigates itself along a pathway from where it is to where it ought to be in respect of Safety Culture.

In this context it should be noted that Directive (EU) 2016/798, the recast Railway Safety Directive, recognises the importance of Safety Culture in relation to human performance. The EU Agency for Railways and the human factors working group of the Union Internationale des Chemins de Fer (UIC) have been working on a common path in regard to Safety Culture. Close co-operation between the Agency and Eurocontrol (the European Organisation for the Safety of Air Navigation) is leading to the adoption of the Hudson evolutionary model of Safety Culture as a norm for the EU railway area.



The Safety Culture Ladder - after Prof. Patrick Hudson,

2.2.2 Action following identification of Non-compliance issues

The CRR audit of Strategic Management of Safety within IÉ, referred to in the previous sub-section, identified a non-compliance with the IÉ-IM SMS and IÉ-RU SMS that had existed since March 2013. This was related to the lack of reporting of the IM Safety Manager and the RU Safety Manager to meetings of the IÉ Board. A follow-up Inspection, initiated by the CRR in April 2015, was aimed at determining why this non-compliance had existed for a prolonged period of time and to identify what reporting arrangements were actually in place to ensure that the IÉ Board is informed of safety performance and SMS compliance.

The final report of this follow-up Inspection was issued to IÉ on 29th April 2016 and identified two minor non-compliances, namely:

- The requirement for the Director IM to report to / attend / present reports at meetings of the IÉ Board should be documented within the IÉ-IM SMS, and
- IÉ-IM and IÉ-RU are non-compliant with IM-SMS-008 Section 3 and RU-SMS-008 Section 3 as the IM Safety Manager and RU Safety Manager do not report on safety performance to meetings of the IÉ Board.

The Inspection also identified eight areas where action was required to avoid the potential for non-compliance. The CRR requested IÉ to submit an Improvement Plan detailing the remedial action they proposed to take to address the non-compliances. IÉ responded to the Improvement Plan request on 20th May stating that they would amend the respective SMS Standards. However, the CRR had not received sight of any of the amended documents by the end of 2016.¹

2.2.3 Iarnród Éireann's safety validation of organisational change

As noted in the CRR's Annual Report for 2015, in March 2015 IÉ had notified the CRR of a change in the Procurement, Materials and Contract Management responsibilities in the IM and RU business divisions. The CRR was concerned that matters fundamental to (a) independence of functions under the respective IM SMS and RU SMS, upon which the CRR had granted Safety Authorisation and issued Safety Certificates; and (b) conformity of the respective SMSs with Directive 2004/49/EC, may not have been complied with.

Consequently, the CRR conducted a review pursuant to Regulations 5 and 6 of S.I. No. 444 of 2013 and was assisted in its task by DNV-GL. The CRR's final report of its *Comprehensive Review 86/15-R* was issued to IÉ on 5th February 2016. The review identified five areas where improvements were required to be made to the SMS Standards for safety validation of organisational change, and made recommendations to address 31 matters of non-compliance in the safety validation of the proposed organisational change. The CRR requested IÉ to submit an Improvement Plan providing details of how the recommendations would be addressed.

Rather than submit an Improvement Plan, as requested, IÉ wrote to the CRR on 24th February stating that the revised organisation 'went live' on that same day and attaching a list of brief statements on how each recommendation arising from the review had been responded to.

In reply to the CRR's request for details on how the five over-arching recommendations arising from the Comprehensive Review were to be addressed, IÉ indicated "no action required" in respect of two recommendations; gave completion dates in respect of two other recommendations, but did not provide a completion date for the remaining recommendation.

Although IÉ had asserted that it had reflected the findings arising from the Comprehensive Review in its revised Application for Safety Validation, and consequently had issued new Safety Validation Certificates; the CRR pointed out in early March that it had expected to receive evidence of how non-compliance issues had been addressed, and formally requested IÉ to provide documentary

¹ On 4th January 2017 IÉ advised CRR that RU-SMS-008 had been amended accordingly, that IM-SMS-001 and IM-SMS-008 have been redrafted and are to be approved by end of January 2017, and that evidence to show amendments made will be submitted in the usual manner in due course.

evidence demonstrating the actions taken so that the CRR could determine if all non-compliance issues identified had been adequately addressed by IÉ. For the avoidance of doubt, the CRR advised IÉ that where the CRR has identified non-compliances with the application of safety management systems, the CRR is the competent authority that shall assess and determine whether measures taken adequately address the non-compliances or not.

At the time of the Comprehensive Review the CRR had identified a weakness in the IÉ process and required action to address the same. In regard to evidence, the CRR provided IÉ with clarification on the contents of the report of the Comprehensive Review and set out a list of matters that the CRR expected to form part of the documentary evidence chain, requesting IÉ to produce same without delay; a request that was repeated by the CRR two weeks later on 11th April.

In reply, IÉ referred the CRR to the attachment to their letter of 24th February 2016 (the list of brief statements on how each recommendation arising from the Comprehensive Review had been responded to) and attached a less than complete set of documents in response to the CRR's request.

On 1st July the CRR wrote to IÉ reiterating that it had expected to receive evidence from IÉ of how the non-compliance issues identified in the Commission's Report (86/15-R) had been addressed prior to IÉ proceeding with the implementation of the organisational change. In addition, it was pointed out that in the same report it stated: "Amended standards should be forwarded to the RSC for checking against conformity assessment criteria prior to being released for use; and no further safety validation of organizational change in IÉ is to take place until the revised standards have been authorised for use." By this same letter, the CRR also advised IÉ that it was undertaking a further assessment, on the basis of the limited number of documents that IÉ had supplied, in order to determine whether subsequent measures taken by IÉ adequately addressed the issues.

CRR issued its Report of the *Review of the implementation by Iarnród Éireann of recommendations arising from RSC activity 86/15-R* on 23rd August 2016. The review determined that of the 36 recommendations contained within Comprehensive Review only 18 had been fully implemented, 10 were partially implemented, 7 were not implemented or complied with, and 1 recommendation was not applicable to the assessment.

By the end of 2016, the CRR was still awaiting IÉ's response to this Report of its further assessment and other issues arising from its unilateral implementation of changes in Procurement, Materials and Contract Management. It is incumbent on IÉ to verify to the satisfaction of the CRR that any proposed changes do not run counter to current European and national legal requirements. IÉ have yet to definitively demonstrate compliance with Article 4.3 of Directive 2004/49/EC.

Further to meetings held with representatives of the IÉ Board on 19th July 2016, and with the IÉ Board Chairman and two Non-Executive Directors on 16th September 2016; the CRR forwarded to IÉ (on 2nd November) a schedule of outstanding issues that still required further action by IÉ. In relation to IÉ changes in Procurement, Materials and Contract Management, the CRR expressed its serious concern that the organisational change was implemented by IÉ in the absence of sufficient diligence, not only in the first application of the safety validation process, but also in the second application, which failed to demonstrate that all outcomes identified by the CRR's Comprehensive Review (86/15-R) were addressed in an adequate manner.

The CRR is concerned that the second safety validation was undertaken by IÉ prior to revision, and authorisation for use, of Standards for safety validation of organisational change. The organisational change, as implemented, has introduced significant divergence in the distribution of responsibilities from the respective SMSs on which IÉ was granted Safety Authorisation and issued with Safety Certificates. The CRR has pointed out that, in the absence of specific CRR authorisation confirming that the proposed changes do not affect the conformity with EU railway SMS requirements, IÉ may well have been, in this particular respect, operating outside its SMSs since 24th February 2016.

2.2.4 2016 SMS Audit outcomes

Two SMS audits were finalised in 2016, which identified three minor non-compliances and nine area where action is required. These matters are being addressed between IÉ and the CRR through the normal CRR recommendation follow-up procedures. Three further SMS audits were initiated in 2016.

2.3 SMS Compliance – Other Railway Organisations

2.3.1 Northern Ireland Railways

In 2016 the CRR undertook one SMS audit of NIR which focused on *Northern Ireland Railways' management of Enterprise Rolling Stock Maintenance*. The audit was conducted in May and the final report was issued on 26th July 2016. It high-lighted two area where action was required: (i) NIR to ensure that working documents are issued as Final versions, not Draft, and (ii) NIR to review if tracking of mileages of trains and sub-systems is adequate.

2.3.2 Railway Preservation Society of Ireland

In 2016 the CRR initiated and completed one SMS audit which addressed the *Railway Preservation Society of Ireland's Management of Training & Competence*. It did not identify any non-compliances, but there were three areas where action was required to avoid the potential for non-compliance. The key issues that will require RPSI management attention as a result of the audit include:

- Management of records of competence and periodicity of re-examination/re-briefing of all staff, and
- Implementation of a return to work procedure for volunteers and workers following a long absence.



2.3.3 Balfour Beatty Rail Ireland

Balfour Beatty Rail Ireland (BBRI) operates and maintains the IÉ fleet of On-Track Machines (OTMs). The movement of the OTMs from depot to worksite, and between worksites, requires BBRI to be in possession of a Safety Certificate confirming the conformity of their SMS with EU requirements for operation on the IÉ network.

The CRR supervises the application and effectiveness of the BBRI SMS and in Q 4 2016 initiated an audit on the *Provisions for Recurrent Internal Auditing of the SMS and Monitoring applied by the Railway Undertaking*, but finalisation of the report was not complete before the end of the year.²

2.3.4 Transdev (LUAS)

The CRR commenced supervision of the application and effectiveness of Transdev's current SMS in 2015, and a combined audit of the *Strategic Management of Safety and comparison with the traits of a High Reliability Organisation (HRO)* was undertaken in 2016. In order to bring specialist knowledge of HROs to bear, the CRR engaged DNV-GL (a company with international reputé for advice in the field of operational risk management to the rail, maritime, oil & gas, and energy industries) to assist.

The audit was conducted in October and the two reports (audit and HRO comparison) were issued on 22nd December 2016. The audit identified four non-compliances and four areas where action was required. The positive findings from the HRO comparison were that Transdev exhibits a number of the characteristics of an HRO. However, a number of key issues limiting Transdev from taking a more strategic approach were identified:

- The SMS is focussed on the provision of day-to-day tram services and in demonstrating legislative compliance, the SMS does not provide a strategic approach to safety management. This is partially reflective of the way the delivery of LUAS tram services has been contracted, specifically that Transdev was contracted as the operator of the system and to manage the maintenance contracts that have been novated to it. The SMS has been developed around this arrangement.
- The contractual requirements between the different stakeholders dictate the way the LUAS is operated, and considerable effort goes into ensuring the obligations are being met. The Transdev SMS does not fully bring together the good SMS activities of Alstom and TII to provide an overarching SMS.
- The response to the industrial dispute, in terms of safety management, should have been stronger. The effect of the dispute, and its effects on risk should have been identified, assessed and monitored.

The report includes a detailed roadmap to provide Transdev with a framework for implementing a strategically-led approach to safety management.

² The final report was issued to BBRI on 12th January 2017.

2.4 Iarnród Éireann Operational Incidents

The CRR monitors operational incidents that occur on the railway networks in order to encourage positive actions, or intervene where trends are negative or incidents raise concerns in regard to SMS compliance.

2.4.1 Signals Passed At Danger (SPADs)

As noted in the CRR's Annual Report for 2015, the total number of SPADs on the IE network for that year was higher than that experienced in each of the years 2011 and 2012. There was a further rise in the number of SPADs during 2015, and only a slight reduction in 2016; see table below:

Year	2010	2011	2012	2013	2014	2015	2016
No of SPADs	22	6	8	18	10	15	13

Table 1: SPAD totals by year on the Iarnród Éireann network, 2010-16

Summary details of the 13 SPADs that occurred on the IE network during 2016 are presented in the following table:

	Date	Signal	Type	Location
1.	25/01/2016	ML633	Main	Castlerea
2.	08/03/2016	ML684	Main	Westport
3.	04/04/2016	LF486(s)	Shunt	Lisduff
4.	06/04/2016	MN143 (s)	Shunt	Maynooth
5.	23/04/2016	PE22	Main	Tara Street
6.	14/05/2016	PE28 (s)	Shunt	Pearse
7.	22/06/2016	AE402	Main	Athlone
8.	27/06/2016	GL421	Main	Ennis
9.	01/08/2016	PL278 (s)	Shunt	Portlaoise TCD
10.	12/08/2016	DC416	Main	Pearse
11.	18/08/2016	CK790	Main	Cork
12.	06/09/2016	CE473	Main	Glounthaune
13.	23/09/2016	GL378 (s)	Main	Galway

Table 2 SPADs on the Iarnród Éireann network, 2016

Although the technical issues arising from correspondence that the CRR had with IE in June 2015 have been addressed, the critical outstanding item is a time line that takes account of the adoption of a 'Just Culture' (no-blame culture) to improve safety reporting, as identified in the Ladbroke Grove Rail Inquiry Part 2 Report and ERA Guidance ERA/GUI/10-2013/SAF V1.0 'Application Guide for the design and implementation of a Railway Safety Management System'.

2.4.2 Out of normal operation of RPSI train at Midleton

Because of the additional risks introduced as a consequence of the operation of the RPSI train to Midleton, Co. Cork, on 7th November 2014, the CRR undertook a Post Incident Inspection (PII). The Report of the PII, which resulted in a total of ten outcomes, was issued to IE and the RPSI on 10th February 2016. One major and one minor non-compliance were identified against IE-IM and, of the eight areas where action was required to avoid the potential for non-compliance, six were directed at IE-IM and two at the RPSI.

A significant outcome requires IÉ to develop guidance/rules to ensure commercial considerations do not overrule safety requirements and introduce unnecessary risk, and the CRR is awaiting evidence from IÉ to close this particular item. In this context, it should be noted that the revised EU Common Safety Method for conformity assessment will include a requirement for SMSs to include procedures for “ensuring that safety is considered when identifying and managing the organisation’s business risks and explaining how conflict between safety and other goals will be recognised and resolved”.

2.4.3 Other Operational Incidents

The CRR also monitors other operational incidents that occur on the railway networks. Apart from SPADs, which were the subject of separate correspondence (see Section 2.4.1, above), a total of 17 incidents were notified during 2016, and the CRR conducted Post Incident Inspections into 4 of these incidents to determine if there were issues regarding SMS compliance that needed to be addressed. A summary of the reportable incidents (other than SPADs and apparent cases of self-harm) that occurred on the IÉ network during 2016 is presented in the following table.

	Date	Description of Incident	Location
1.	11/01/2016	Derailment of wagon at hand operated points	Tara Mines sidings
2.	07/02/2016	Landslide at 43½mp Killarney-Tralee line	Killeen
3.	03/04/2016	No.262 Points run through during a T3 possession	Lavistown
4.	26/04/2016	Points failure following maintenance	Maynooth
5.	27/04/2016	Contractor cut into live cable during removal of equipment	Birdhill
6.	04/05/2016	Operating irregularity – train exceeded length of platform	Hazlebatch
7.	23/05/2016	Culvert collapse 161mp on the UP Cork-Dublin mainline	Rathpeacon
8.	23/05/2016	Operational irregularity during single-line working	Cork - Mallow
9.	04/06/2016	Electrical Control Operator failed to cut power	Dalkey - Shankill
10.	07/06/2016	Engine fire on 29000 Class DMU	Clongriffin
11.	07/06/2016	Wrong-side failure of CAWS upgrade at signal DC416	Tara St. - Pearse
12.	27/06/2016	Wrong Side Failure of doors, Train A122	Dundalk
13.	13/07/2016	Derailment of HOBs wagon	Drogheda
14.	15/07/2016	Derailment of 2600 Class DMU at hand operated points	Cork Yard
15.	01/08/2016	Derailment of 22000 Class DMU	Portlaoise TCD
16.	09/11/2016	Derailment of locomotive 072 shunting Tara Mines wagon	North Wall Yard
17.	20/11/2016	Derailment of locomotive at hand operated points	Inchicore Works

Table 3: Reportable Incidents on the Iarnród Éireann network, 2016

2.5 Light Rail Operational Incidents

There were 26 incidents notified by Transdev, the LUAS operator, during 2016. Of these 14 related to road traffic collisions with motor vehicles, two to contact with cyclists, and two contacts with pedestrians. There was one derailment of a tram, at Tallaght on 12th September 2016.

2.6 Implementation of Safety Recommendations

It is the CRR's intention to endeavour to ensure that Safety Recommendations and Audit Outcomes are addressed within three years of their date of issue. Additional steps have been taken to improve the rate of closure, and the following sub-sections of the report present information on the progress made throughout 2016.



2.6.1 Recommendations arising from CRR Audits and Post Incident Inspections

The implementation of corrective and preventative actions is monitored by the CRR on an on-going basis through safety review meetings that are held with railway organisations on a regular basis. A three-tier status flagging regime is applied in the following manner: an outcome from an audit, be that a non-compliance (NC) or an action required (AR), can be either

Open -	Feedback from Railway Organisation is awaited, or actions have not yet been completed.
Complete -	The Railway Organisation has advised the CRR that it has taken measures to implement the remedial action and has supplied supporting evidence for the CRR to assess if the recommendation can be closed.
Closed -	Based on evidence supplied by the Railway Organisation, the CRR is satisfied that the necessary remedial measures have been taken and that work has been completed to the extent required to close the recommendation.

The CRR commenced auditing railway organisations in 2009, and Post Incident Inspections (PII) for the purposes of determining compliance with Safety Management Systems were introduced in 2014. The numbers and cumulative status of recommendations (outcomes) arising from these activities for the years 2015 and 2016, together with progress made on closure during 2016, is illustrated in the following tables for each railway organisation.

Iarnród Éireann

Status at	Open		Complete		Closed		Total	
	AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
31/12/2015	33	16	0	0	194	49	227	65
2016 outcomes	0	0					0	0
2016 progress	-27	-13	+27	+13				
			-22	-8	+22	+8		
31/12/2016	6	3	5	5	216	57	227	65

Table 4: CRR Audit Outcomes Summary for Iarnród Éireann - Infrastructure Manager

Status at	Open		Complete		Closed		Total	
	AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
31/12/2015	14	3	0	0	13	7	27	10
2016 outcomes	12	6					12	6
2016 progress	-15	-2	+15	+2				
			-13	-2	+13	+2		
31/12/2016	11	7	2	0	26	9	39	16

Table 5: CRR PII Outcomes Summary for Iarnród Éireann - Infrastructure Manager

Status at	Open		Complete		Closed		Total	
	AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
31/12/2015	71	26	1	0	31	6	103	32
2016 outcomes	9	3					9	3
2016 progress	-62	-23	+62	+23				
			-15	-7	+15	+7		
31/12/2016	18	6	48	16	46	13	112	35

Table 6: CRR Audit Outcomes Summary for Iarnród Éireann – Railway Undertaking

Status at	Open		Complete		Closed		Total	
	AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
31/12/2015	9	4	0	0	2	0	11	4
2016 outcomes	3	1					3	1
2016 progress	-9	-4	+9	+4				
			-3	-1	+3	+1		
31/12/2016	3	1	6	3	5	1	14	5

Table 7: CRR PII Outcomes Summary for Iarnród Éireann – Railway Undertaking

Northern Ireland Railways

Status at	Open		Complete		Closed		Total	
	AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
31/12/2015	2	1	0	0	0	0	2	1
2016 outcomes	6	3					6	3
2016 progress								
31/12/2016	8	4	0	0	0	0	8	4

Table 8: CRR Audit Outcomes Summary for Northern Ireland Railway – Railway Undertaking

Status at	Open		Complete		Closed		Total	
	AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
31/12/2015	0	0	0	0	0	0	0	0
2016 outcomes	3	0					3	0
2016 progress								
31/12/2016	3	0	0	0	0	0	3	0

Table 9: CRR PII Outcomes Summary for Northern Ireland Railway – Railway Undertaking

Railway Preservation Society of Ireland

Status at	Open		Complete		Closed		Total	
	AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
31/12/2015	8	2	0	0	3	1	11	3
2016 outcomes	3	0					3	0
2016 progress	-2		+2					
31/12/2016	9	2	2	0	3	1	14	3

Table 10: CRR Audit Outcomes Summary for Railway Preservation Society of Ireland – Railway Undertaking

Status at	Open		Complete		Closed		Total	
	AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
31/12/2015	0	0	0	0	0	0	0	0
2016 outcomes	2	0					2	0
2016 progress								
31/12/2016	2	0	0	0	2	0	2	0

Table 11: CRR PII Outcomes Summary for Railway Preservation Society of Ireland – Railway Undertaking

Balfour Beatty Rail Ireland

Status at	Open		Complete		Closed		Total	
	AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
31/12/2015	0	0	0	3	5	1	5	4
2016 outcomes	12	1					12	1
2016 progress	-11	-1	+11	+1	+5	+3		
31/12/2016	1	0	6	1	10	4	17	5

Table 12: CRR Audit Outcomes Summary for Balfour Beatty Rail Ireland– Railway Undertaking

Transdev - LUAS

Status at	Open		Complete		Closed		Total	
	AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
31/12/2015	50	4	0	0	22	3	72	7
2016 outcomes	4	0					4	0
2016 progress	-32	-2	+32	+2	+6			
31/12/2016	22	2	26	2	28	3	76	7

Table 13: CRR Audit Outcomes Summary for LUAS

Heritage Railways

Status at	Open		Complete		Closed		Total	
	AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
31/12/2015	2	11	0	0	0	1	2	12
<u>2016 outcomes</u>								
Difflin Lake Railway	0	1					0	1
Fintown Railway	0	0					0	0
ISPS (Irish Steam Preservation Society)	5	3					5	3
Waterford & Suir Valley Railway	2	0					2	0
2016 progress								
31/12/2016	9	15	0	0	0	1	9	16

Table 14: CRR Audit Outcomes Summary for isolated Heritage Railways

2.6.2 Safety Recommendations arising from RAIU Investigations

Safety Recommendations made by the RAIU in accordance with Regulation 5 of S.I. No.258 of 2014 are, although directed at the railway organisation(s) concerned, addressed in the first instance to the CRR. It is the responsibility of the CRR to ensure that Safety Recommendations are duly taken into consideration, and, where appropriate, acted upon.

In that context the CRR monitors the implementation of RAIU Safety Recommendations on an on-going basis through safety review meetings that are held with the railway organisations on a regular basis. The statistics are broken down by railway organisation and show, by year, the status of the outcomes from RAIU Investigations. The table below illustrates the status as of 31st December 2016.

Railway Organisation	RAIU Recommendations				
	Status at	Open	Complete	Closed	Totals
IÉ-IM	31/12/2015	12	18	62	92
	31/12/2016	19	19	67	105
IÉ-RU	31/12/2015	4	5	13	22
	31/12/2016	6	2	18	26
LUAS	31/12/2015	2	0	5	7
	31/12/2016	2	0	5	7
RSC	31/12/2015	2	0	4	6
	31/12/2016	1	0	5	6
RSC & IÉ	31/12/2015	1	1	0	2
	31/12/2016	1	1	0	2
IÉ	31/12/2015	0	0	2	2
	31/12/2016	0	0	2	2
BBRI	31/12/2016	1	0	0	1
RPSI	31/12/2016	1	0	0	1
NIR	31/12/2016	1	0	0	1

Table 15: RAIU Safety Recommendation Status

The RAIU published three investigation reports in 2016, which contained Safety Recommendations:

- Investigation into SPADs on IÉ Network, from January 2012 to June 2015, published 11th April 2016
- Dangerous Occurrence, Ballybrophy - Portlaoise, 12th September 2015, published 6th September 2016
- SPADs at Ardrahan 23rd October 2015 & Castleconnel 28th November 2015, published 20th October 2016*

* The CRR was of the opinion that the Safety Recommendation made to IÉ by the RAIU following this investigation had wider application and therefore issued the same to BBRI, the RPSI and NIR.

Year	No. of Reports	No. Of Recommendations			
		Open	Complete	Closed	Total
2006*	1	0	0	14	14
2007	0	0	0	0	0
2008	1	0	0	7	7
2009	5	0	0	13	13
2010	6	1	2	23	26
2011	6	2	9	6	17
2012	3	1	2	10	13
2013	3	2	5	3	10
2014	6	6	2	19	27
2015	2	3	0	1	4
2016	3	17	2	1	20
Totals	36	32	22	97	151

Table 16: Summary status of RAIU Safety Recommendations by year

(Note: the single Investigation Report published in 2006 was prepared under the auspices of the Railway Safety Commission following the collapse of the Cahir Viaduct in October 2003.)

2.7 Working relationship between Iarnród Éireann and the CRR

The CRR's Annual Report for 2015 highlighted concerns regarding top management attitude within IÉ to matters identified by the CRR through its independent supervision of safety management. Early in 2015 it became clear that IÉ was adopting a noticeably different approach to safety regulation, and the working relationship between IÉ and the CRR was strained throughout that year.

Interaction between IÉ and the Regulator did not improve during the first months of 2016 and, in the opinion of the CRR, deteriorated further. In the light of the continuing strained relationship, and the absence of a positive change in IÉ's attitude toward the Regulator, the CRR brought its concerns to the attention of officials in the Department of Transport Tourism and Sport (DTTaS) in April 2016, emphasising the requirement for a paradigm shift in IÉ's attitude to safety regulation.

In discussions with the DTTaS at the end of May 2016, the CRR outlined its serious concerns. Among the issues identified were:

The responsiveness of IÉ was not what it used to be at higher management level: it is of concern to the CRR that correspondence received from IÉ reflected a leadership attitude that was less than the CRR expects in regard to legal obligations and the diligence required in safety management.

CRR concerns in relation to safety governance and risk identification and controls: IÉ does not appear to understand that, by allowing matters to be dealt with in the manner in which they were, a detrimental change in management of risk could ensue. IÉ needs to understand the regulatory dynamics, and specifically, its obligation to heed the advice of and comply with the directions of the Safety Authority.

Overall the CRR was concerned that there could, over time, be strategic safety implications for the future if these trends continued. Furthermore, repeated challenges from IÉ to the authority of the CRR had become a distraction to its remit as the Safety Authority under the EU Railway Safety Directive. It was agreed that it was essential that a path be found to improving the situation.



2.7.1 Progress during 2016

A meeting between the CRR and representatives of the IÉ Board (the two non-executive directors who had been newly appointed at the end of 2015) ensued in July 2016. At that meeting the CRR elaborated on its concerns; the two IÉ Board members subsequently conveying to the IÉ Board Chairman the extent and seriousness of the situation.

A second meeting of the same directors and the Chairman of the IÉ Board took place with the CRR in September 2016. At this second meeting IÉ outlined the steps it had taken and further measures it proposed to take to strengthen safety governance, improve communications with the CRR, and address the issue of organisational culture.

The CRR confirmed that, in order to foster better corporate understanding of legal obligations in respect of the management of railway safety, it was preparing a guidance document on safety management for Directors and Senior Managers of railway organisations. The CRR also indicated that it is willing to run a workshop on this topic for the benefit of IÉ Board members.

2.7.2 Outlook

The CRR has discerned a commitment by the IÉ Board to turn things around and to progress in the direction that the CRR sees as appropriate. An open line of communication with the Board has been established, and there is now a better understanding and heightened awareness of the CRR's safety concerns at Board level.

On-going constructive dialogue is enabling previous areas of misapprehension and challenge to be addressed. The CRR can report that positive progress had been made by the end of the year, and it is envisaged that the open line of communication will facilitate the objective of satisfactorily addressing the issues of concern that were identified by the CRR in its 2015 Annual Report.

Key actions agreed relate to the strengthening of safety governance, improvement in communications with the CRR and, very importantly, addressing the issue of organisational culture within IÉ. It was agreed that the IÉ Chairman and representatives of the Board would meet regularly with the CRR to report on IÉ's progress with these measures.

The CRR kept the Minister for Transport Tourism and Sport apprised of the situation, and he subsequently requested the Commissioner update him on progress made on a quarterly basis in 2017. The Commissioner agreed to do so in regard to the key actions agreed with IÉ, with a view to confirming that the positive change in attitude toward the authority of the CRR in respect of safety regulation is being sustained and that continuous improvement in management of safety is delivered by IÉ in compliance with EU and national legislation.

Provided that the sentiment and intentions espoused by IÉ are evidenced in constructive actions, there is now an opportunity to proceed positively to the mutual benefit of the Regulator and the Company.

3 Authorisation to Place in Service

Railway organisations and other parties wishing to introduce new or significantly altered railway infrastructure or railway rolling stock are obliged to follow a prescribed process in order to be granted Authorisation to Place in Service (APIS). The CRR has been working across the sector throughout 2016 on various APIS projects, as described below.

3.1 Rolling Stock

Throughout 2016 the CRR has been active in the safety authorisation process for several rolling stock projects. These are detailed in the following sub sections:

3.1.1 Enterprise Refurbishment Project

The project for the mid-life refurbishment of the *Enterprise* De Dietrich carriages was jointly managed by IÉ and Translink (Northern Ireland Railways – NIR) as this particular fleet is jointly owned and operated by both railway organisations.

A Letter of Acceptance for Interim Service Operation, with certain conditions attached, had been issued in November 2015, and the first set of refurbished vehicles entered service on 16th November 2015. Subsequently, two wrong-side entrance door failures, where doors opened while the train was in motion, were experienced with this set in the space of 20 days for differing technical reasons: the first on 17th December 2015 and the second on 6th January 2016.

The CRR immediately served Notice on NIR prohibiting the operation of the De Dietrich stock on the Iarnród Éireann railway network until such time as NIR had demonstrated to the satisfaction of the CRR that the risk of further wrong-side door failures is as low as reasonably practicable. Following review of evidence and clarifications submitted by NIR, the CRR was satisfied that the circumstances giving rise to the prohibition notice had been remedied. The prohibition was lifted with effect from 13th January 2016, and the vehicles were again permitted to operate on the Iarnród Éireann network subject to all the revised and additional safety measures undertaken and planned remaining in force.

The joint IÉ/NIR project team worked closely with the CRR during 2016 to close all conditions before their deadline. Further Letters of Acceptance for Interim Service operation were issued in January, February, March, May, June, July August and November 2016 as progress was made in addressing the conditions, and a Letter of Acceptance for full Service Operation the refurbished fleet was issued on 6th December 2016.

3.1.2 Belmond Grand Hibernian Tourist Train

The project to convert former IÉ Mk III carriages for luxury tourist train operations progressed to schedule during 2016 with the first tour commencing on 30th August 2016.

Assenta Ltd. of Edinburgh who represented the owner, Ireland Luxury Rail Tours Limited, for the conversion of the various types of vehicle, were issued with a Letter of Acceptance for Detailed Design on 4th July 2016. A Letter of Acceptance for Testing was issued to IÉ on 8th August and, on completion of the test schedule, a Letter of Acceptance for Interim Service Operation was issued by the CRR on 23rd August 2016. The full authorisation for service operation is expected to complete in Q1 2017.

3.1.3 Transport Infrastructure Ireland – Citadis 502 Trams

A Letter of Acceptance for Stage 1 (Concept) was issued by the CRR to Transport Infrastructure Ireland on 16th December 2016 for the design, manufacture, testing and commissioning of new 54.7m long Citadis 502 trams.

3.1.4 Entity in Charge of Maintenance

Iarnród Éireann Railway Undertaking (IÉ-RU) is the only organisation in the Republic of Ireland that holds a certificate as Entity in Charge of Maintenance (ECM) for railway freight wagons. In February 2016 the CRR performed a ‘Year 3’ surveillance audit on the IÉ-RU Freight ECM during which twelve non-critical non-conformities were identified. IÉ-RU submitted an Improvement Plan to remedy these non-critical non-conformities, which was acceptable to the CRR, and all items were in the process of being closed by the end of the year.

Also, during 2016 IÉ-RU continued with the application process for voluntary ECM certification for non-freight vehicles (referred to in Europe as attestation of conformity) in respect of its 22000 Class Inter City Railcar (ICR) fleet. Stage 1 of this process had been successfully completed in December 2015, and the CRR conducted the Stage 2 audit in May-June 2016; the final audit report being issued to IÉ-RU on 17th August 2016.

The CRR’s Stage 2 audit identified 9 Critical (major) non-conformities and 24 non-critical (minor) non-conformities, and on 5th September the CRR wrote to IÉ-RU explaining the reasons for its decision not to issue an Attestation of Conformity. Two weeks later IÉ-RU replied that it did not wish to proceed at that time with the assessment of ECM conformity for its ICR fleet. Given the progress made up to that point this was a disappointing outcome, and the CRR subsequently pursued the matter through its open line of communication with the IÉ Board with a view to positively addressing the question of ECM certification for the IÉ locomotive and passenger fleet during 2017.

3.1.5 Iarnród Éireann – On-Track Machine

A Letter of Acceptance for Stage 1 (Concept) was issued to Iarnród Éireann – Infrastructure Manager (IÉ-IM) on 4th October 2016 for the design, manufacture, testing and commissioning of a new Track Recording Vehicle.

3.1.6 Heritage Railways

A Letter of Acceptance for Interim Service Operation of two passenger carriages was issued to the Diffin Lake Railway on 28th January 2016.

An application for assessment of two locomotives and one passenger carriage was made in July 2016 by the Lullymore Heritage and Discovery Park; the assessment is ongoing.

3.2 Infrastructure

The CRR has also been active during 2016 in the safety authorisation process for various infrastructure projects, as described in the following sub-sections.

3.2.1 LUAS Cross City

Work on the Authorisation to Place in Service the LUAS Cross City (LCC) project progressed well during 2016 and regular meetings took place with TII during the year. The infrastructure works

contractor attended a number of these meetings. The structure for APIS submissions has been agreed and work is progressing on Detailed Design submissions.

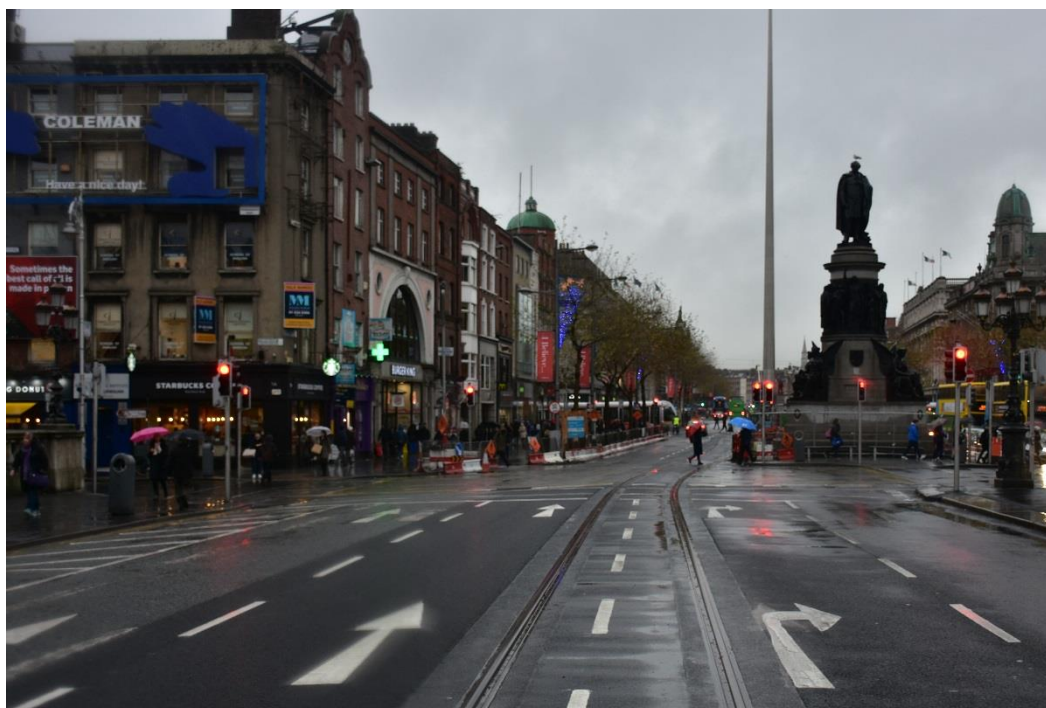
A Letter of Acceptance for Service Operation was issued to TII on 1st July 2016 to allow the LUAS Red Line resume operations following the construction of new infrastructure at the junction between Abbey Street and O'Connell Street and the junction between Abbey Street and Marlborough Street, known as the Red Line Tie-in. The following infrastructure was installed:

At the junction between Abbey Street and O'Connell Street:

- A crossing between the LUAS Red Line and the LUAS Green Line (LCC);
- A turnout from the LUAS Green Line (LCC) to the LUAS Red Line (westbound).

At the junction between Abbey Street and Marlborough Street:

- A crossing between the LUAS Red Line and the LUAS Green Line (LCC);
- A turnout from the LUAS Green Line (LCC) to the LUAS Red Line (eastbound).



Transdev (LUAS operator) met with the CRR on 12th December 2016 to present their implementation plan for the operation of the extended LUAS network.

3.2.2 Bridges

During 2016 the CRR issued a number of Letters of Acceptance to IÉ Infrastructure Manager for new bridge projects, as follows:

Letters of Acceptance for Detailed Design

- New Overbridge at 114miles 250yards Dublin to Galway mainline
- New Overbridge at 10miles 1615yards Dublin to Belfast mainline

Letter of Acceptance for Interim Operation

- New Pedestrian Overbridge at Grand Canal Dock Station

3.2.3 Heritage Railways

A Letter of Acceptance for Service was issued to Lullymore Heritage and Discovery Park on 30th August 2016 for 965m of narrow gauge railway.

3.2.4 Cableways

The CRR, as the Competent Authority for Cableways under S.I. No. 766 of 2007, has maintained its role with respect to Dursey Island Cable Car. The CRR continued to work with the duty holder, Cork County Council, throughout the year, and carried out an inspection during the summer of 2016.

3.2.5 National Train Control Centre

The National Train Control Centre (NTCC) will replace the existing IÉ Central Traffic Control (CTC) centre at Connolly Station with a modern traffic management facility for control of train movements on the IÉ network. A Letter of Acceptance for the Concept Stage for this project was issued by the CRR to IÉ Infrastructure Manager on 20th December 2016.

3.2.6 Foynes Branch

The branch line between Limerick and Foynes, which closed to passenger services in February 1963 and freight in November 2000, has lain dormant since. The 43-km line is predominantly single track, but in 1968 a second track was laid in the 2 miles between Limerick and Cement Factory Junction to increase capacity for traffic to and from Castlemungret. There were loops (second tracks) to enable the ‘crossing’ of trains at Patrickswell, Ballingrane and Askeaton, but the latter was removed in 1974.

There are 14 public road level crossings along the route, and the ruling grade is 1 in 113 (0.885%) on the approach to Patrickswell. The age and strength of the Robertstown viaduct, near Foynes, is such that the double-heading of locomotives is prohibited over it. These two infrastructure characteristics represent the most significant factors in rehabilitation of the line.

Because of its connection to the deep-water port at Foynes, the line is classified as part of the EU comprehensive TEN-T railway network. The Shannon-Foynes Port Authority is keen to see the branch re-opened to facilitate the development of rail freight services based on import/export traffic to the mutual benefit of the port, the railway, and the national economy.

The CRR has engaged with both the Shannon-Foynes Port Authority and Iarnród Éireann Infrastructure Manager (IÉ-IM) in exploring options for the rehabilitation of the line to a specification that would facilitate the kind of highly productive freight train operations required to be an economic success. A Letter of Acceptance for Concept Stage was issued to IÉ-IM on 2nd June 2016 for the rehabilitation of the Foynes Line and reconnection to the mainline at Limerick.

3.2.7 Technical Enhancement at User Worked Level Crossings

The technical enhancement of User Worked Level Crossings (UWLC) proposes to supplement the existing situation at UWLC’s with a traffic light type system. The CRR and IÉ-IM have met on a number of occasions since 2014, with concept stage authorisation awarded in August 2014. Given the novelty involved, a project specific technical standard is required to progress the project through subsequent stages. During 2016 the CRR met with IÉ-IM on two occasions to further develop the technical standard for the project.

3.3 Signalling and Telecommunications

3.3.1 Personal Computer based Emergency Control Panel

Following authorisation for operational trial of the Dublin North Personal Computer Emergency Panel in 2015 full service authorisation was granted on 5th February 2016.

3.3.2 Dublin City Centre Re-signalling Project

Work continued on the DCCRP during 2016. Letters of Acceptance for Interim Operation of the following works were issued by the CRR on 1st June 2016:

- DCCRP Phase 3 stage works, Stage 8 (main signalling commissioning) and Stage 9 (final stage)
- Siemens S7 'DART' type level crossing controllers at Lansdowne Road and Serpentine Avenue

3.3.3 Global System for Mobile communications – Railway (GSM-R)

Authorisation for Interim Operation for GSM-R Phase 1 was issued on 18th March 2016 for:

- GSM-R base stations and antennas along the DART route, and
- Base station controller at CTC, extension of the SDH with additional fibre optic transmission nodes and changes to FTN terminals GUI at CTC and Greystones.

Authorisation for Interim Operation of the GSM-R compatible cab radios for the DART EMU Fleet was issued by the CRR on 7th April 2016.

3.3.4 Iarnród Éireann Hybrid System

IE is currently developing a bespoke train protection system, which is referred to as the Iarnród Éireann Hybrid System (IEHS). The following table presents an overview of the key activities that have taken place during 2016 in connection with this IE project.

Date	Activity
02/02/2016	Project meeting held with IE to discuss the Stage 3 Detailed Design Generic Application which was received in December 2015.
02/03/2016	A further meeting was held to discuss where the project was at as regards Detailed Design. It was clear that an updated Stage 3 Detailed Design Generic Application was required.
12/08/2016	Updated Stage 3 Detailed Design Generic Application received from IE.
19/09/2016	Project meeting held with IE. This meeting focussed on the findings of the Independent Safety Assessor (ISA); major design issues were still open.
25/10/2016	Updated information received from IE, including the most recent findings of the ISA.
05/12/2016	CRR met with the Independent Safety Assessor.

Table 17: IEHS Project - Key activities, 2016

This project is still progressing at a slow pace. Toward the end of the year it was still not evident how major design issues were to be resolved. The CRR requested a meeting with the Independent Safety Assessor (ISA) to better understand how major issues were to be closed out or resolved, and this meeting took place in early December, but important design issues that would be expected to be in the application for Authorisation to Place in service were still not resolved at the end of 2016.

Project Limitations

It should be noted that the IEHS train protection system project will deliver only a 'Class B' system; it is not intended to be an implementation of the European Rail Traffic Management System (ERTMS) or standard interface between a 'Class B' system and the ETCS component of ERTMS.

It is questionable if implementation of a 'new' Class B system throughout the IE network would be acceptable to the European Commission. The Technical Specification for Interoperability, Regulation (EU) No 2016/919, states clearly (in Article 8) that "Member States shall ensure that the functionality, performance and interfaces of the Class B systems remain as currently specified, except where modifications are needed to mitigate safety-related flaws in those systems."

Furthermore, it appears that since 30th June 2015 it is not possible for a Member State to notify a 'new' Class B system.

There is also a question as to whether the CRR (as the national safety authority under the both the safety and interoperability Directives) is permitted to authorise the placing in service of a 'new' Class B system. On the other hand, the CRR can authorise modifications needed to mitigate safety-related flaws in legacy systems, e.g. maintaining the ATP and speed supervision functionality on the DART rolling stock pending the phasing out of the existing Class B system.

3.3.5 Migration to ERTMS

European Union (EU) rail transport policy is geared towards the creation of a harmonised Single European Railway Area (SERA). To that end EU railway legislation establishes the framework for interoperability and safety on the EU railway system.

In order to provide for technical compatibility of sub-systems, Regulations setting the Technical Specification for Interoperability (TSI) for each sub-system have been brought into force. Regulation (EU) No 2016/919, is the TSI relating to the control command and signalling sub-system (CCS-TSI).

The IE network is part of the overall SERA and, apart from some low-density lines, the IE railway infrastructure is a component of the TEN-T comprehensive network. Importantly, the Dublin - Belfast and Dublin – Cork double-track railway corridors are classed as core TEN-T network.

A single harmonised Control, Command, Signalling and Communication system, the European Rail Traffic Management System (ERTMS), has been developed to remove the technical barriers against interoperability within Member States and across borders. Its evolution is based on compatibility, and its components can be sourced from a broad supply base.

3.4 National Train Protection Policy

The CRR Annual Report for 2015 referenced the comprehensive review undertaken in 2014/15 by the CRR, which identified the inherent risks associated with the signalling and telecommunications (S&T) systems that are currently in use on the IE network. Apart from the electric trains operating in the DART area, the IE signalling systems do not offer the level of train protection that is nowadays expected of a passenger-carrying railway in a developed economy; 95% of the IE network is not equipped with any form of Automatic Train Protection (ATP) or speed supervision.

The principal outcome of the CRR's comprehensive review was a recommendation that a national policy should be developed that will deliver an increase in the level of protection for train movements on the IÉ network, and that a strategy for its implementation should be established.

Whereas the objectives of such a policy might be met with a bespoke system, the question of future-proofing in terms of compatibility and on-going product support are critical factors that should not be discounted in respect of the State's long-term obligations under the EU Directives, in particular, the scheduled 2023 update of the ERTMS European Deployment Plan, which will set out the precise implementation dates for the remaining part of the Core Network Corridors.

The CRR met with IÉ and NIR on 1st June 2016 to discuss the approach to the formulation of a National Train Protection Policy that would encompass the rollout of ATP and speed supervision across the IÉ network and, at the same time, meet the long-term objectives of the EU rail transport policy. To that end, it was agreed that IÉ should develop a draft document for circulation. It is anticipated that the National Train Protection Policy will be fully developed by end of Q2 2017.

3.5 Train Driver Licensing

During 2016, the CRR distributed application forms and guidance to the relevant Railway Undertakings. The CRR is awaiting completed applications forms and foresees the issuance of licences in early 2017.



4 Supervision & Enforcement

Under European and national legislation the CRR must supervise, by various methods, that railway organisations are not only applying their approved SMSs, but also that they are effective. To that end the CRR develops multi-annual and/or annual supervision plans for every railway organisation operating in the State. These plans embrace supervision meetings, including meetings with company executives, auditing of railway organisations' compliance with their respective SMS, auditing of processes, sample inspections of assets, and reactive activities such as following up on accidents, incidents, dangerous occurrences, or public and other third party representations. The plans are developed using various sources to assist in targeting supervision activities, and these include:

- Legal requirements for the management of safety;
- Previous CRR supervision activities and outputs from the same;
- CRR's professional judgement;
- Industry safety concerns arising from railway accidents and incidents, nationally and internationally;
- Complaints and representations by, or on behalf of staff, passengers, or affected parties; and
- Reactive monitoring, including post-incident compliance inspections.

The plans also take into account various factors such as the size and complexity of the railway organisation, The CRR's supervision and enforcement activity is key to ensuring that railway organisations not only maintain compliance in the application of their SMS, but that they also continuously strive for improvement. The following sub-sections present an overview of the CRR's supervision activity for 2016.

4.1 Compliance Auditing (Pro-active Supervision)

During 2016 the CRR initiated the audits described in the following table:

Railway Organisation	Title of Audit	Conducted
RPSI - RU	Railway Preservation Society of Ireland's Management of Training & Competence (Annex II – Criterion N)	April 2016
Northern Ireland Railways	NI Railway's management of <i>Enterprise</i> Rolling Stock Maintenance (Annex III, Criterion C)	May 2016
Iarnród Éireann - IM	Infrastructure Manager Operations (IMO) Department Vertical Slice Audit	July 2016
Transdev (LUAS)	Strategic Management Review	October 2016
Transdev (LUAS)	High Reliability Organisation comparison	October 2016
Balfour Beatty Rail Ireland	Internal Monitoring (Annex II – Criterion S)	November 2016
Iarnród Éireann - RU	Vertical Slice Audit of the Operations Department	November 2016
Iarnród Éireann - IM	Management of Track	December 2016

Table 18: Audits undertaken by the CRR in 2016

Of the above audits, four were finalised in 2016. In addition, the CRR finalised two audits that were initiated late in 2015. Each of the audits conducted produced recommendations to address outcomes that arose from the findings of the audits. The tables below provide further detail.

Railway Organisation	Title of Audit	Major Non-Compliance	Minor Non-Compliance	Action Required
Iarnród Éireann RU	The Chief Mechanical Engineers' (CME) department Management of Train Couplers	0	0	3
Iarnród Éireann-RU	Regulation (EU) No 1158/2010, Annex II, Criterion S, provisions for Recurrent Internal Auditing of the SMS, and Regulation (EU) No 1078/2012 Monitoring applied by Railway Undertaking	0	3	6

Table 19: CRR Audits initiated in 2015 and finalised in 2016

Railway Organisation	Title of Audit	Major Non-Compliance	Minor Non-Compliance	Action Required
Northern Ireland Railways	Northern Ireland Railways' management of <i>Enterprise</i> Rolling Stock Maintenance (Annex III, Criterion C)	0	0	2
RPSI - RU	Railway Preservation Society of Ireland's Management of Training & Competence (Annex II – Criterion N)	0	0	3
Transdev (LUAS)	Strategic Management Review	0	3	5
Transdev (LUAS)	High Reliability Organisation comparison	0	0	19

Table 20: CRR Audits initiated and finalised in 2016

A 'Good Practice' (GP) is an area highlighted which, in the opinion of the Auditor (CRR Inspector), is good practice within the industry. The CRR cite good practice where this is identified and, in the aforementioned audits completed in 2016, there were a total of 12 good practices identified across a number of railway organisations. (Table 15)

Railway Organisation	Title of Audit	Good Practice
Iarnród Éireann - RU	Chief Mechanical Engineers' (CME) department Management of Train Couplers	3
Iarnród Éireann-RU	Regulation (EU) No 1158/2010 Annex II, Criterion S., provisions for Recurrent Internal Auditing of the SMS, and Regulation (EU) No 1078/2012 Monitoring applied by Railway Undertaking	1
Northern Ireland Railways	Northern Ireland Railways' management of <i>Enterprise</i> Rolling Stock Maintenance (Annex III, Criterion C)	2
RPSI - RU	Railway Preservation Society of Ireland's Management of Training & Competence (Annex II – Criterion N)	3
Transdev	Strategic Management Review	3

Table 21: Good practice identified by the CRR in 2016

Examples of good practice identified in 2016 included:

- IÉ-RU engaging specialist company to perform assessment and maintenance on couplers in IÉ-RU fleets.
- Provision of training to staff in IÉ's CME department on how to deal with unplanned maintenance tasks.
- The use of technology in IÉ's CME's department to aid the management of fleet reliability.
- NIR's physical retention in their control room of the recent defects data, which allows for quick and ready consultation to clarify if a defect is a repeat or not.
- RPSI's undertaking of table top exercises to help prepare staff for emergency situations.
- RPSI attendance at Irish Rail emergency exercises.
- Transdev's introduction of a bespoke Service Delivery Application (SDA) which has enabled an efficient approach to driver assessment.
- Transdev's post-incident activities relating to driver development are a positive move to help drivers improve where deficiencies were identified (rather than adopting punitive measures)

Railway Organisation	Title of Audit	Audit initiated
Balfour Beatty Rail Ireland	Internal Monitoring (Annex II – Criterion S)	November 2016
Iarnród Éireann - IM	Infrastructure Manager Operations (IMO) Department Vertical Slice Audit	November 2016
Iarnród Éireann - RU	Vertical Slice Audit of the Operations Department	November 2016
Iarnród Éireann - IM	Management of Track	December 2016

Table 22: CRR Audits initiated but not finalised in 2016

For those audits that were finalised in 2016, and where the audit discovered non-compliances with law and/or an approved SMS, the railway organisations concerned was requested to submit an Improvement Plan, in accordance with the requirements of Section 76 of the Railway Safety Act. In the vast majority of cases the railway organisations concerned have already implemented, or are in the process of implementing the agreed corrective and preventative actions.

4.1.1 Post Incident Inspections (Reactive Supervision to Accidents or Incidents)

The CRR operates an on-call roster whereby an Inspector is available 24 hours/day, 364 days/year, to respond to an incident notification. In 2016 the CRR received a total 63 notifications and mobilised to two of these. The majority (29) related to the IÉ network, with 26 involving the LUAS network.

All incidents notified to the CRR, other than those incidents where deliberate self-harm was indicated, were further investigated. In any instance where safety was deemed to be at risk the CRR sought the necessary assurances that mitigation measures had been put in place by the relevant organisation.

Regrettably, there were four fatal occurrences on the IÉ network during 2016, all as a result of apparent self-harm. There were several other incidents that under slightly different conditions could have also resulted in serious consequences, these included:

- Person struck by train at overbridge OBC65, Newbridge, 1st February 2016
- Contractor working on removing a redundant location case in the Birdhill area of Limerick cut into a live 650V cable
- A person struck by a train in Killiney, 8th September 2016

4.1.2 Enforcement

Section 7 of the RSA 2005 provides the CRR with wide ranging powers of enforcement. These powers range from requesting an Improvement Plan, and serving an Improvement Notice or Prohibition Notice, and applications to the High Court. S.I. No.444 of 2013 provides to CRR with the power to revoke a Safety Authorisation or Safety Certificate.

In utilising its powers of enforcement the CRR, wherever possible, employs the principle of escalation where the aim is to be proportionate in reacting to any failing or apparent failing of a railway organisation. In 2016 the following enforcement measures were initiated by the CRR:

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

- CRR Audit of IÉ-RU's Internal Monitoring (Annex II, criterion S)
- CRR Audit of Transdev's Strategic Management

Section 77 of the RSA 2005 – Improvement Notice served following:

- Iarnród Éireann (IÉ) failing to comply with Part 9 of the Railway Safety Act, and specific and 89(2), i.e., administering a non-compliant drugs and alcohol policy.

Section 78 of the RSA 2005 - Prohibition Notice served following:

- The Diffin Light Railway (DLR) failing to comply with part 4 of the Act (section 43(1)), i.e., operating with rolling stock that had not been authorised by the CRR.
- NI Railways operating De Dietrich rolling stock on the Enterprise service that has inherent door defects resulting in wrong-side door failures.

4.1.3 Monitoring of Technical Issues

Where certain technical issues emerge, CRR Inspectors may decide to monitor the actions being taken by the relevant railway organisation to address possible safety concerns. Typically, this is through CRR attendance at meetings or risk assessment workshops, and by inspection of assets or operations. In 2016 there were a small number of issues that arose which were subject to such supervision activity, including:

- Abnormal wear in the axle journal bearings of the IÉ-RU 22000 Class ICR fleet
- implementation of a modification to hydrodynamic braking on the IÉ-RU 29000 Class DMU fleet
- Traction motor suspension tube failure on IÉ-RU 201 Class Locomotives
- IÉ-IM's National Maintenance Control (NMC) & Signalling Fault Management Process
- IÉ-IM's Level Crossing Risk Model
- Transdev's management of tram scutting occurrences

The CRR maintains a particular watch on these issues so as to monitor the associated issues in order to obtain assurance that relevant railway organisations are managing risks that may arise.

22000 Class Axle Journal Bearings

In the CRR's annual report for 2013 reference was made to the monitoring of abnormal wear that had become evident in the IÉ Intercity Rail Car (ICR) axle journal bearings. The axle journal bearing life experienced on these 22000 Class vehicles is considerably lower than the expected design life. In its Annual Report for 2015 the CRR noted that the root cause of the problem with the bearings had still not been definitively established some 3½ years after the problem had first appeared.

Monitoring of the situation by the CRR, through meetings and review of updates provided by IÉ-RU has been on-going since, and in November 2015 the CRR conveyed its concern to IÉ-RU regarding the slow rate of progress in identifying the root cause; requesting IÉ-RU to submit an Improvement Plan demonstrating how they intended to control risk and identify a solution to the problem.

In accordance with the Improvement Plan task to engage consultants with the relevant expertise to investigate the problem, IÉ-RU appointed SNC-Lavalin Rail & Transit Ltd (SNCL) — formerly Interfleet Technology — to carry out a review, provide an opinion as to the adequacy of mitigations applied, and to make recommendations to resolve the problem.

SNCL submitted their report to IÉ-RU in June 2016 and the CRR met with IÉ-RU and SNC-Lavalin on 21st July 2016 for a briefing on the report. The report describes the work undertaken and the conclusions reached; it also makes recommendations to overcome the problem. The findings were as follows:

- The bearings are showing damage which is typical of offset loading.
- The tolerance build-up between the bogie frame and the wheelset is sufficient to allow a significant dimensional difference to exist between these components, and this could generate a sizable offset loading.
- The geometry of the bearing appears to be poorly controlled, which when combined with the offset loading may result in an increased risk of premature failure. The evidence from bearing examinations appears to support this view.

The main recommendations made by SNCL are:

- The bearing interface with the axlebox should be converted to a ‘floating’ design, to minimise the risk of offset loading.
- The current bearing supplier should be challenged over the quality of the bearings that they are providing. If they cannot offer bearings of a suitable quality, alternative suppliers should be sought.

SNCL further suggested that the above two recommendations might be best achieved by producing a bearing and axlebox modification specification and issuing it to potential bearing suppliers.

Given developments since January 2016, and the scope of the original Improvement Plan, the CRR determined that IÉ-RU was required to submit a second Improvement Plan to address *inter alia* how solutions to the root cause identified by SNCL will be developed and implemented. On 12th October 2016 the CRR accepted the Improvement Plan developed through an iterative process by IÉ-RU in response to the CRR’s direction issued on 24th August 2016. IÉ-RU is to present their solution to the 22000 Class bearing problem to the CRR in Q1 2017.

4.1.4 Inspections

The CRR undertook a number of other inspections of Iarnród Éireann, Transdev (LUAS) and Balfour Beatty Rail Ireland during 2016, which focused on:

- Railway assets with particular reference to rolling stock, stations, and level crossings;
- Event Management (Transdev, and the Railway Preservation Society of Ireland); and
- Light Rail infrastructure, trams and monitoring of LUAS Cross City interface works

- The LUAS Tram driver Vigilance System (undertaken on foot of the tragic accident in Croydon, UK on the 9th November 2016)
- Railway Organisation Drugs & Alcohol Policies

During 2016 the CRR also carried out a number of inspections on operational self-contained heritage railways. In addition, where the occasion permitted, CRR Inspectors took the opportunity to travel in locomotive and railcar cabs to assess operations and the condition of the permanent way.

All outcomes arising from these inspections are being progressed by the railway organisation concerned, and the CRR is monitoring remediation of all safety critical issues.

4.1.5 Supervision Meetings

A key element of the CRR's supervision regime is meeting with executives from the various railway organisations to review their ongoing safety performance. This includes a thorough review of recent occurrences (serious accidents, accidents and incidents), a review of the railway organisations safety performance indicators, their management of change and commitment to continuous improvement.

In addition, frequent meetings were held with railway organisations to monitor the implementation of safety recommendations made in reports issued by the Railway Accident Investigation Unit (RAIU) following their independent 'for cause' investigations (see sub-section 2.5, above) and in reports issued by the CRR. Significant progress was made in 2016 by IÉ-IM, in tackling the backlog of CRR audit outcomes, which are now at a manageable number, and it is envisaged that a similar result will be achieved with IE-RU during 2017.

4.1.6 Industry Concerns

In 2016, the CRR received five (5) industry safety alerts from the European Union Agency for Railways (EUAR). These ranged from performance issues of composite brake blocks to cracks found in vehicle bogie frames. In all instances the relevant railway organisations were notified and action taken whenever necessary. Additionally, the tragic accident in Croydon, UK on the 9th November 2016 prompted the CRR to seek assurances from Transdev, the operator of the Dublin LUAS trams, that system are in place to minimise the risk of a similar occurrence in Dublin.

4.1.7 Representations

The CRR always gives a high degree of attention to any representation concerning railway safety made by either railway staff, railway passengers, members of the public, or others. Wherever possible, the CRR endeavours to deal with such matters directly. Where necessary, additional information is sought from the relevant railway organisation(s) in order to provide the person who made the representation with a full and comprehensive response.

In 2016, the RSC received 58 representations relating to a range of heavy and light rail infrastructure and operational matters. This was similar to the number received in 2015 (59). Of the 58 representations received in 2016, 43 related to IÉ infrastructure or operations, 9 to the LUAS system with the remainder being mainly of either a general legislative or network nature. A small number of these representations did give a cause for concern and, in these cases, the CRR acted immediately to ensure that the necessary corrective action was taken by the relevant railway organisation.

5 European and Legislative Harmonisation

The CRR is represented on the Management Board of the European Union Agency for Railways (EUAR) and serves on its financial committee. The CRR has continued to positively contribute to ongoing development of the regulatory framework for the single European railway area. CRR staff actively participate in working parties and consultative meetings dealing with safety assessment and supervision, train driver licensing, national vehicle register, and common occurrence reporting.

The CRR was represented at all three plenary meetings of the network of National Safety Authorities, which is co-ordinated by EUAR, and at the meeting of the International Liaison Group of Governmental Railway Inspectors (ILGRI) held in Athens on 26th/27th May 2016.

The Railway Interoperability and Safety Committee of the European Commission has responsibility for co-ordinating the implementation of the European Directives which apply to the railway sector. The CRR participated as the national representative at all three RISC meetings in 2016. The CRR was also designated as the national expert body to participate in the DG-MOVE expert group on the technical pillar of the fourth railway package.

5.1 The Fourth Railway Package

The European Commission has been active in promoting restructuring of the European rail transport market in order to strengthen the position of railways vis-à-vis other transport modes. Efforts have concentrated on three major areas which are all crucial for developing a strong, competitive railway transport sector: (1) opening the rail transport market to competition, (2) improving interoperability and safety of national networks and (3) developing rail transport infrastructure.

The Fourth Railway Package (4RP) is designed to remove the remaining barriers to the creation of a single European rail area; it has four main aims: Standards and approvals that work; a structure that delivers; opening domestic passenger markets; and maintaining a skilled rail workforce.

Both the Railway Safety Directive and the Inter-Operability Directive have been recast; Directive (EU) 2016/797 on the interoperability of the rail system within the European Union and Directive (EU) 2016/798 on railway safety were published in the Official Journal of the EU on 25th May 2016 and entered into force on 15th June. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with the same by 16th June 2019 and communicate the text of those measures to the European Commission.

Directive 2012/34/EU establishing a single European railway area, has been amended by Directive (EU) 2016/2370 as regards the opening of the market for domestic passenger transport services by rail and the governance of the railway infrastructure. This Directive was published on 23rd December 2016 and entered into force on the following day. Member States shall adopt and publish, by 25th December 2018, the laws, regulations and administrative provisions necessary to comply with the Directive and communicate the text of those provisions to the European Commission.

In addition, Regulation (EU) 2016/796 on the European Union Agency for Railways (EUAR), which repeals Regulation (EC) No 881/2004, was published on 26th May 2016. The EUAR replaces and succeeds the European Railway Agency established by Regulation (EC) No 881/2004.

The EUAR shall, from 16th June 2019 at the latest (a) issue, renew, suspend and amend single safety certificates and cooperate with national safety authorities in that respect; and (b) issue authorisations for the placing on the market railway vehicles and vehicle types, and be empowered to renew, amend, suspend and revoke authorisations issued by it. In addition the Agency shall, before any call for tenders relating to ERTMS trackside equipment, check that the technical solutions are fully compliant with the relevant Technical Specifications for Interoperability (TSIs).

The recast and amended legislation implements structural and technical reforms, including matters pertaining to the governance of Infrastructure Managers and incorporation of safety culture requirements into the safety management system. The result should be higher levels of safety, interoperability and reliability in the European rail network.

The CRR will co-operate with, and provide support to the Department of Transport, Tourism and Sport with particular reference to technical aspects of the transposition into national law of the Directives required for implementation of the 4th Railway Package.

5.2 Road Rail interfaces

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. In response to a recommendation from the RAIU in 2015, the CRR established a Task Force with the Road Safety Authority and Iarnród Éireann to harmonise instructions for the safe use of railway level crossings published by each of the entities. The work of the Task Force concluded in 2016 with the production of an updated Rules of the Road style booklet for the safe use of railway level crossings. This was jointly launched on International Level Crossing Awareness Day, 10th June 2016, by the Commissioner, the Director of IÉ-IM and the Managing Director of the Road Safety Authority.

Three meetings of the Road Rail Safety Working Group were held during 2016, in February, July and November. The Working Group includes railway organisations, road authorities, an Garda Síochána, the Department of Transport Tourism and Sport, and road hauliers. The CRR chairs the Working Group, which facilitates the sharing of information and opinions on issues of safety at road-rail interfaces among its members.

At the Global Level Crossing Symposium, held in Helsinki from 12th to 16th June 2016, the CRR made a presentation concerning the difficulties in persuading users of unmanned railway level crossings to shut and fasten the gates after use.

The UNECE Group of Experts on Safety at Level Crossings was formed as a result of an initiative by the UNECE Inland Transport Committee and its Working Parties on Road Traffic Safety, Road Transport and Rail Transport. It commenced work in January 2014, and its purpose is to describe, assess and better understand the safety issues at the road/rail interface as well as to develop a multi-disciplinary strategic plan aimed at reducing the risk of death and injury at level crossings. The CRR actively participated as the national representative at all three meetings that were held in 2016, and was directly instrumental in the production of the final report of this Group of Experts.

6 Market Regulation Functions

Directive 2012/34/EU established the single European railway area and prescribes the rules and procedures governing access to the railway market. This Directive was transposed into national law by S.I. No.249 of 2015 and assigned three functions to the CRR with effect from 12th June 2015, namely Independent Monitoring Body, Licensing Authority and Regulatory Body. The following subsections describe the market regulation activities that were carried out by the CRR during 2016.

6.1 Independent Monitoring Body

Pursuant to the provision of S.I. No.249 of 2015, the CRR undertakes independent monitoring of the Multi-Annual Contract (MAC) between the Minister and the Infrastructure Manager (track and station access revenue is insufficient to meet the steady state operating and maintenance costs of the network). By this monitoring, the Iarnród Éireann Infrastructure Managers (IÉ-IM) performance is measured against a number of criteria set out in the contract, such as financial performance, asset condition, and delay minutes attributable to IÉ-IM, exceedance of Temporary Speed Restriction (TSR) limits, and service cancellations. The CRR issued the following reports during 2016:

- 2015 Q4 Independent Monitoring Report
- 2015 Annual Independent Monitoring Report
- 2016 Q1 Independent Monitoring Report
- 2016 Q2 Independent Monitoring Report
- 2016 Q3 Independent Monitoring Report

Note: the 2016 Q4 and 2016 Annual Report will be issued in Q1 of 2017.

The 2016 element of the MAC (2014–18) contract was not signed until the 13th of October 2016, and this created an uncertainty as to the overall financial envelope against which CRR monitoring would be undertaken. Additionally, the lack of financial certainty for the IÉ-IM is not in keeping with the intent of Directive 2012/34, particularly Section 3. Amending Directive 2016/2370 will also introduce additional governance requirements with effect from December 2018.

6.2 Licensing Authority

There were no applications by Railway Undertakings for operating licenses in 2016.

6.3 Regulatory Body

In January 2016 the CRR issued confirmation of the decision of the IÉ-IM to restrict the length of the RPSI train consist operating between Pearse and Greystones in November and December 2015.



7 Corporate Governance and Administration

Corporate governance comprises systems and procedures by which enterprises are directed and controlled. In this regard, the CRR has adopted and is compliant with the Code of Practice for the Governance of State bodies, as published by the Department of Finance. The Code of Practice was updated in September 2016, and the CRR is implementing measures to ensure compliance with the revised requirements.

7.1 Finance

Funding for the CRR is provided in part by a Safety Levy on the various railway organisations and in part by an Exchequer Grant. In 2016 the Grant amounted to €0.42m.

In 2008 the CRR invoked the provision of section 26(1) of the Railway Safety Act 2005. Regulations are made annually to impose a Safety Levy on each railway organisation, and the Regulations for 2016 are contained in Statutory Instrument No.122 of 2016. The application of funds by the CRR is illustrated below:

	2015 (€ million)	2016 (€ million)
Budget	1.96	2.01
Exchequer Grant	0.42	0.42
Levy Requirement	1.54	1.59
Operating costs	2.10	1.90*
Surplus	(0.14)	0.11*

*Accounts for 2016 are subject to audit by the Comptroller and Auditor General

7.2 Statement on Internal Financial Control

The CRR acknowledges its 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.

7.2.1 Financial Control Environment

By the end of 2016 the CRR had completed eleven full years since its establishment. Processes and procedures to ensure a strong internal control environment are subject to continual review and improvement. A number of measures have been identified to assist in creating this environment, and steps have been taken to embed them in the organisation:

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

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

7.2.2 Tax Compliance

The CRR is compliant with regard to its tax obligations.

7.2.3 Travel and Expenses

The CRR is compliant with all relevant Department of Finance / Department of Public Expenditure & Reform circulars on travel, subsistence and associated expenses.

7.3 Irish Language commitment

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

7.4 Freedom of Information

The CRR was included among the organisations listed under The Freedom of Information Act 2014 and is committed to conforming to the principles of this Act.

7.5 Customer charter

The Customer Service charter was updated in 2013 and is available on the CRR's website. This charter describes the level of service a customer can expect to receive from the CRR.

7.6 Risk Management

The CRR has a risk management system in place to review key risks to its business. This is currently under review in the light of the revised Code of Practice for the Governance of State bodies and implementation of the CRR's quality management system.

7.7 Code of Ethics and Business Conduct

A Code of Ethics and Business Conduct is in place for the Commissioner and all CRR staff, and this is being adhered to. The CRR Code was revised in 2016 and all employees received, and signed for, a copy of the same.

7.8 Statement of Strategy 2015-2017

The CRR produced its 4th Statement of Strategy during 2015. This document is the triennial Statement of Strategy of the CRR for the years 2015 to 2017. Its purpose is to present management, staff, stakeholders, and the public with a clear understanding of the strategic direction that the CRR is adopting to meet its statutory duties and achieve its business objectives.

7.9 Website

The CRR maintains an active website at www.crr.ie

8 Looking Forward

The task areas that will be the focus of particular attention for the CRR as it continues to deliver on its statutory responsibilities during 2017 are as follows:

- Execution of supervisory functions in accordance with Statute and Regulations to maintain assurance that railway organisations comply with their legal obligations in regard to application and effectiveness of their respective Safety Management Systems
- Monitoring railway organisations' implementation of CRR and RAIU recommendations aimed at the improvement of railway safety, applying enforcement measures where necessary to ensure compliance
- Re-engagement with the Iarnród Éireann Railway Undertaking business in pursuit of the roll out of Entity in Charge of Maintenance (ECM) certification to all passenger and locomotive fleets
- On-going engagement with the Iarnród Éireann Infrastructure Manager business in respect of the development of a National Train Protection policy; the safety authorisation of the GSM-R train radio system and the IEHS train protection system, as appropriate
- On-going engagement with Transport Infrastructure Ireland (TII) in the safety assessment of the new works associated with the LUAS Cross-City (LCC) extension for planned commencement of operations in December 2017
- On-going monitoring of Iarnród Éireann's compliance with the requirements of Directive 2012/24/EU in relation to the single European Railway Area
- Continuing co-operation with, and technical support to the Department of Transport, Tourism and Sport with particular reference to the implementation of the European 4th Railway Package.

The objective of the Commission's activities during 2016 will be in accordance with its commitment to advance railway safety, ensure fair access to the Iarnród Éireann infrastructure, and monitor the sustainability of the railway infrastructure in Ireland.

