

# ***2016 ANNUAL SAFETY REPORT to EU Agency for Railways***

*Commission for Railway Regulation*

The National Safety Authority for Railways in Ireland



## Version Control

Document issued by:	Commission for Railway Regulation Temple House Blackrock, Co. Dublin, Ireland
Released by:	Mary Molloy
Reviewed by:	Donal Casey
Authors:	Mary Molloy, Anthony Byrne, Donal Casey
Version:	0.1
Date:	19/10/2017
Type of document:	Report
Status of document:	Final

## Amendment record

[illegible]

## Abbreviations

<b>AB</b>	Assessment Body
<b>CRR</b>	Commission for Railway Regulation (formerly the Railway Safety Commission)
<b>CSI</b>	Common Safety Indicator
<b>CSM</b>	Common Safety Method
<b>CST</b>	Common Safety Target
<b>DeBo</b>	Designated Body
<b>ECM</b>	Entities in charge of maintenance
<b>ERAIL</b>	European Railway Accident Information Links
<b>ERA</b>	European Railway Agency (now European Union Agency for Railways)
<b>EUAR</b>	European Union Agency for Railways (formerly the European Railway Agency)
<b>IM</b>	Infrastructure Manager
<b>MS</b>	Member-State
<b>NIB</b>	National Investigation Body
<b>NoBo</b>	Notified Body
<b>NRV</b>	National Reference Value
<b>NSA</b>	National Safety Authority
<b>NSR</b>	National Safety Rule
<b>RSC</b>	Railway Safety Commission (now Commission for Railway Regulation)
<b>RSD</b>	Railway Safety Directive
<b>RU</b>	Railway Undertaking
<b>SPAD</b>	Signal Passed at Danger

## Reference documents

<b>Ref.</b>	<b>Document Title</b>	<b>Document ref.</b>
/1/	Directive 2004/49/EC on safety on the Community's railways (Railway Safety Directive)	OJ L220, 21.6.2004, p.16
/2/	Directive 2008/110/EC amending the Railway Safety Directive	OJ L345, 23.12.2008, p. 62
/3/	Commission Regulation (EU) No 1077/2012 on a CSM for supervision	OJ L320, 17.11.2012, p. 3
/4/	Commission Regulation (EC) No 352/2009 on the adoption of a CSM on risk evaluation and assessment	OJ L108, 29.4.2009, p. 4
/5/	Commission Implementing Regulation (EU) No 402/2013 on the CSM for risk evaluation and assessment and repealing Regulation (EC) No 352/2009	OJ L121, 3.5.2013, p. 8
/6/	Commission Directive 2014/88/EU amending the Railway Safety Directive as regards Common Safety Indicators and common methods to calculate accident costs	OJ L201, 10.07.2014, p. 9

## Contents

<b>1. A. INTRODUCTION .....</b>	<b>6</b>
A.1 THE PURPOSE, SCOPE AND OTHER ADDRESSEES OF THIS REPORT .....	6
A.2 SIGNIFICANT ORGANISATIONAL CHANGES AFFECTING THE NSA .....	7
<b>2. B. OVERALL SAFETY PERFORMANCE AND STRATEGY .....</b>	<b>8</b>
B.1 MAIN CONCLUSIONS ON THE REPORTING YEAR .....	8
B.2 NATIONAL SAFETY STRATEGY, PROGRAMMES AND INITIATIVES .....	8
B.3 REVIEW OF THE PREVIOUS YEAR.....	8
B.4 FOCUS-AREAS FOR THE NEXT YEAR .....	8
<b>3. C. DEVELOPMENTS IN SAFETY PERFORMANCE.....</b>	<b>10</b>
C.1 DETAILED ANALYSIS OF THE LATEST RECORDED TRENDS.....	10
C.2 RESULTS OF SAFETY RECOMMENDATIONS .....	13
C.3 MEASURES IMPLEMENTED NOT IN RELATION TO SAFETY RECOMMENDATIONS.....	19
<b>4. D. SUPERVISION.....</b>	<b>20</b>
D.1 STRATEGY AND PLAN(S) .....	20
D.2 HUMAN RESOURCES .....	20
D.3 COMPETENCE .....	21
D.4 DECISION MAKING .....	21
D.5 COORDINATION AND COOPERATION .....	22
D.6 FINDINGS FROM MEASURES TAKEN.....	22
<b>5. E. CERTIFICATION AND AUTHORISATION .....</b>	<b>23</b>
E.1 GUIDANCE .....	23
E.2 CONTACTS WITH OTHER NSAs .....	23
E.3 PROCEDURAL ISSUES .....	23
E.4 FEEDBACK.....	23
<b>6. F. CHANGES IN LEGISLATION .....</b>	<b>24</b>
F.1 RAILWAY SAFETY DIRECTIVE /1/ .....	24
F.2 CHANGES IN LEGISLATION AND REGULATION .....	24
<b>7. G. APPLICATION OF THE CSM ON RISK EVALUATION AND ASSESSMENT.....</b>	<b>25</b>
G.1 NSA EXPERIENCE .....	25
G.2 FEEDBACK FROM STAKEHOLDERS .....	26
G.3 REVISION OF NSRs TO TAKE INTO ACCOUNT THE EC REGULATION ON CSM ON RISK EVALUATIONS AND ASSESSMENT.....	26
<b>8. H. DEROGATIONS REGARDING ECM CERTIFICATION SCHEME.....</b>	<b>27</b>
<b>9. ANNEX A – .....</b>	<b>28</b>
I. COMMON SAFETY INDICATORS .....	28
II. NATIONAL INDICATORS .....	39
<b>10. ANNEX B - CHANGES IN LEGISLATION .....</b>	<b>40</b>
<b>11. ANNEX C – NSA IRELAND AUDIT OF RUS AND IM - FINDINGS OF NON-COMPLIANCE.....</b>	<b>42</b>

## A. INTRODUCTION

### A.1 The purpose, scope and other addressees of this report<sup>1</sup>

Article 18 of the Railway Safety Directive 2004/49/EC requires the Commission for Railway Regulation (CRR), formerly known as the Railway Safety Commission (RSC), as National Safety Authority, to publish an annual report each year concerning its activities in the preceding year and to send it to the European Union Agency for Railways (“the Agency”) by 30<sup>th</sup> September at the latest.

The report shall contain information on:

- the development of railway safety, including an aggregation at Member State level of the common safety indicators (CSIs) laid down in Annex I;
- important changes in legislation and regulation concerning railway safety;
- the development of safety certification and safety authorisation;
- results of and experience relating to the supervision of infrastructure managers and railway undertakings.

The scope of this report is the 1600mm gauge national railway system in the Republic of Ireland. This report is addressed to the Agency, the Minister for Transport, Tourism and Sport, the NIB, the RUs, the IM and the ECMs.

---

<sup>1</sup>The report should indicate the intended addressees besides the Agency, especially at national level: Ministry of Transport, NIB, Regulatory Body, Competition Authority, RUs, IM(s), ECMs, NoBos, DeBos, associations of passengers, etc.

## A.2 Significant organisational changes affecting the NSA<sup>2</sup>

The organisational chart of the CRR for end of year 2016 is shown in figure 0.1 below.

In 2016, the CRR appointed two additional inspectors, bringing the total number to seven.

The CRR also recruited one graduate engineer as a trainee inspector under its graduate training programme.

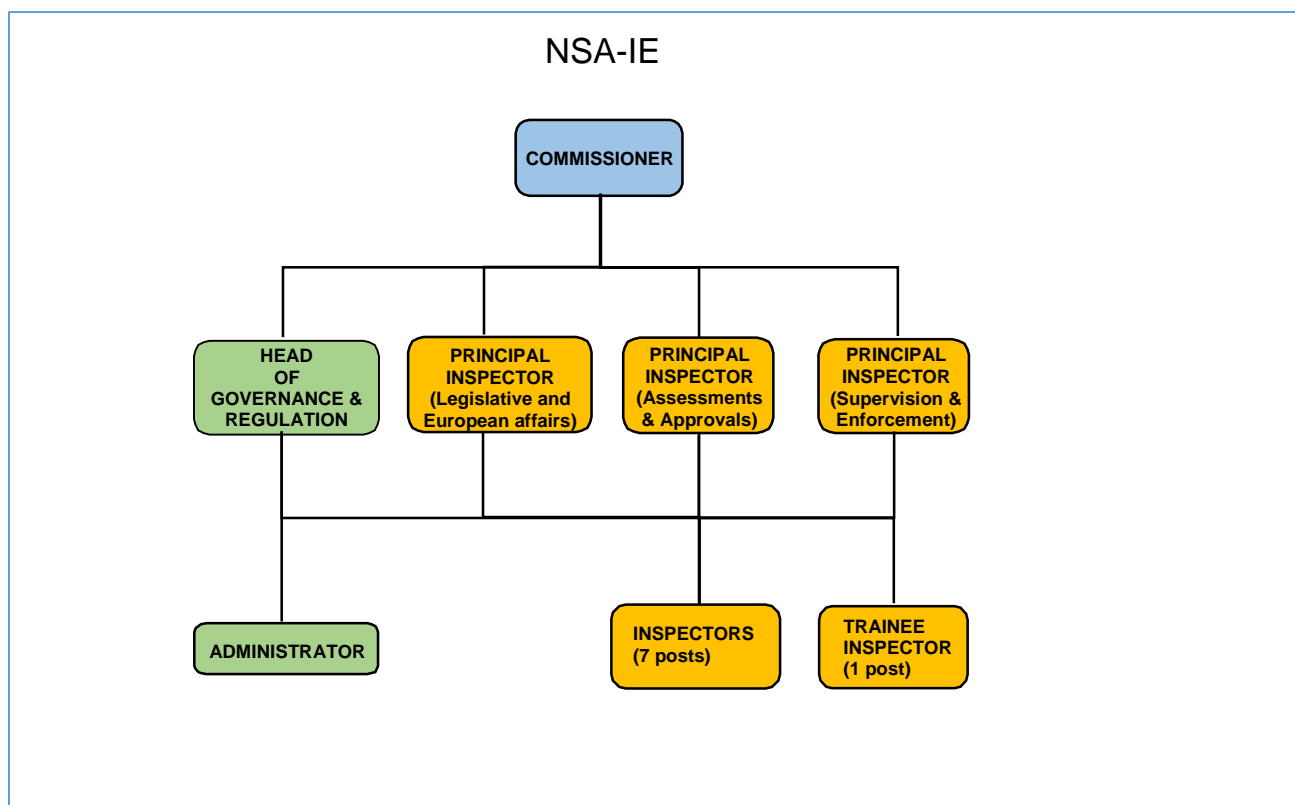


Figure 0.1: Staffing of the CRR at end of year 2016

<sup>2</sup>Significant organisational changes may be internal (creation of new departments, different allocation of tasks amongst departments, etc.) or external, such as modifications in the institutional relationship with the Ministry of Transport or other public authorities (NIB, Regulatory Body, etc.). This information should only be reported if there are organisational changes compared to the previous year.

## **B. OVERALL SAFETY PERFORMANCE AND STRATEGY**

### **B.1 Main conclusions on the reporting year<sup>3</sup>**

The Irish network is small, carrying less than one percent of total EU railway traffic, and it continues to have relatively low accident rates per million train-km. Although it is difficult to pick up significant trends in the CSI accidents as the dataset is small, there is an ongoing decline in the five-year rolling average number of reported significant accidents.

In 2016, there were no significant accidents.

The overall picture of safety in the rail industry is a good one, with most indicators trending positively, even though passenger-km increased by 4% in 2016 as the economy recovered. There were no passenger fatalities or serious injuries in 2016. The Irish network continues to have a satisfactory performance relative to other European national networks, although it is recognised there is always scope for improvement.

### **B.2 National safety strategy, programmes and initiatives<sup>4</sup>**

Work is ongoing to improve the maturity level of safety management in the railway sector. In particular, the CRR has been encouraging the sector players to work towards excellence in safety management.

### **B.3 Review of the previous year<sup>5</sup>**

The year 2016 saw on-going development of the CRR's Quality Management System to enable the CRR to achieve ISO accreditation.

### **B.4 Focus-areas for the next year<sup>6</sup>**

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

---

<sup>3</sup>National safety targets deriving from national safety strategy/programmes/plans (if available); EU safety targets stemming from CSTs/NRVs.

<sup>4</sup>Information on the main elements of the national safety strategy/programme/initiatives (if available), and a brief evaluation of current safety programmes and initiatives and information on future programmes and initiatives (if available at Ministry, NSA and IM levels).

<sup>5</sup>Information on the safety performance and the most important results of (internal) audits, inspections and other feedbacks (e.g. the experience of the certification work).

<sup>6</sup>Indicating the key-areas on which the NSA will focus, related to the reported activities.



- Continuing co-operation with, and technical support to the DTTAS in the development of functions for economic regulation of the railway sector in compliance with Directive 2012/34/EU;
- Engagement with the EU and ERA in the development of EU legal instruments designed to facilitate implementation of the fourth railway package.
- Recruitment on a permanent basis of sufficient competent specialists to keep the CRR adequately resourced;
- Professional development of all CRR staff so as to ensure that adequate railway-specific technical and legal knowledge and skills are available within the organisation;
- Continued engagement with the Iarnród Éireann Railway Undertaking function for the roll out of ECM certification to all passenger and locomotive fleets;
- Development of internal processes and procedures relating to the Quality Management System for the CRR;

The objective of all CRR activities during 2017 will be in accordance with its mission “To advance the safety of railways in Ireland through diligent supervision and enforcement.”

## C. DEVELOPMENTS IN SAFETY PERFORMANCE

### C.1 Detailed analysis of the latest recorded trends

The Common Safety Indicators (CSIs)<sup>7</sup> for Ireland are available on the E-RAIL website. The following is an analysis of trends related to CSIs and national safety indicators:

#### 1. *Number of fatalities/serious injuries (total and relative to train-km).*

As indicated in B.1, traffic levels and accident rates are low. Casualty rates are low to the extent that it is difficult to outline any trends in the data. Please see charts in Annex A.

Although five fatalities and two serious injuries involving rolling stock in motion were recorded for 2016, none of these appeared to have been accidental.

None of the fatalities reported for 2016 has yet been the subject of coroner's inquest, so our classification is based on circumstantial evidence. Should a coroner advise the CRR of a verdict of 'misadventure' or of 'accidental death', the fatality will be officially regarded as accidental. The E-RAIL statistics will be updated accordingly once the coroners' verdicts are in.

#### 2. *Number of significant accidents (total and relative to train-km).*

None of the accidents recorded for 2016 can be classified as a significant accident.

The 5-year average rolling trend for significant accidents has been consistently positive since 2011 (see figure 0.1 below).

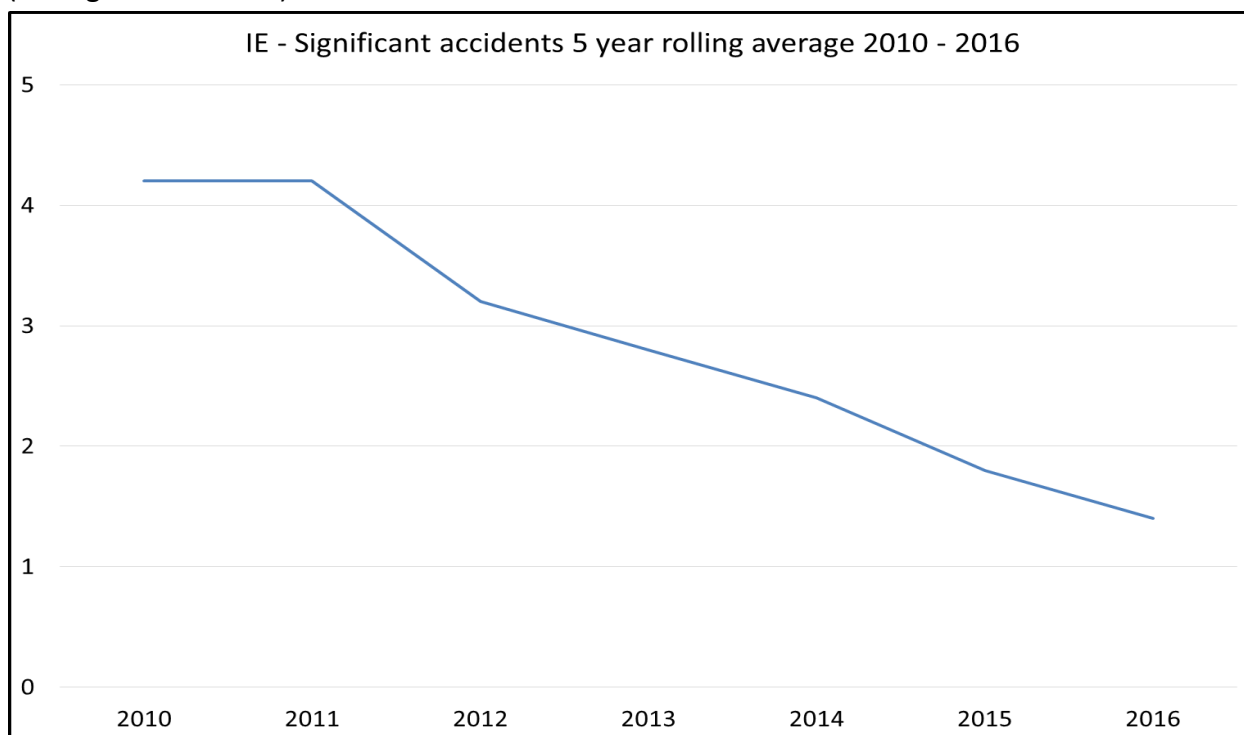


Figure 0.2: Significant accidents reported to E-RAIL, 5-year rolling average 2010-2016

<sup>7</sup>CSIs as defined in Annex I to RSD /1/ and in Appendix to Annex I (Commission Directive 2009/149/EC) /6/.

### 3. Number of precursors to accidents.

The number of precursor events in 2016 was mixed, with a small decrease in the number of reported Signals Passed at Danger (SPADs) from 15 in 2015 to 13 in 2016: there has been a long term decline in the number of SPADs but this trend appears to have plateaued at a rate of 0.75 SPADs per million train-km since 2011. A graph showing this data is included in Annex A (ii).

A comparative chart shown in figure 0.3 below for years 2009-2015 indicates that the reported SPAD rate for IE has consistently exceeded the reported EU average of 0.5 SPADs per million train-km by 50%.

However, most recent records indicate that 7% of SPADs reported to E-RAIL for the IE network for years 2015-2016 have passed the danger point, compared with 36% of reported EU SPADs. This would indicate that, in Ireland, the frequency of the more serious SPADs where the danger point has been passed <sup>8</sup> has been about one-quarter of the reported average for the EU.

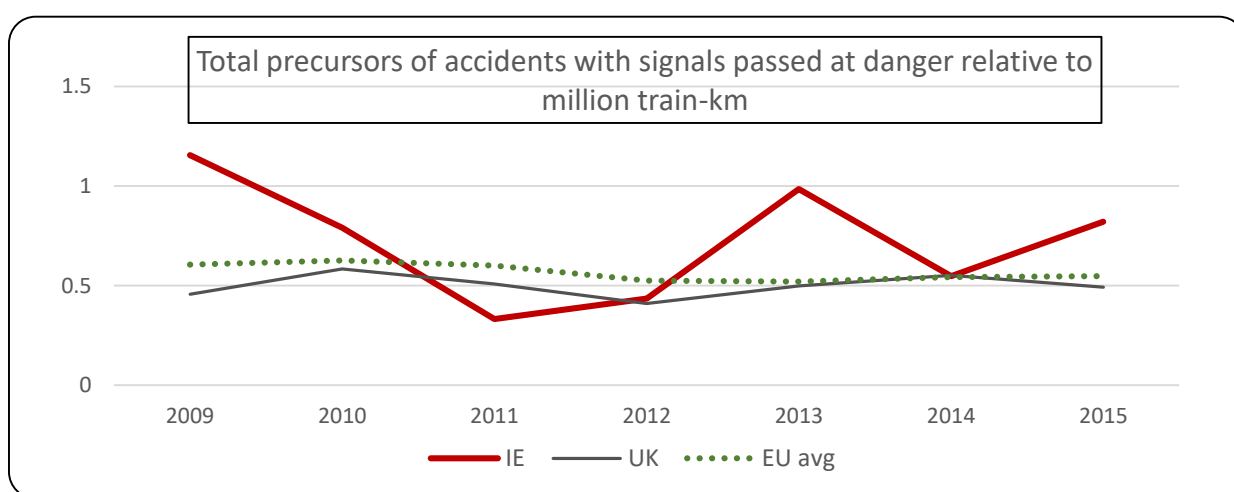


Figure 0.3: Signals passed at danger reported to EU, normalised comparison 2009-2015

In 2016, there was one mainline derailment and four low risk derailments in sidings, none of which was classified as significant.

The reported injury rate to passengers and persons at the platform interface was 55 per billion passenger-km. Injuries to customers or visitors to stations remain constant with slips, trips and falls being the dominant cause of these injuries. These incidents tend to be of a minor nature and resulting injuries are usually treated by first aid at the station.

The trend in railway bridge strikes by road vehicles is a national safety indicator. The total number of bridge strikes, i.e., under-bridge and over-bridge, was up in 2016 (93 vs 85 in 2015). A five-year rolling average since 2006 indicates that the ratio of over-bridge strikes to under-bridge strikes has trebled. Over the past 5 years, both underbridge strikes and over-bridge strikes appear to have plateaued against a backdrop of rising road vehicle traffic. Please see graph in Annex A (ii).

<sup>8</sup> Any situation where the signal overlap or the conflict point has been exceeded

**4. Cost of significant accidents.**

As previously stated, there were very few significant accidents on the Irish network over the five year period 2011-2015 and this continued to be the case in 2016. There are no costs to report for 2016.

**5. Technical safety of infrastructure and its implementation, management of safety.**

There has been no change in the % of tracks with Train Protection Systems (TPS) or Automatic Train Protection (ATP) over the past five years. A limited type of automatic train protection is available on 99 track-km (4.6%) of the Iarnród Éireann network: this is now being classified as a TPS with speed control, because the system requires driver intervention during operations and does not reach all ATP criteria.

A further 900 track-km (41.6%) of the network is equipped with a TPS called the Continuous Automatic Warning System (CAWS). However, the remaining 1,166 track-km (53.8%) of the network is not equipped with any form of TPS or ATP system.

The underlying number of level crossings on the active network has been decreasing by 2%, year on year. The number of level crossings at the end of 2016 stood at 972, compared with 991 at the end of 2015. Continued investment in this area, either through grade separation or the simple buying of land, should see this figure continue to fall.

The CSIs relating to the management of safety are rather tenuous. In general, the RUs and IM normally achieve the safety audit targets which they set out for themselves. Iarnród Éireann IM completed 14 audits and Iarnród Éireann RU completed 14 audits in 2016. Balfour Beatty, the infrastructure maintenance company, completed 8 audits in 2016.

**6. CSM Monitoring**

The internal monitoring regimes of the principal RU and IM are active. Monitoring activities include accident investigations, competency assessments, safety assurance checks and Rule Book compliance checks, safety tours, safety review workshops, Safety Steering Group meetings and Safety Review Group meetings.

## C.2 Results of safety recommendations<sup>9</sup>

In 2016 the Railway Accident Investigation Unit (RAIU) published two investigation reports relating to three occurrences that took place in 2015. These were:

- Operational Irregularity between Ballybrophy and Portlaoise, 12th September 2015
- Operational incidents at Ardahan on the 23rd October 2015 and at Spa on the 28th November 2015

Additionally, the RAIU published a report in 2016 that investigated the SPADs on the IÉ network from January 2012 to July 2015. All three reports resulted in the making of safety recommendations and these are listed in the table 1 below.

Date Report Published	Title of Report	No. of safety recommendations made	Duty Holder
11th April 2016	Investigation into SPADs on the IÉ network from January 2012 to July 2015	14	IÉ-RU & IÉ-IM
6th September 2016	Dangerous occurrence between Ballybrophy and Portlaoise 12th September 2015	2	IÉ-IM
20 <sup>th</sup> October 2016	Operational incidents at Ardahan, 23rd October 2015 & Spa, 28th November 2015	1	IÉ-RU

**Table 1: RAIU reports with safety recommendations published in 2016**

The following tables 2-4 present the individual safety recommendations made by the Railway Accident Investigation Unit (the NIB in the Republic of Ireland). They are tabulated by report and include a brief summary of the safety measures or actions taken and the status of their implementation at the end of the year 2016.

The CRR categorises the status of recommendations as being either 'Open', 'Complete' or 'Closed'. These are defined as follows:

**Open (In progress)**      Feedback from implementer is awaited or actions have not yet been completed.

**Complete**                Implementer has advised that it has taken measures to effect the recommendation and the CRR is considering whether to close the recommendation.

**Closed**                    Implementer has advised that it has taken measures to effect the recommendation and the CRR is satisfied that the work has been completed and has closed the recommendation.

---

<sup>9</sup>The list may be exhaustive or present a selection of the most relevant recommendations received.

**R2016 – 001-**

Investigation into SPADs on the IÉ network from January 2012 to July 2015

(Report Published 11-4-16)

**Summary:**

In December 2013, two serious ‘Signal Passed at Danger’ (SPAD) events were reported to the RAIU by Iarnród Éireann (IÉ).

After an initial review of these SPADs, and an earlier SPAD in April 2013 the RAIU made the decision to carry out a full review of *Category A SPADs* on the IÉ network from 2012 to 2014. This was later extended to include SPADs from January to June 2015. As a result, the RAIU reviewed forty-five SPAD events which occurred within a three and a half year period.

These SPADs were divided into three main event types, namely: SPADs during *normal train operations*; SPADs during *degraded train operations*; and *Start Against Signal (SAS)/ Start on Yellow (SOY) SPADs*.

The SPADs with the highest *SPAD Risk Rankings* (SRR) in 2013 were chosen as the main case studies, where a full investigation was carried out into these three SPADs: SPAD at Signal TL223, Millstreet, on the 8th December 2013; SPAD at Signal XX098, Gortavogher, on the 19th December 2013; and the SPAD at Signal WL167, Muine Bheag, on the 9th April 2013.

Number of recommendations made		14
Recommendation 1 <b>(1-2016)</b>	IÉ-IM must introduce an adequate train protection systems on all of the IÉ network for the protection of trains; this system should be robust and to an acceptable standard within Europe; and have the appropriate ATP and speed supervision functionality	
Action/s taken / in progress	On the 25th May 2016 IÉ-IM advised by way of email with covering letter that the recommendation is accepted. However works to affect the safety recommendation are subject to funding.	
Status at end 2016	Open / In progress	
Recommendation 2 <b>(2-2016)</b>	IÉ-IM should review the functionality of the ATP’s running release to ensure that the train protection function in relation to passing a signal at danger is appropriately maintained where drivers are approaching signals displaying red aspects. If this is not feasible with the current equipment it should be included any new train protection system introduced on the network.	
Action/s taken / in progress	On the 25th May 2016 IÉ-IM advised by way of email with covering letter that the recommendation is accepted. However works to affect the safety recommendation are subject to funding.	
Status at end 2016	Open / In progress	
Recommendation 3 <b>(3-2016)</b>	IÉ-IM should review the functionality of signals in the Connolly area so that the instances of abnormal upgrades or downgrades are minimised.	
Action/s taken / in progress	Submission received 26th May 2016. - Review undertaken and No faults found. Updated submission received 13th January 2017.  March 2017 - Review undertaken and trend of downgrades is considered low and the numbers are decreasing.	
Status at end 2016	Closed	

<b>Recommendation 4 (4-2016)</b>	IÉ-RU should commission an independent review, in terms of human factors, to determine why there is a prevalence for the occurrence of SPADs: at certain times of the day; at certain times of drivers shifts; and for drivers with three-five years driving experience.
Action/s taken / in progress	On the 30th May 2016 IÉ-RU advised by way of email with attachments that they are of the opinion that this recommendation is complete. IE-RU have engaged Trinity College Dublin to undertake a study of Driver behaviour and SPAD occurrences, that address the RAIUs safety recommendation. CRR - Await evidence of HF study"
Status at end 2016	Complete
<b>Recommendation 5 (5-2016)</b>	IÉ RU should review the culture within the company so that actions taken after SPAD's supports learning within the driver grades should errors occur, and that the DD&SS is used for redeveloping competence in driving skills and supporting the drivers in returning to driving duties, after a SPAD event.
Action/s taken / in progress	On the 30th May 2016 IÉ-RU advised by way of email with covering letter that the recommendation is accepted and a plan of work has been determined.
Status at end 2016	Open / In progress
<b>Recommendation 6 (6-2016)</b>	IÉ-RU should introduce a near miss reporting system, whereby, drivers may report near misses without the fear of sanctions being imposed.
Action/s taken / in progress	On the 30th May 2016 IÉ-RU advised by way of email with covering letter that the recommendation is accepted and a plan of work has been determined.
Status at end 2016	Open / In progress
<b>Recommendation 7 (7-2016)</b>	IÉ-IM should identify high risk safety critical signals and, where the technology exists, introduce a mechanism to monitor the approach speed to these signals; to ensure that near misses are identified and managed.
Action/s taken / in progress	On the 25th May 2016 IÉ-IM advised by way of email with covering letter that the recommendation is accepted. However works to affect the safety recommendation are subject to funding.
Status at end 2016	Open / In progress
<b>Recommendation 8 (8-2016)</b>	IÉ-IM should review the Traffic Regulator's Manual with a view to introducing guidance for Traffic Regulator's in terms of the management of train delays and the switching of crossing points.
Action/s taken / in progress	May 2016 - IÉ-IM will review and reissue the Traffic Regulators manual
Status at end 2016	Open / In progress
<b>Recommendation 9 (9-2016)</b>	IÉ-IM should review their training and competency management for Traffic Regulators so that they have the appropriate skill set in terms of identifying potential risks associated with the regulating of trains
Action/s taken / in progress	May 2016 - IÉ-IM will review and reissue the training and competency management standard for Traffic Regulators
Status at end 2016	Open / In progress

<b>Recommendation 10 (10-2016)</b>	IÉ-RU and IÉ-IM should carry out a review of the interfaces between different operational staff (i.e. drivers, LCCOs, signalmen and EOs) so that all operational staff can adequately manage train operations during degraded situations. Part of this review should focus on the safety critical communications between operational staff.
Action/s taken / in progress	May 2016 - IÉ-IM advise that a review will be carried out.
Status at end 2016	Open / In progress
<b>Recommendation 11 (11-2016)</b>	IÉ-IM should identify all locations where safety critical communications are not recorded and develop a programme of works for the introduction of recording safety critical communications at these locations.
Action/s taken / in progress	On the 25th May 2016 IÉ-IM advised by way of email with covering letter that the recommendation is accepted. However works to affect the safety recommendation are subject to funding"
Status at end 2016	Open / In progress
<b>Recommendation 12 (12-2016)</b>	IÉ-IM should review the procedures applicable to signalmen, Level Crossing Keeper, LCCO and level crossing emergency operators with particular emphasis on the actions to be taken by each when a fault is detected at a level crossing. This review should consider circumstances where a train may already have entered the affected section of line, and circumstances where the signal may be missing or extinguished.
Action/s taken / in progress	May 2016 - IÉ-IM advise that the IM Safety Department Procedures Section will allocate a resource to review the applicable instructions for the Signalmen (CTC, PCECP and Cabin, Level Crossing Keeper, Level Crossing Control Centre Operator, LC Emergency Operator and LC Attendant.) When this review is complete it will be possible to draft proposed amendments to the existing suite of instructions, along with some entirely new instructions.
Status at end 2016	Open / In progress
<b>Recommendation 13 (13-2016)</b>	IÉ-IM, should review their procedures for the placement of speed boards and brief relevant staff to be vigilant in the placement of line side signage with respect to the potential for obscuring of signals or otherwise unintentionally providing distractions to drivers, especially in the case where there are fixed colour light signals or they have potential to cause SOY SPADs.
Action/s taken / in progress	May 2016 - IÉ-IM will review the procedure
Status at end 2016	Open / In progress
<b>Recommendation 14 (14-2016)</b>	IÉ-IM & IÉ-RU should review the current system of reporting SPAD events so that reports are consistent and published within a set period of time.
Action/s taken / in progress	May 2016 - IM-SMS-007 required that reports are completed within 22 weeks of the investigation remit being issued. There is a monitoring process in place to ensure all investigations are completed timely. There are currently no SPAD investigations overdue.
Status at end 2016	Closed

**Table 2: R2016 – 001 Investigation into SPADs on the IÉ network from January 2012 to July 2015, published 2016**



R2016-002 - Dangerous occurrence between Ballybrophy and Portlaoise 12th September 2015

(Report Published 06-09-16)

Summary:

On Saturday morning, 12th September 2015, a joint Balfour Beatty Rail Ireland (BBRI) and Iarnród Éireann (IÉ) team were working in a T3 Possession<sup>1</sup> on the Dublin to Cork Up and Down Lines near to the 54 mile post (MP). The Weekly Circular stated that the T3 Possession was to be shortened (by time) to 05:20 hrs, to allow for Single Line Working SLW on the Down Line from 05:20 hrs. However, according to the method statement for the works, the T3 Possession was to change to SLW on the Down Line at 06:00 hrs. There was one worksite in the T3 Possession where ballast cleaning was being undertaken; BBRI, working with IÉ staff, were operating with a ballast cleaner as part of the planned upgrade of the Dublin to Cork Line.

At 05:40 hrs, the BBRI ballast cleaning crew members, who were accompanied by two IE staff, were attempting repairs to the ballast cleaner when an empty passenger train (Train J207) travelling from Laois Train Care Depot (County Laois) to Mallow (County Cork) passed through the ballast cleaning location.

The BBRI and IÉ staff were unaware of the train's approach. Fortunately, they were in a place of safety as the train past and as a result there were no fatalities or injuries as a result of this incident; however there was potential for them to be in a position of danger.

Number of recommendations made	2
Recommendation 1 <b>(15-2016)</b>	IÉ-IM should review the Site Safety Briefing procedure to ensure all personnel have made themselves aware of the information contained in the relevant Weekly Circular.
Action/s taken / in progress	"October 2016 - IÉ-IM advise as follows; The next revision of the CCE Site Safety Briefing Book will include a section requiring the inputting of the relevant Circular Number and a prompt requesting clarification of awareness of the relevant circular information."
Status at end 2016	Open / In progress
Recommendation 2 <b>(16-2016)</b>	IÉ-IM should review the method of allocation and accountability for general operatives detailed for work sites, to ensure that there are sufficient personnel on site to perform the required duties.
Action/s taken / in progress	"October 2016 - IÉ-IM advise as follows; The CCE will issue an instruction to Infrastructure Managers to review the current processes currently in place which ensure sufficient personnel on site in relation to the allocation and accountability for general operatives. Methods will be discussed and agreed at the CESSG."
Status at end 2016	Open / In progress

Table 3: R2016-002 - Dangerous occurrence between Ballybrophy and Portlaoise

**R2016-003 - Operational incidents at Ardrahan on the 23rd October 2015 & Spa on the 28th November 2015**

*(Report Published 20-10-16)*

**Summary:**

This publication investigates two incidents involving the same Class 2600 rolling stock that occurred within five weeks of each other:

- On Friday 23rd of October 2015 at 19:50 hrs, the 18:00 hrs passenger service, from Limerick to Galway, was involved in a platform overrun and Signal Passed at Danger (SPAD) without authority at Ardrahan Station (Galway) and travelled through Level Crossing XE156 Ardrahan, with barriers raised and open to road traffic. There was no material damage to infrastructure as a result of the incident at Ardrahan. The units involved showed *wheel flats* on all wheels that required *wheel turning*.
- On Saturday 28th November at 21:16 hrs, the 19:00 hrs passenger service from Ballybrophy to Limerick, passed signal XN159DS at danger without authority and collided with the level crossing gates at Level Crossing XN159 Spa (Castleconnell, Limerick) as they were being opened. The gates at XN159 were beyond repair and required replacement as a result of the collision.

Number of recommendations made	1
Recommendation 1 <b>(17a-2016)<sup>10</sup></b>	IE-RU should review all traction fleets that do not have sanding capabilities, and fit suitable systems to minimise the risk of low adhesion incidents.
Action/s taken / in progress	"Submissions received December 2016 and April 2017 (Declarations Only). Meeting held with CMETM, RU SM (Acting) 9th May 2017. CMETM advised that the 2600 Fleet have now been fitted with sanding capability. 201 Loco Sanding Fitment project (albeit for traction purposes as opposed to braking) will be completed in 2 Stages. 1 - move under-floor equipment, then 2 - install sanding equipment. PCD for Enterprise 201's (8 No.) is start of LRA season, remainder of fleet (14 No.) is year end. All EMUs and DMUs have WSP and sanding facility."
Status at end 2016	Open / In progress

**Table 4: R2016-003 - Operational incidents at Ardrahan and Spa level crossings**

<sup>10</sup> This NIB Safety Recommendation was addressed to Iarnród Éireann – Railway Undertaken, however, the CRR considered it had wider application and assigned the same recommendation to all RUs operating on the mainline network, hence the suffix 'a' after the number.

### C.3 Measures implemented not in relation to safety recommendations<sup>11</sup>

The CRR undertakes Post Incident Inspections (PII) following all reportable accidents and incidents (excluding acts of self-harm by adults on railway property) for the purposes of determining compliance with safety management systems and safety targets, and often identifies areas of concern. In such cases the CRR can and does make PII Outcomes. The following table 5 lists those areas of concern, the action taken by the CRR and a brief summary of any safety measure introduced by an RU or IM.

CRR PII's Outcomes									
Year	No. of Reports	Open		Complete		Closed		Total	
		AR's	NC's	AR's	NC's	AR's	NC's	AR's	NC's
2016	2	2	4	0	0	0	0	2	4

Area of concern	Description of the trigger	Safety measure introduced
Door opens while train is in motion and a person falls from the train.	Wrong side door failure on Enterprise service between Dundalk and Newry	Fleet Cheek undertaken, remedial measure, additional inspections
Braking performance of the 2600 Class DMU Fleet	SPAD events in quick succession at Ardahan and Castleconnell involving the same rolling stock	Rolling Stock fitted with sanding boxes.
Local supervision and organisational culture	Flank collision between two trains in Waterford yard	RU tasked to investigate alleged culture of fear and blame.
Asset management at times of extreme weather events	Collision into landslip near Kileen Level Crossing XT113 (Killarney-Farranfore)	Review of Risk register. Additional inspections and remedial work undertaken
Competence of persons working in degraded conditions	Operational irregularity during single line working	Additional training, re-briefing of staff
Possession Management	Points Run Through by OTM at Lavistown (3/4/16)	Additional briefings and possession checks.

**Table 5: Safety measures not triggered by safety recommendations**

<sup>11</sup>A list of the most important safety measures introduced by the NSA and information on the underlying reasons for their application.

## D. SUPERVISION<sup>12</sup>

### D.1 Strategy and plan(s)

The CRR's Supervision Programme fulfils the supervision function of the CRR in a professional and efficient manner. This is achieved through the development of multi-annual SMS audit programmes and a number of annual supervision plans, one for each railway organisation operating in the Republic of Ireland. These annual plans include three core supervision activities namely, audits, inspections and meetings with the various RUs and IMs.

This supervision programme formally arranges the CRR's activities to supervise the safety performance of the RUs & IMs operations. The following railway organisations were subject to CRR supervision in 2016:

- Iarnród Éireann – Infrastructure Manager (IÉ-IM)
- Iarnród Éireann – Railway Undertaking (IÉ-RU) Balfour Beatty Rail Ireland – Railway Undertaking (BBRI) (track maintenance machines)
- Northern Ireland Railways (Translink) - Railway Undertaking (NIR-RU)
- Railway Preservation Society of Ireland – Heritage Railway Undertaking operating on the mainline

The CRR's supervision is risk based, so railway organisations, be they an RU or IM, that expose passengers, staff and the public to risk are supervised commensurate to the level of risk to which they are exposed, or which they expose others to. The CRR targets activities that it considers to give rise to the greatest risks and primarily undertakes audits of their SMS, checking that it is effective and is being implemented.

To assist in the development of annual supervision plans, the CRR uses a variety of inputs that include:

- Reviewing the Iarnród Éireann Risk Model
- Tracking and monitoring of key safety performance indicators
- Statistical tracking of accidents, incidents and dangerous occurrences
- NIB reports and safety recommendations
- Public or other complaints
- Previous CRR supervision findings and outcomes
- Intelligence from APIS and conformity assessment

The CRR annual plan for each railway organisation is a live document and can change. All changes to annual plans are recorded with justification for the change. Examples of changes include the delay to starting an activity the replacing of one activity for another etc.

### D.2 Human resources

Essentially, of the eight Inspectors available within the NSA, four are needed to give full-time support the Principal Inspector for Supervision and Enforcement to deliver the CRR's annual supervision programme. In 2016, only three internal Inspectors were available to perform supervision tasks so the supervision plan was not achieved. This was due to CRR Inspectors spending more time carrying out other unplanned activity, for example undertaking Post Incident Inspections.

---

<sup>12</sup>The application of the CSM on supervision [Commission Regulation (EU) No 1077/2012] /3/.

### D.3 Competence

Inspectors involved in undertaking supervision activity on behalf of the CRR are competent engineers with relevant industry experience supplemented by further academic qualifications. An increasing number of CRR Inspectors are professionally qualified as Chartered Engineers. Six CRR inspectors have undertaken MSc studies at the University of Birmingham, UK, with one inspector and one trainee inspector starting on this course of study on 2016. Additionally, numerous bespoke training courses run by the various engineering institutions were attended by CRR Inspectors.

### D.4 Decision making<sup>13</sup>

The Railway Safety Act 2005, as amended, provides for enforcement activity. The CRR applies the principles for national safety authority supervision and additionally applies a principle of escalation, allowing it to strive to achieve compliance without resorting to enforcement. However, on occasions where non-compliance is identified, an Improvement Plan is requested or an Improvement Notice is served. Furthermore, should a risk be identified that is considered to be immediate and substantial an CRR Inspector may serve a Prohibition Notice. Persons in receipt of notices have a statutory right of appeal. The CRR's criteria regarding decision-making are publically available in guidance on the website, [www.crr.ie](http://www.crr.ie). The following enforcement activities were initiated in 2016:

1. Improvement Plan requested from Iarnród Éireann – Infrastructure Manager following an SMS audit of the Infrastructure Manager Operations department that found deficiencies in safety statements and the monitoring of safety critical communications.
2. Improvement Plan requested from Iarnród Éireann – Railway Undertaking following an SMS audit finding deficiencies in an assessment Body report into a new service operated by Iarnród Éireann – RU.
3. Improvement Plan requested from Iarnród Éireann – Infrastructure Manager following a Post Incident Inspection. Non-compliance with rules was identified in the area of possession management.
4. Prohibition Notice served on Northern Ireland Railways – Railway Undertaking prohibiting the operation of specific rolling stock on the Irish National Network following two wrong side door failures on refurbished rolling stock.
5. Improvement Notice served on Iarnród Éireann with regards to their Drugs & Alcohol Policy being non-compliant with National law.

---

<sup>13</sup>Decision-making criteria on how the NSA monitored, promoted and enforced compliance with the regulatory framework and on the procedure for establishing those criteria, and main complaints submitted by RUs and IMs on decisions taken during supervision activities and the replies given by the NSA.

## D.5 Coordination and cooperation<sup>14</sup>

The following Memoranda of Understanding remained in place in 2016:

- with the Health & Safety Authority (Labour Inspectorate);
- with the Department for Regional Development which is the NSA in Northern Ireland.

In that context, the CRR met with both organisations sharing information on plans for supervision and highlighting areas of concern.

In 2016, as part of the international level crossing awareness day, the CRR, together with the Road Safety Authority and the Iarnród Éireann Infrastructure Manager, signed a joint statement of intent to cooperate in promoting safety at railway level crossings. The signatories also officially released a jointly produced a revised booklet outlining the rules of the road concerning safety at level crossings.

## D.6 Findings from measures taken

Whenever the CRR has identified non-compliance, enforcement activity commences. This may be either requesting an Improvement Plan or serving an Improvement Notice. The CRR has defined non-compliance as follows:

**Major Non Compliance (MaNC):** an area of non-compliance with a Railway Organisation internal standard, an applicable external standard or legislation that is evidence of a system failure. In such cases it is typical for the CRR to serve an Improvement Notice.

**Minor Non Compliance (miNC):** an area of non-compliance with Railway Organisation internal standard, an applicable external standard or legislation that is evidence of a sporadic lapse in implementation of a system or deviation from a system. In such cases it is typical for the CRR to request an Improvement Plan.

In 2016, 9 non-compliances were identified and the four tables in annex C summarise these.

---

<sup>14</sup>Agreements in force during the reporting year with NSAs from other MS for coordinated supervision activities and a summary of the content of those agreements, and cooperation arrangements in force during the reporting year with other NSA and their practical use.

## **E. CERTIFICATION AND AUTHORISATION**

### **E.1 Guidance<sup>15</sup>**

There were no new Guidelines published in 2016.

### **E.2 Contacts with other NSAs**

1. There were no requests from other NSAs asking for information on a Part A certificate of a RU certified in Ireland applying for a Part B certificate in the other MS.
2. There were no requests to other NSAs asking for information on a Part A certificate of a RU certified in the other MS applying for a Part B certificate in Ireland.

### **E.3 Procedural issues**

There were no cases when the issuing time for Safety Certificates or Safety Authorisations (after having received all necessary information) exceeded the 4 months foreseen in Article 12(1) of the Railway Safety Directive.

### **E.4 Feedback<sup>16</sup>**

There is no mechanism allowing RUs or IMs to express opinions on issuing procedures/practices or to file complaints and a summary of the opinions and complaints presented and the actions undertaken by the NSA. However, the CRR has at all times worked together with the applicant to ensure a clear understanding of requirements and to speedily resolve any issues that arise.

---

<sup>15</sup> *Information on the issuing, publication and possible update of guidance by the NSA on how to obtain Part A/B certificates and authorisations.*

<sup>16</sup> *information on existing mechanisms – e.g. questionnaire – allowing RUs or IMs to express opinions on issuing procedures/practices or to file complaints and a summary of the opinions and complaints presented and the actions undertaken by the NSA.*

## F. CHANGES IN LEGISLATION

### F.1 Railway Safety Directive /1/

No changes to report.

### F.2 Changes in legislation and regulation<sup>17</sup>

SI 390 of 2016 - European Union (Train Drivers Certification) Regulations 2010 (Amendment) Regulations 2016.

The purpose for this was to achieve national transposition of Commission Directive (EU) 2016/882 of 1 June 2016 (OJ No. L 146 3.6.2016, p.22).

SI 69 of 2016 - Change of Name of Railway Safety Commission to Commission for Railway Regulation (Appointed Day) Order 2016 (made under Public Transport Act 2016 (No. 3 of 2016)).

The purpose for this was to reflect the national safety authority's expanded role as national regulatory body under Directive 2012/34/EU. The SI 69/2016 was subsequently enacted to effect the name change from 29 February 2016.

Table 2 of annex B indicates the relevant changes in the national regulatory framework (legislation and regulation) concerning railway safety during the reporting year.

---

<sup>17</sup> Table 2 of annex C describes relevant changes in legislation and regulation during the reporting year. The changes may relate to:

- How the NSA carries out the tasks described in Article 16(2) of the RSD /1/
- How the MS intends to achieve the goals described in Article 4 of the RSD /1/
- The implementation of other EU requirements in national legislation concerning railway safety.

The legal reference indicates where to find the provision: which part of a law (i.e. articles) is relevant. The title, body, date of adoption and ID number are indicated and abbreviations explained. It is specified if the change relates to a new law or to an amendment to existing legislation.

Besides the reasons for introducing the changes, additional information may be provided on the entities that triggered the process (if different from the NSA), the consultation phase, etc.



## G. APPLICATION OF THE CSM ON RISK EVALUATION AND ASSESSMENT<sup>18</sup>

### G.1 NSA experience

#### 1. Decisions taken by the proposers on the level of significance of a change (e.g. too lax)

The CRR is generally satisfied that the RUs and IM apply the CSM on risk evaluation and assessment through a safety validation process in accordance with their safety management system.

#### 2. Applications of the risk management process by the proposers

For the evaluation of change, the CSM on risk evaluation and assessment is applied in accordance with Iarnród Éireann Safety Management Standards IM-SMS-13, RU-SMS-013, IM-SMS-014 and RU-SMS-14:

- IM-SMS-13 and RU-SMS-013 are for operational or organisational significant changes;
- IM-SMS-14 and RU-SMS-014 are for significant technical changes affecting vehicles or significant changes concerning structural subsystems where required by Article 15(1) of Directive 2008/57/EC /6/ or by a TSI.

As part of the CRR's proactive supervision of duty holders, the CRR met quarterly with the principal Infrastructure Manager and Railway Undertakings operating in the Republic of Ireland. The purpose of these meetings is to review and monitor duty holders safety performance in the preceding quarter. A standing item presented by the duty holder and subsequently discussed at these meetings is the duty holder's management of change insofar as the change related to plant, equipment, infrastructure, operations or organisation.

In 2016 a number of changes to plant, equipment, infrastructure, operations were implemented and advised to the CRR at these quarterly meetings. As part of the CRR's supervision activity two projects were sampled to check that internal Iarnród Éireann change management processes were applied. These considered the following changes;

- Extending Freight Train Lengths
- New Locomotive Speed signage

In both cases IÉ-RU and IÉ-IM demonstrated to the satisfaction of the CRR that they had following their SMS processes and considered all reasonably foreseeable risks.

The principal IM and RU have an approved SMS that includes a description of procedures and methods to carry out risk evaluation and implement risk control measures whenever a change of the operating conditions or new material imposes new risks, (Commission Regulations (EU) No 1158/2010 and 1169/2010, Annex II, criterion M). The CRR can and does review the duty holders' management of change.

In 2016, the principal IM and RU used the CSM RA for change management a number of times. These included:

---

<sup>18</sup>The application of the CSM on risk evaluation and assessment [Commission Regulation (EC) No 352/2009] /4/ remained voluntary until 1 July 2012 with respect to operational or organisational significant changes. The reporting on the application of the CSM was voluntary until that date.

Commission Implementing Regulation (EU) No 402/2013 /5/ on the CSM for risk evaluation and assessment repealed Regulation (EC) No 352/2009 /4/ with effect from 21 May 2015.

- Dublin city centre re-signalling Phase 1&3
- Enterprise Carriages Refurbishment
- Grand Hibernian Project
- GSM-R project
- Kilkenny Station Re-signalling
- Limerick Station Re-signalling
- New National Train Control Centre
- SSI interlocking project
- 8100 Drivers Safety Device Bypass

### 3. Involvement of Assessment Bodies

For each APIS project reviewed, a safety assessment report was provided which included a statement of independence of the Assessment Body.

### 4. Interface management

This matter was dealt with in each case by the proposer with the cooperation of the relevant rail-sector actors through the application of their respective SMSs.

## **G.2 Feedback from stakeholders<sup>19</sup>**

The CSM on risk assessment is integrated into the RU's and IM's safety validation processes, and they provide a quarterly update to the CRR. At no stage during 2016 did Iarnród Éireann (RU or IM) have questions or feedback in relation to this CSM.

## **G.3 Revision of NSRs to take into account the EC regulation on CSM on risk evaluations and assessment**

The Regulation applies directly to the Member State and to all nominated actors, e.g., RU, IM, ECM, NoBo and DeBo. There is no national rule to define whether a change is significant or not.

---

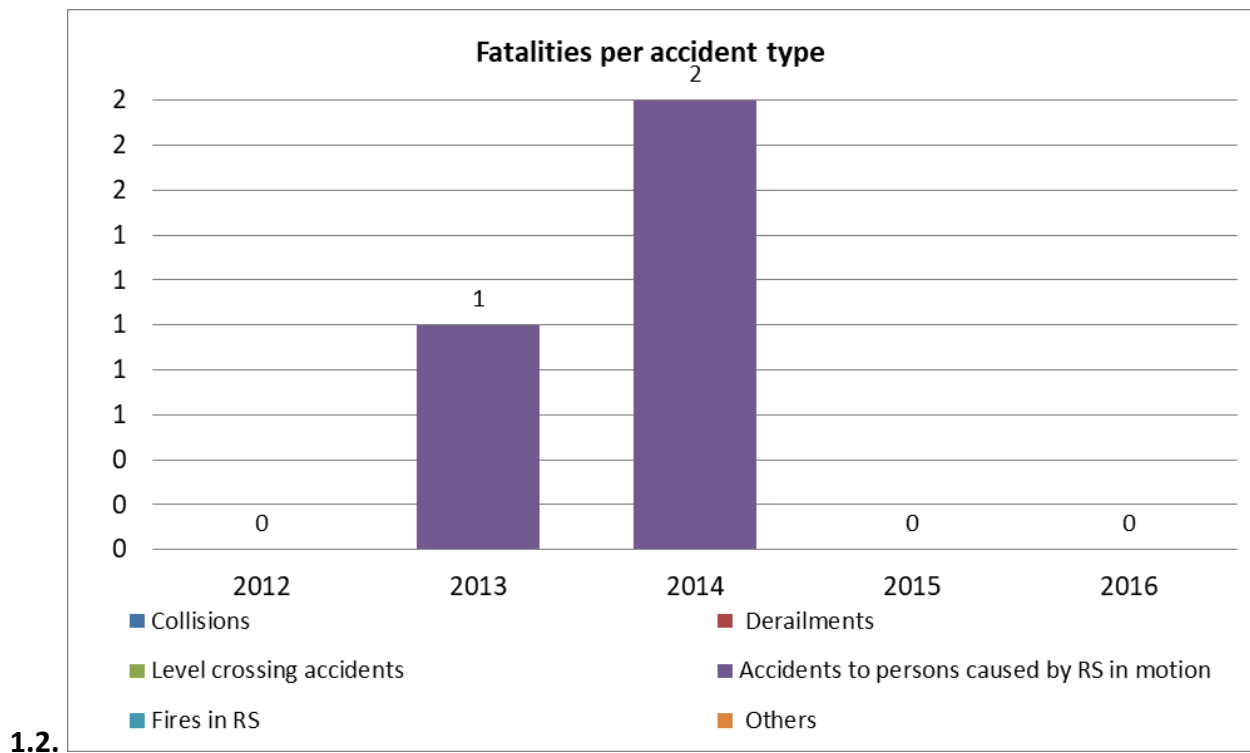
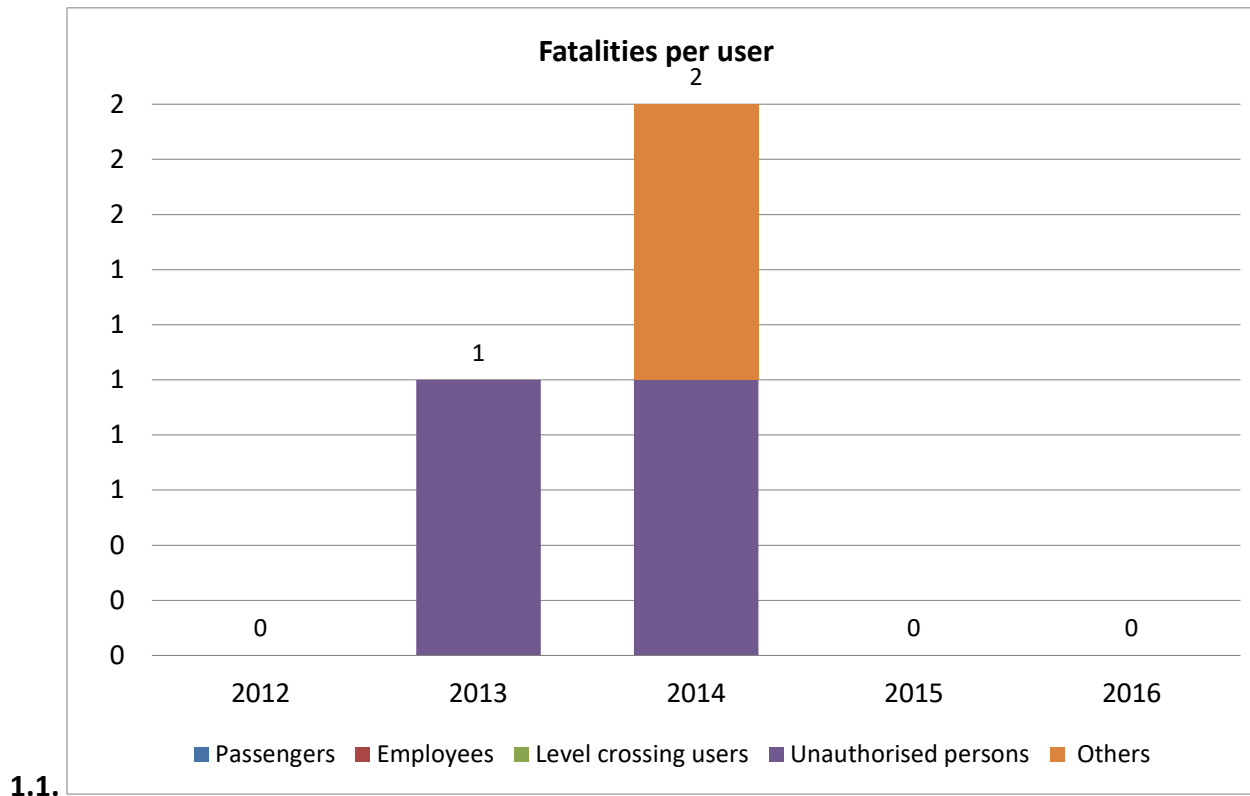
<sup>19</sup>Existing procedures – e.g. questionnaire – allowing RUs and IMs to express their experiences on the EC regulation on CSM on risk evaluation and assessment and a summary of the experiences presented and possible actions undertaken by the NSA.

## **H. DEROGATIONS REGARDING ECM CERTIFICATION SCHEME**

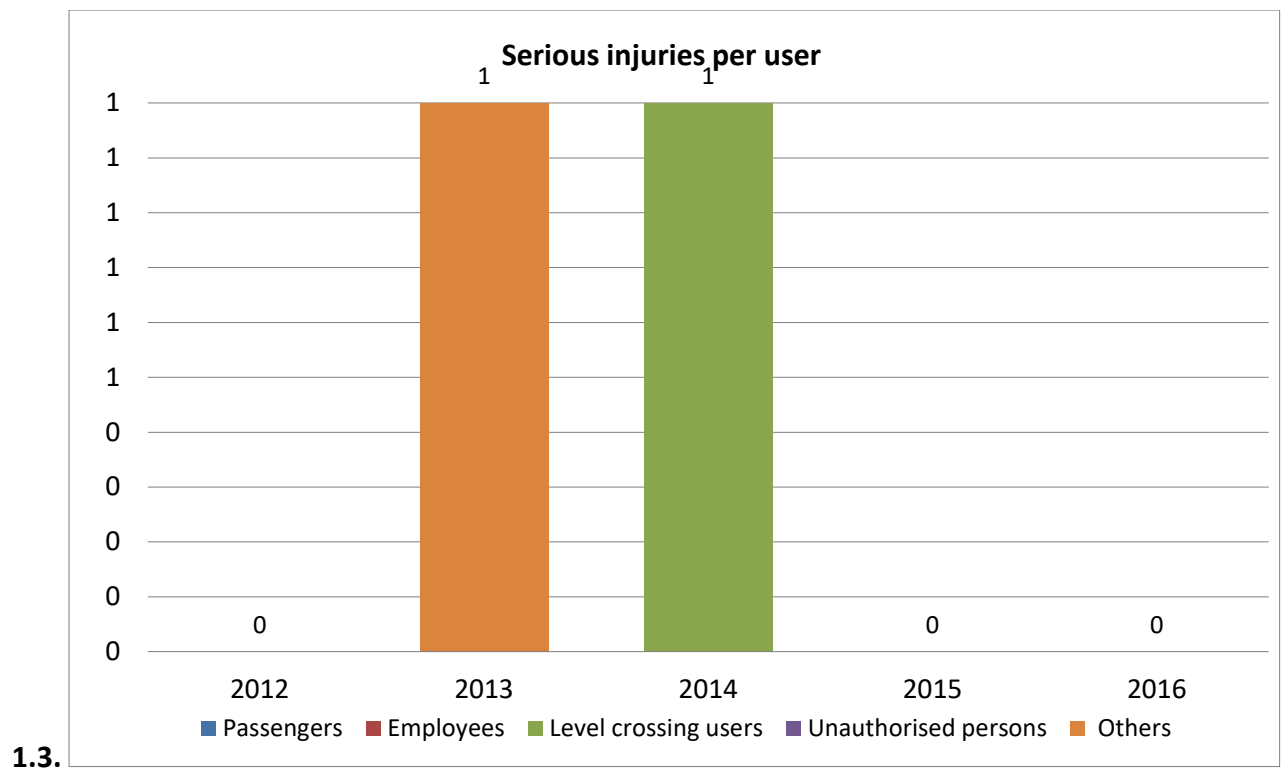
There were no derogations in year 2016 to the ECM certification scheme, decided in accordance with article 14a(8) of Directive 2008/110/EC /2/.

## ANNEX A –

### i. COMMON SAFETY INDICATORS<sup>20</sup>



<sup>20</sup> Please refer to Appendix of Annex I of the RSD /1/ as modified by Commission Directive 2014/88/EC /6/.

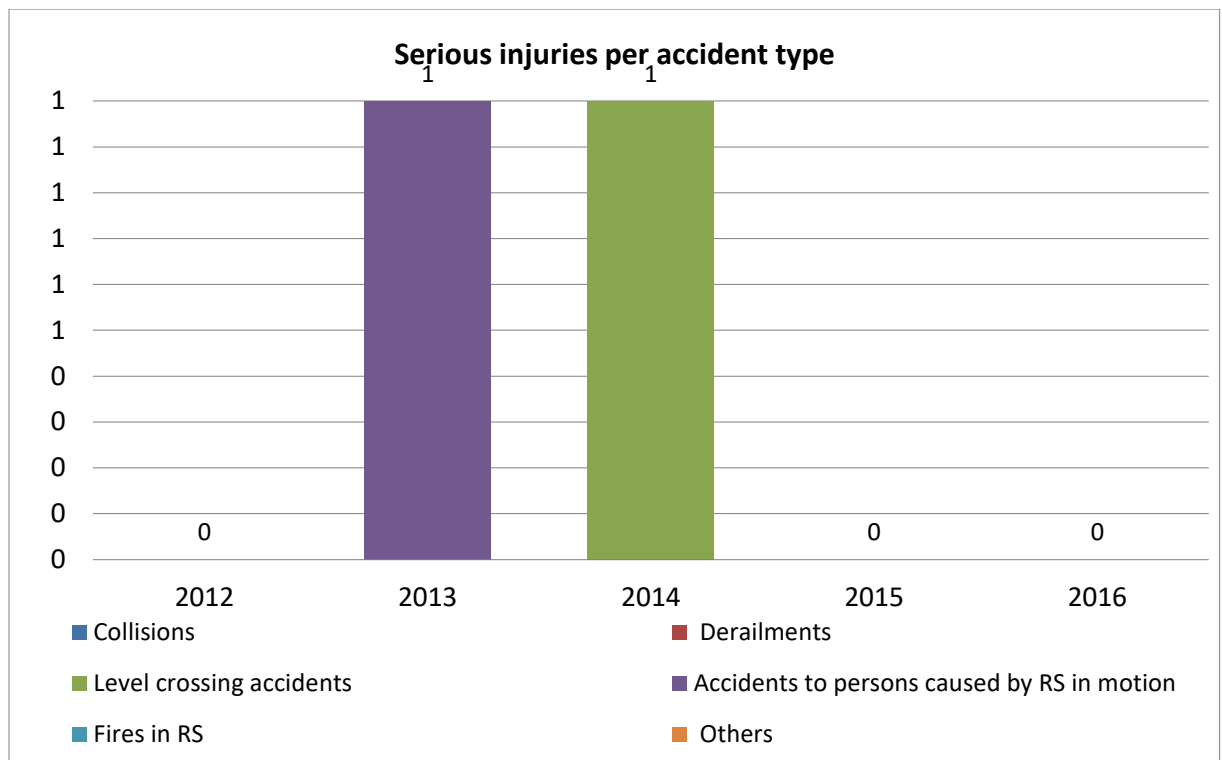


1.3.

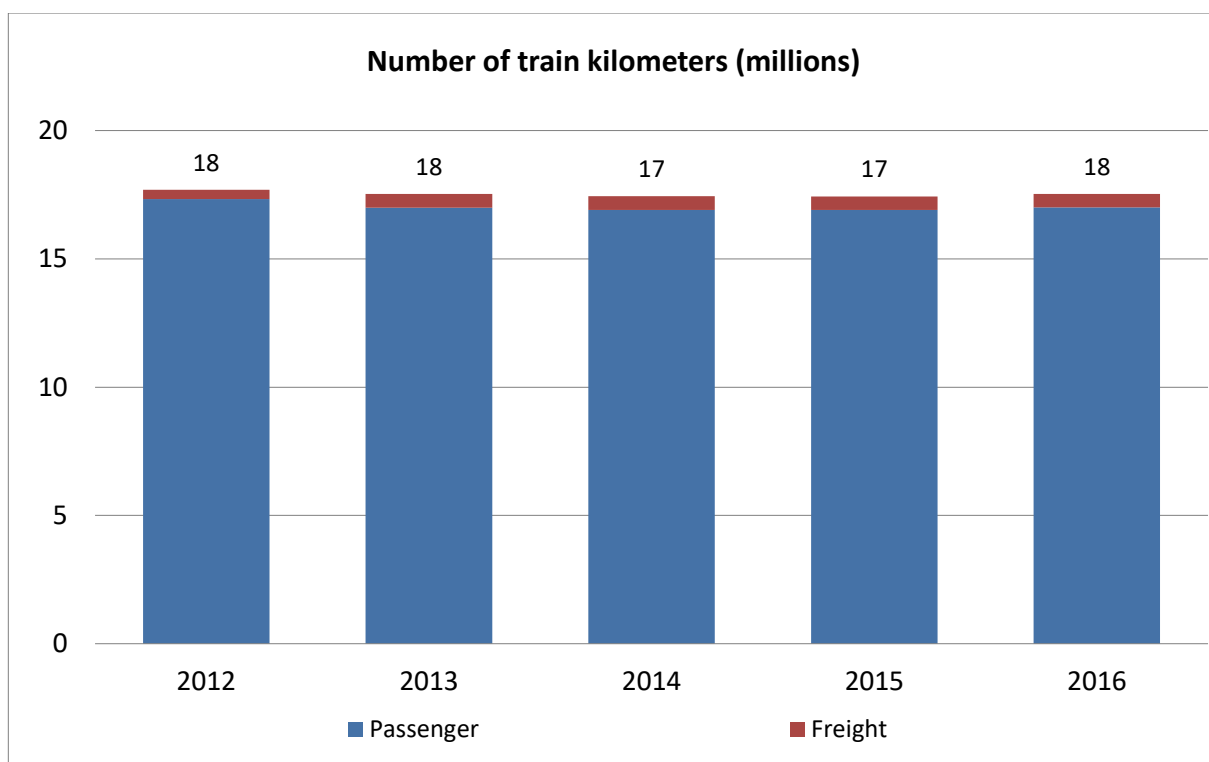


1.4.

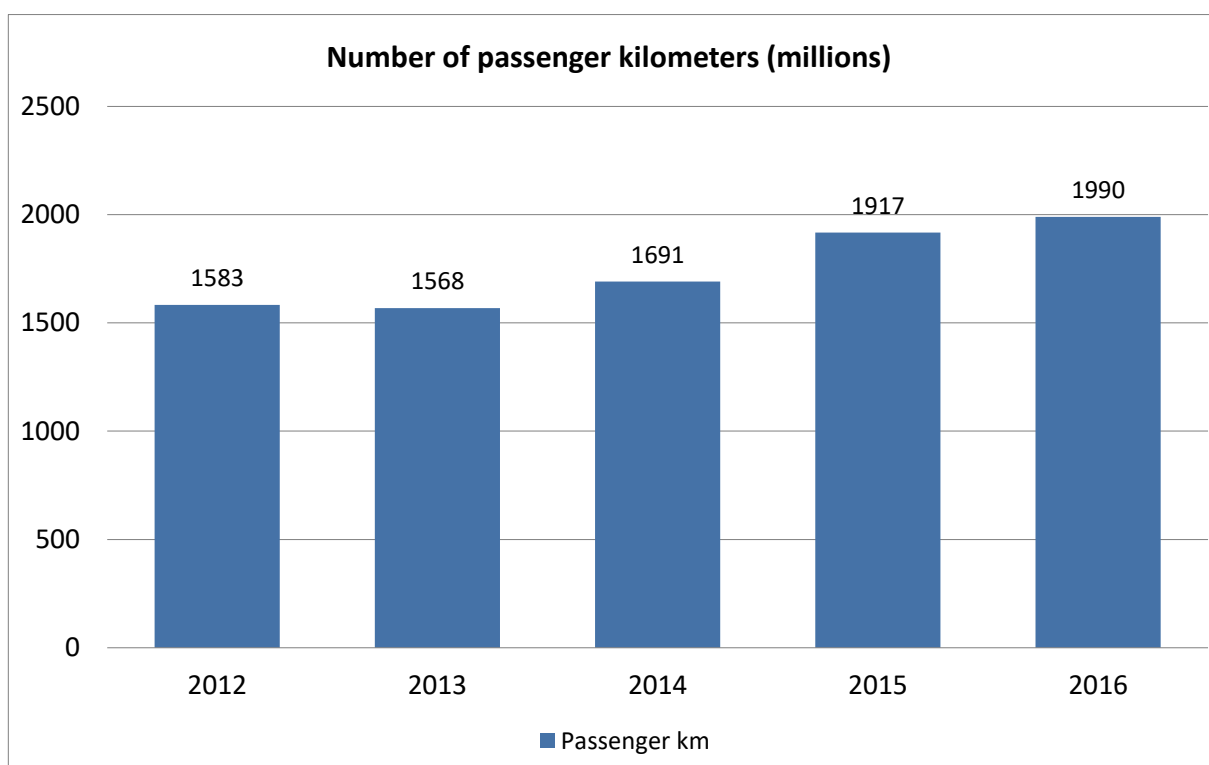
1.5.



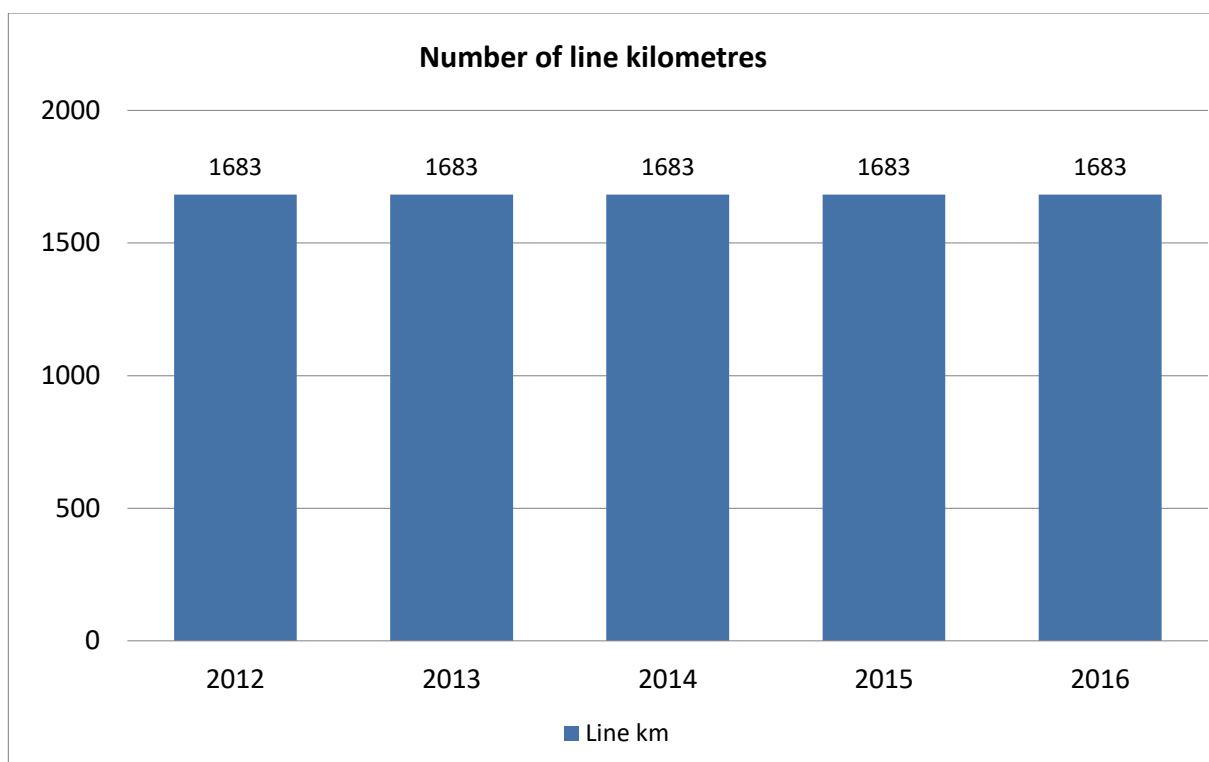
2.1.



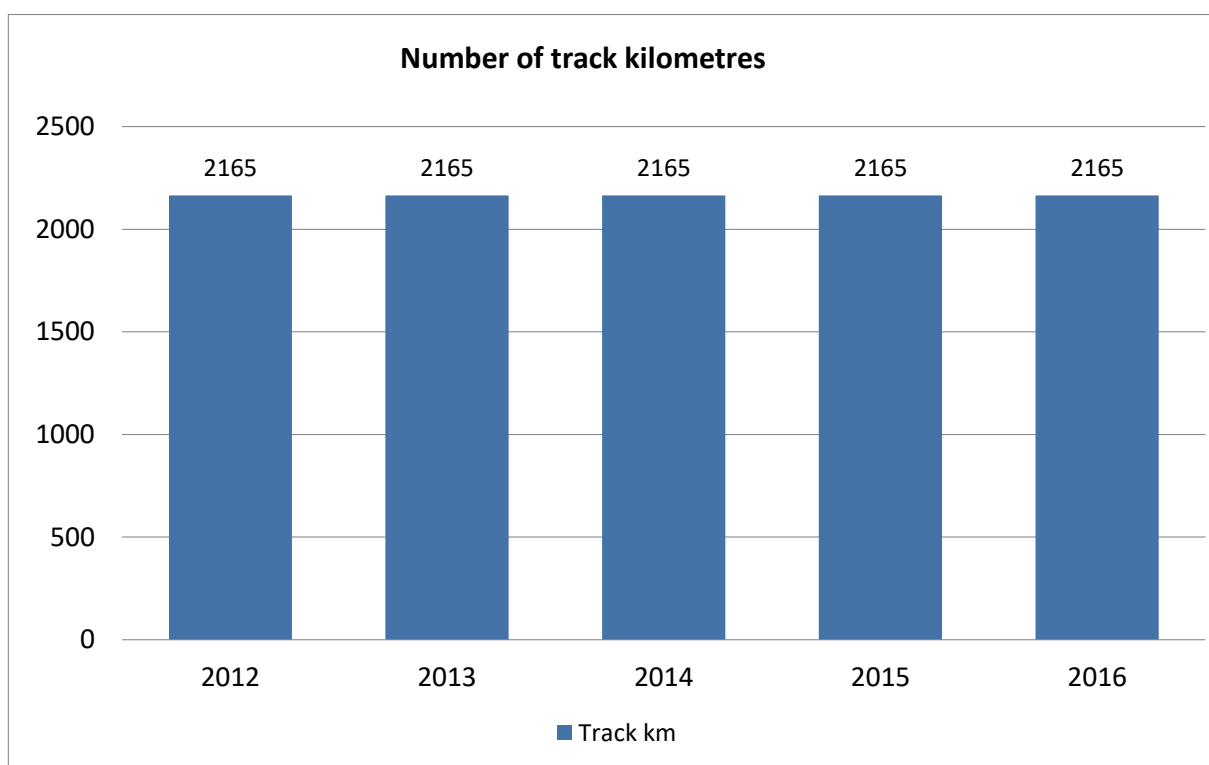
2.2.



2.3.

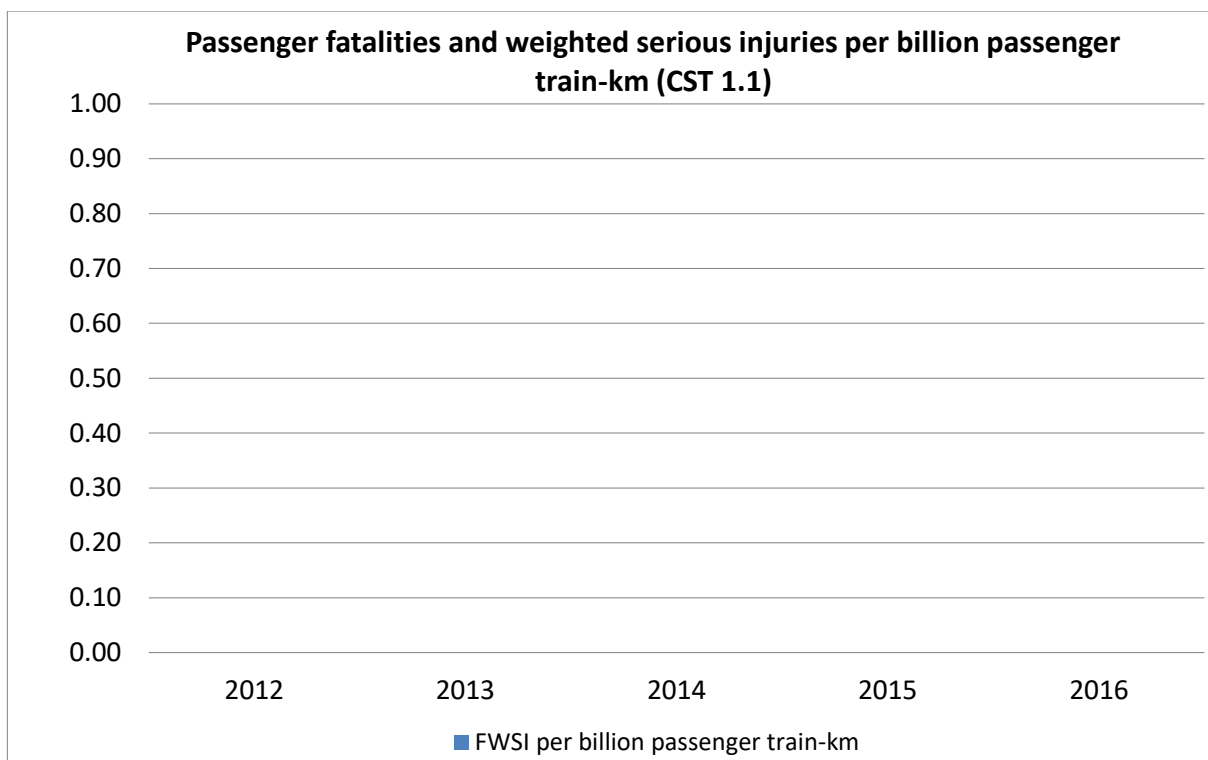


2.4.

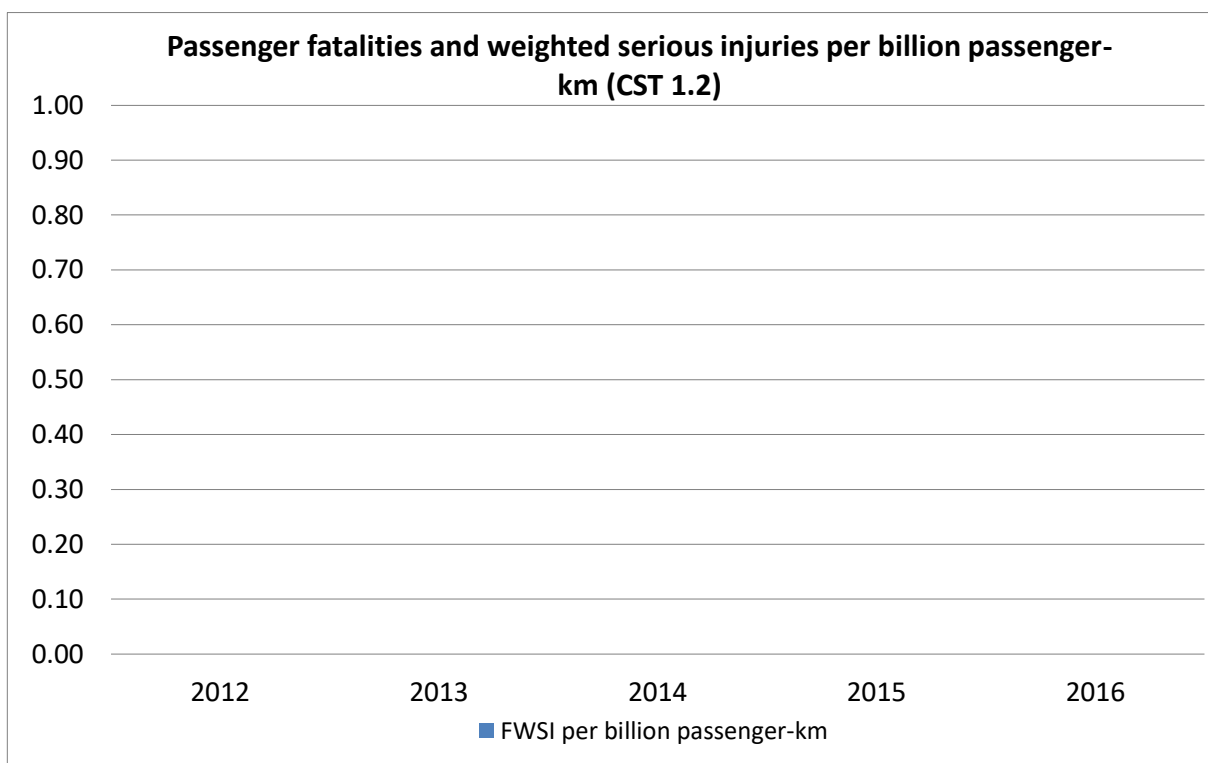




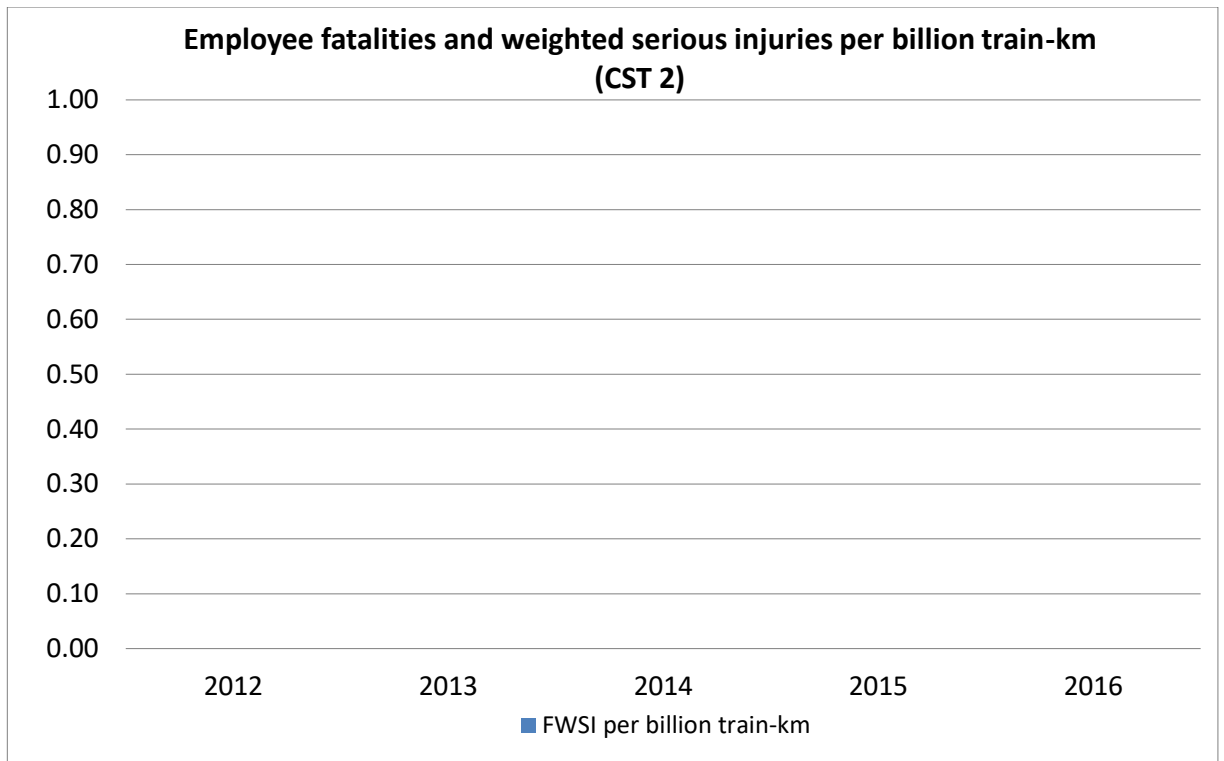
3.1.



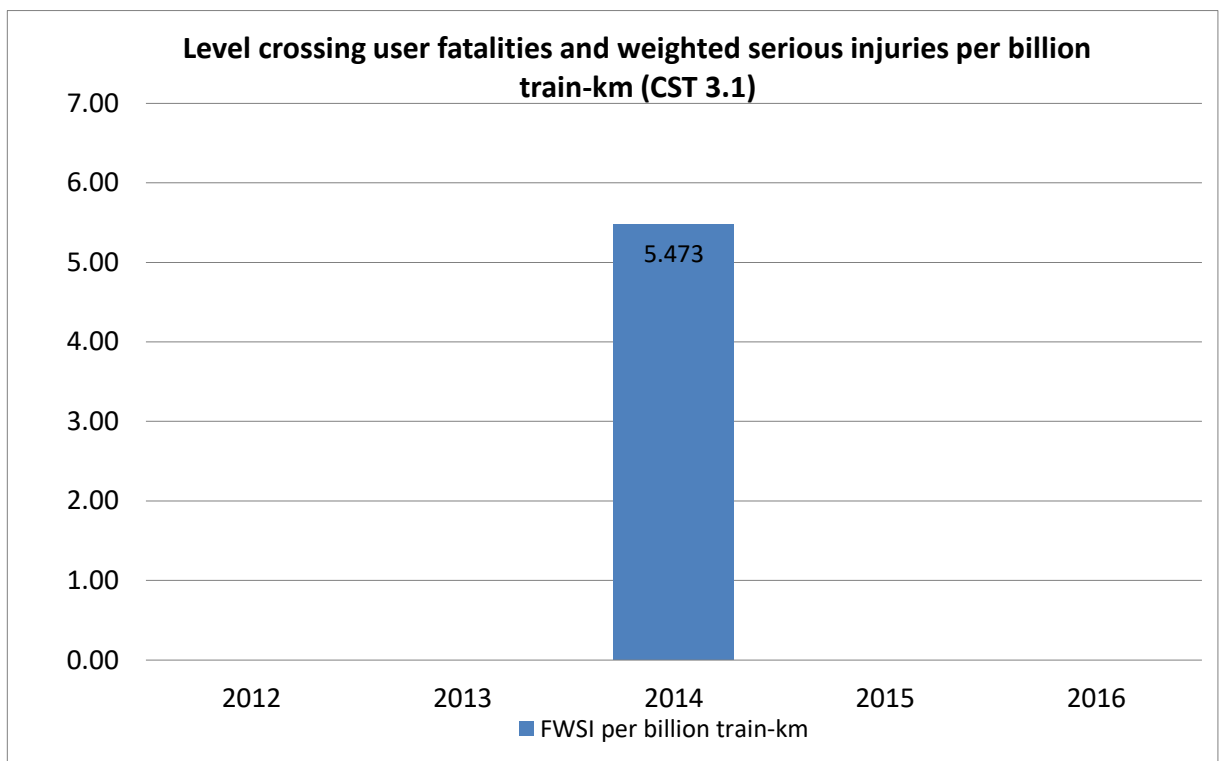
3.2.



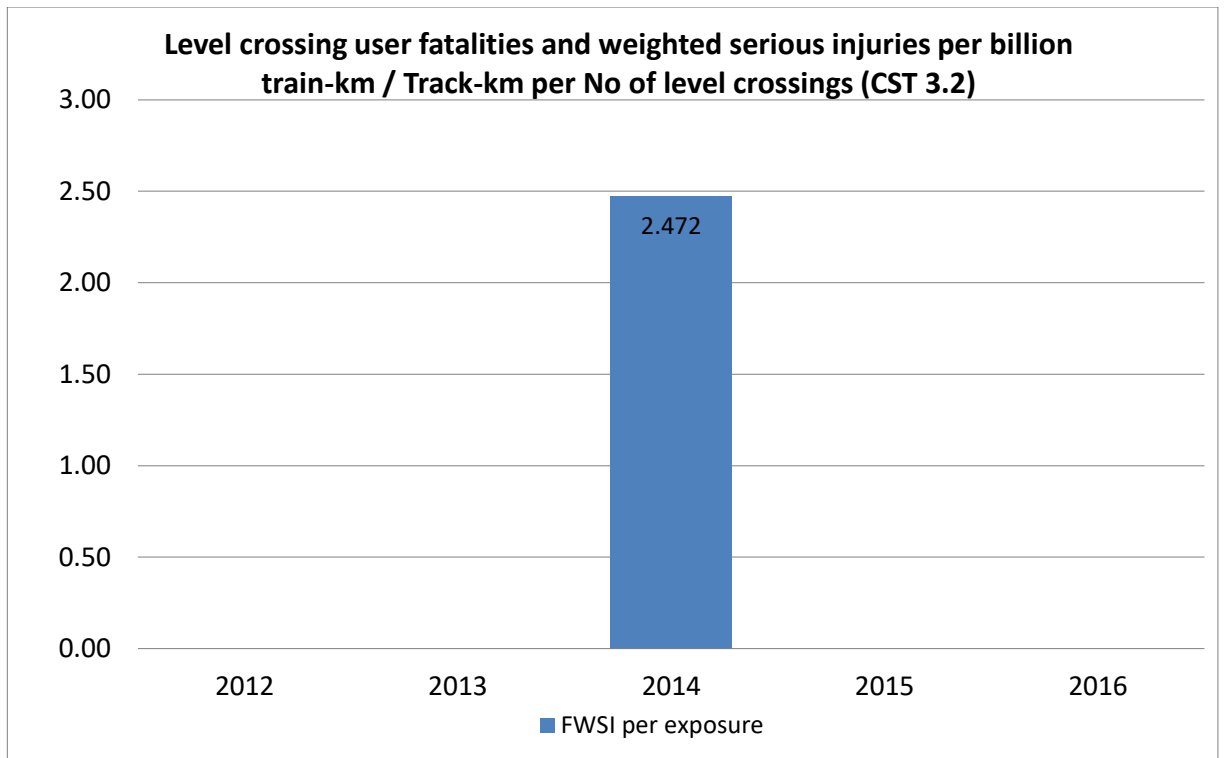
3.3.



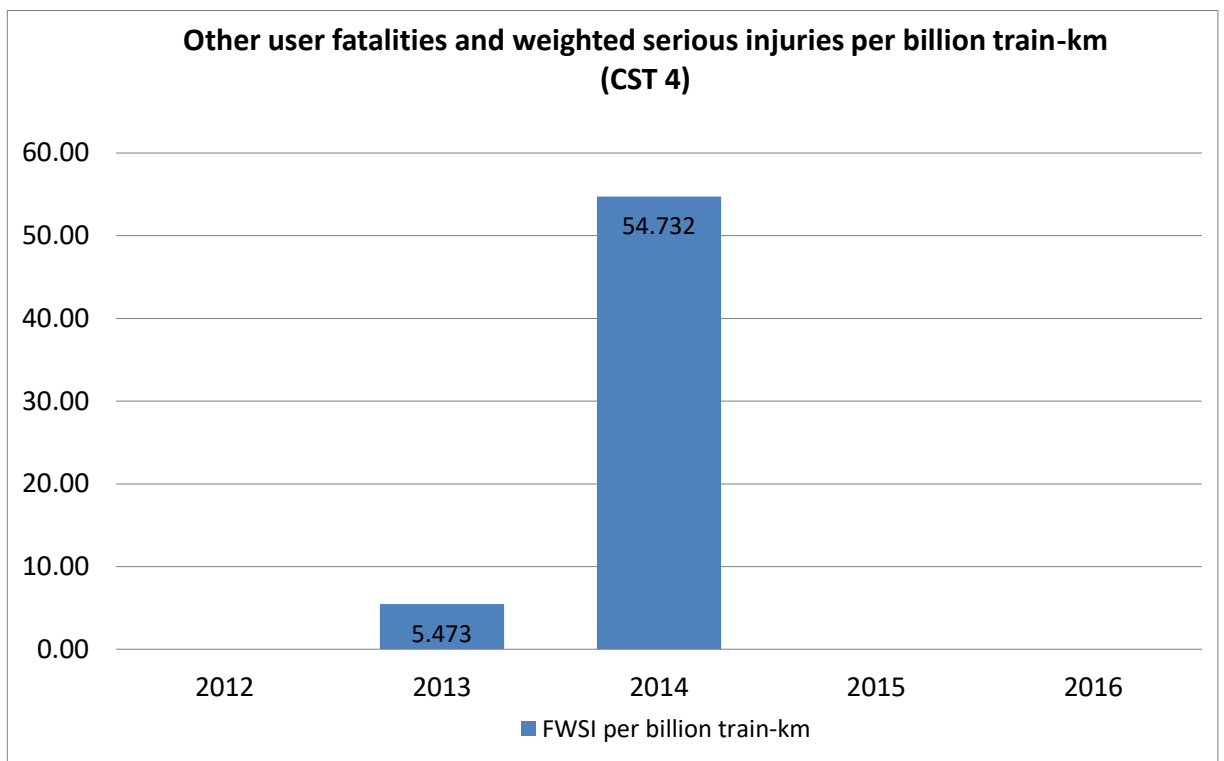
3.4.



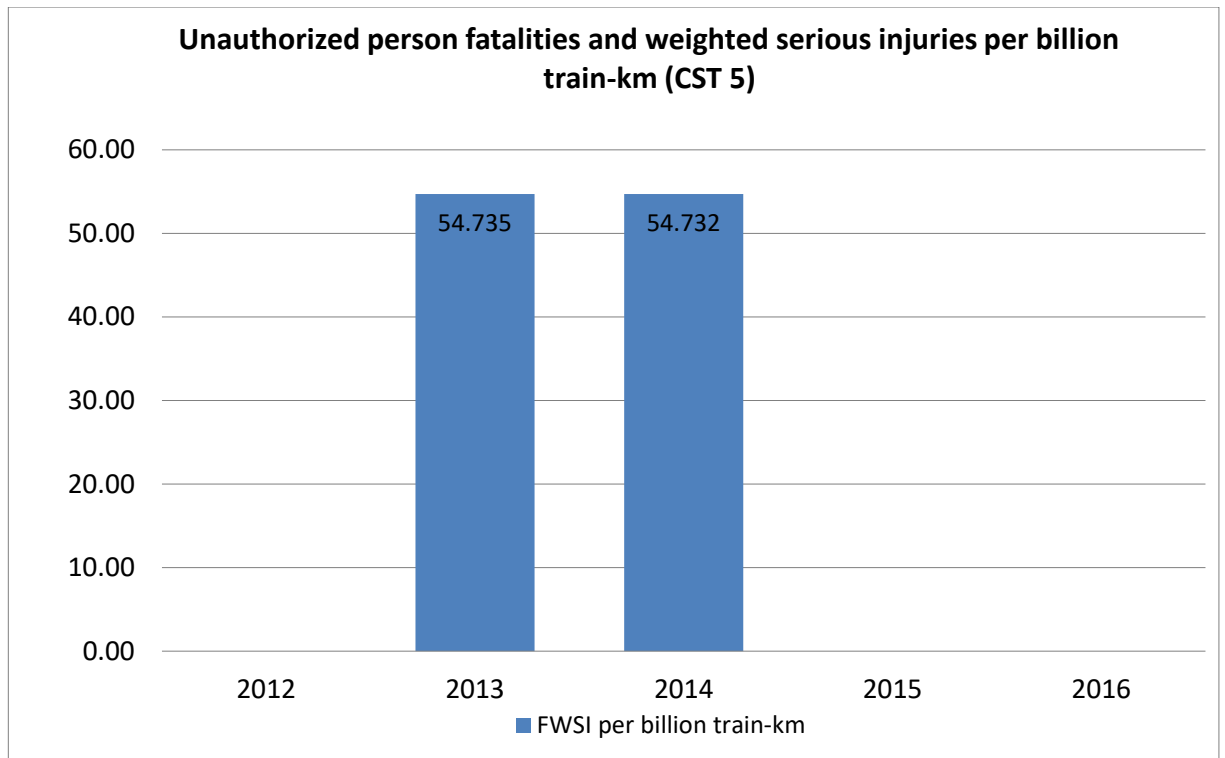
3.5.



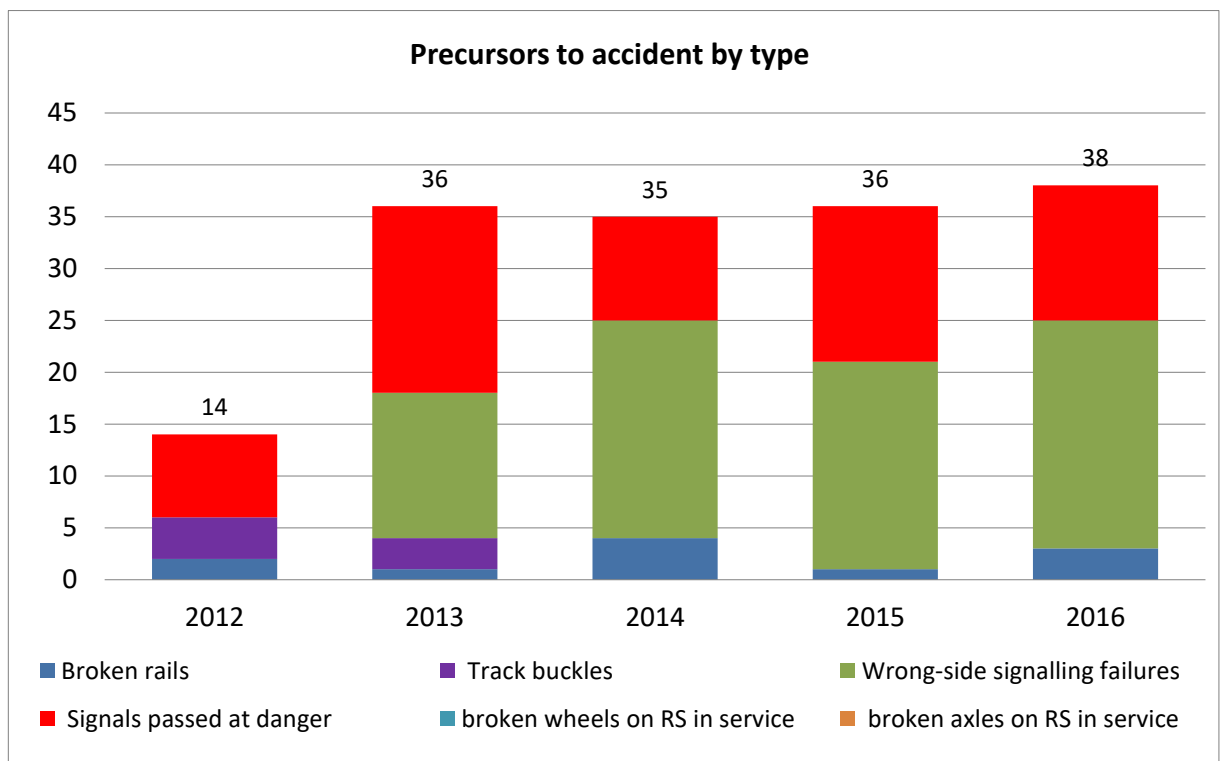
3.6.



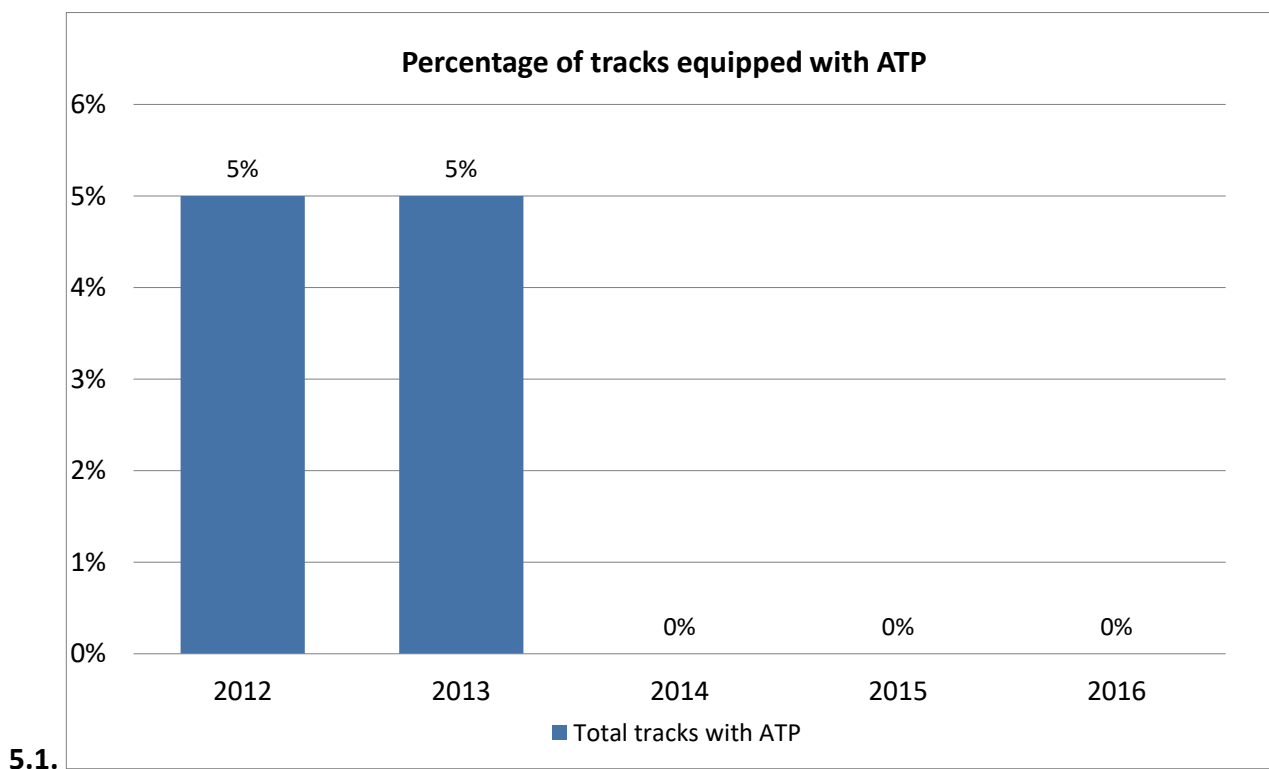
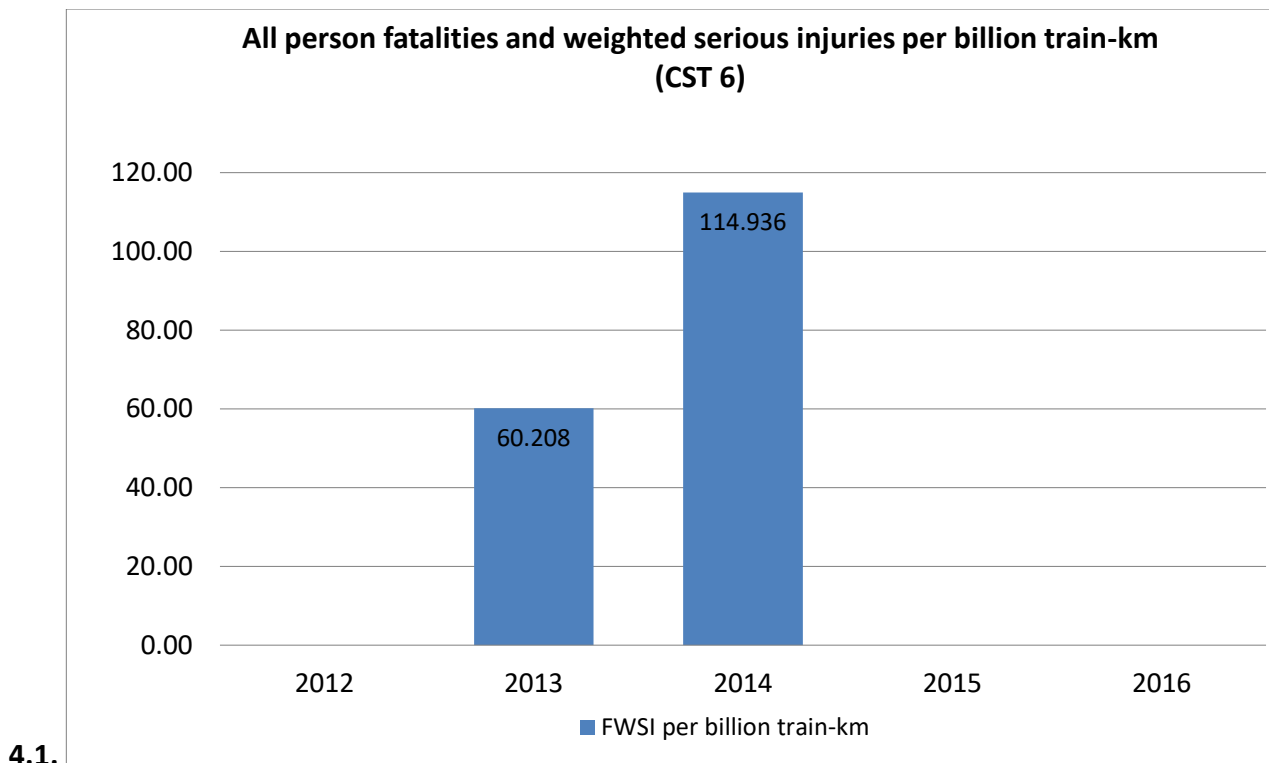
3.7.



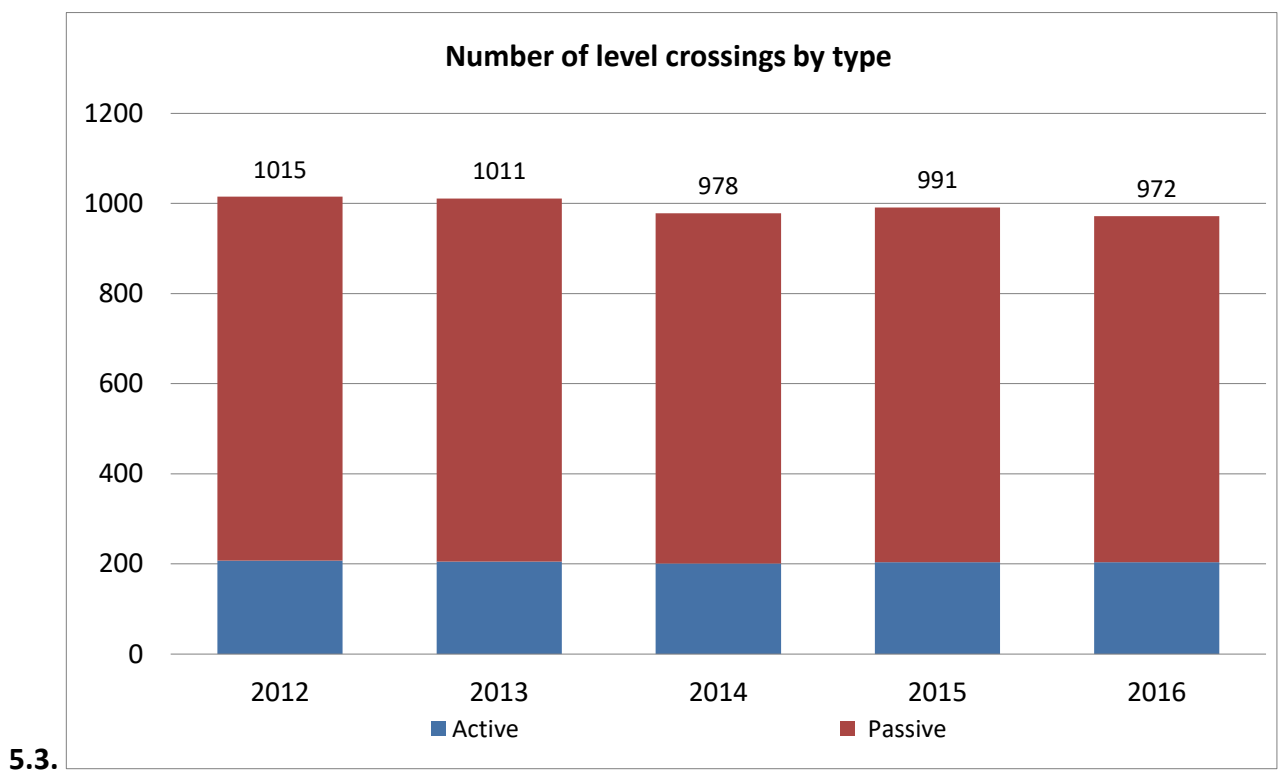
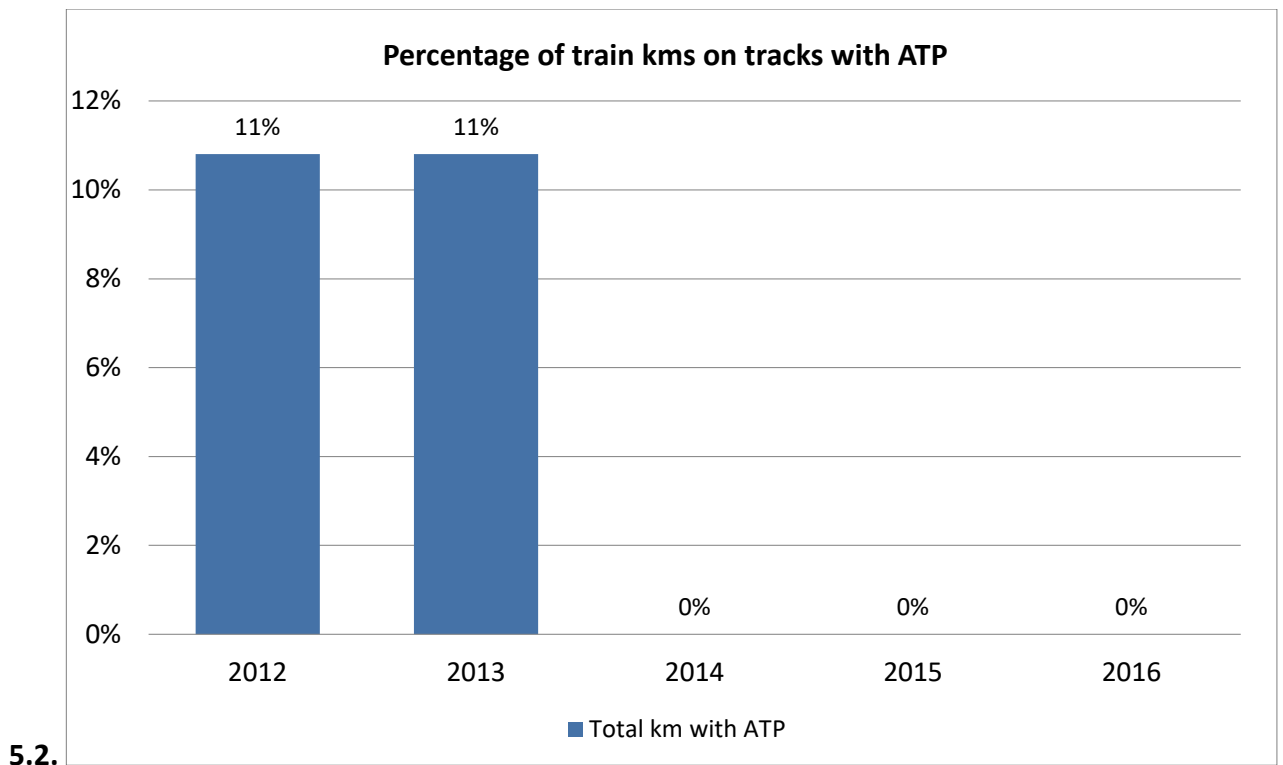
3.8.



Note: wrong side signalling failures only reported since 2013; situation regarding track buckles seems to have improved; broken rails on running lines average 2 per annum.



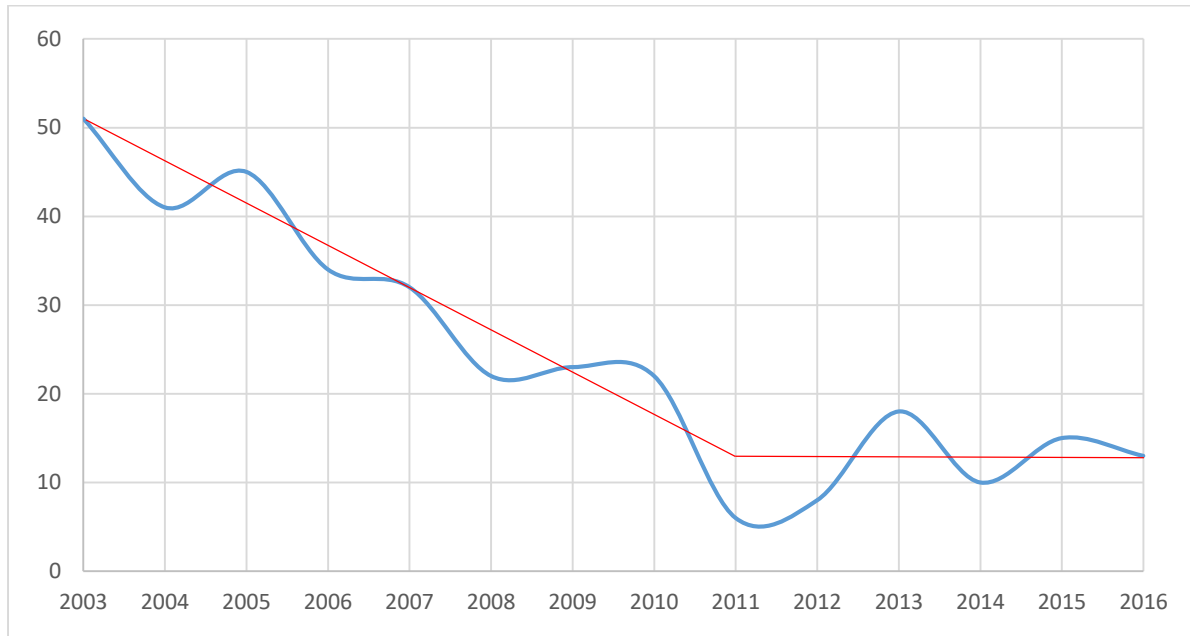
Note: DART-ATP is no longer classified as a full ATP system, because the driver must routinely over-ride the system for operational reasons.



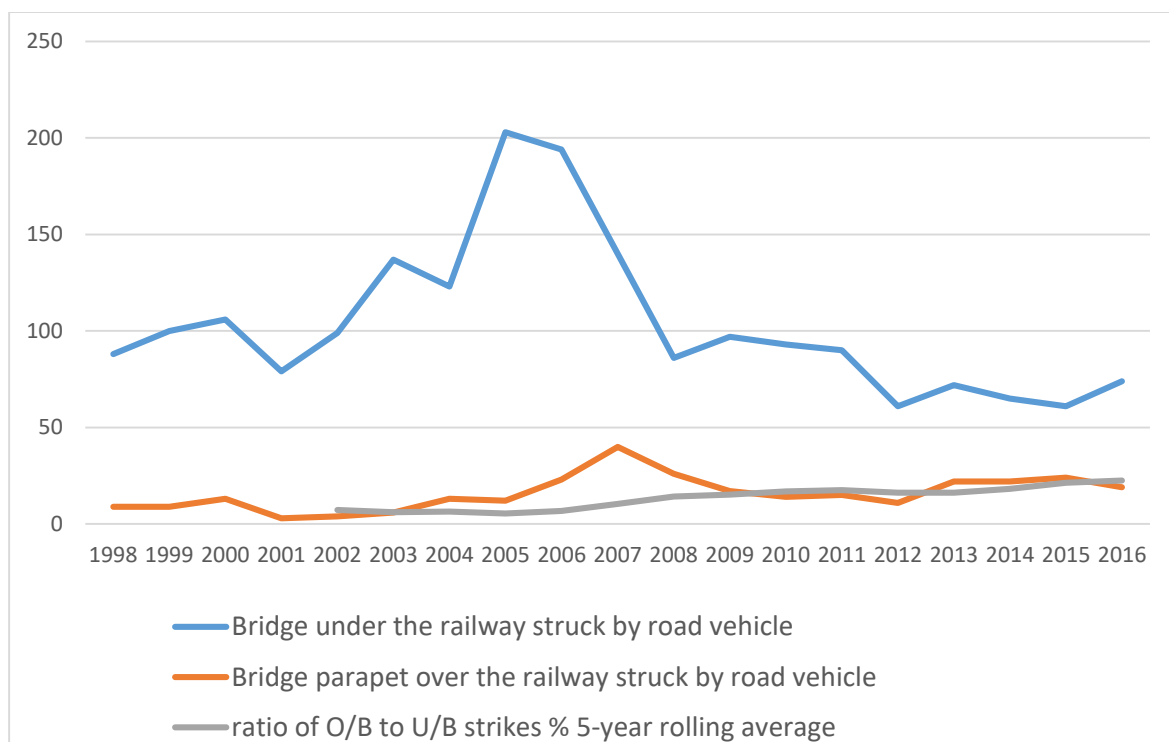
Note: The number of level crossings on active lines has reduced by 2% per annum, considering that 48 existing pedestrian-only LCs were added to the list in year 2013, and the 12 LCs on the Limerick Cement siding were added in 2015.

## ii. NATIONAL INDICATORS

### 1. IÉ SPADS by year



### 2. Railway Bridges Struck by road vehicles



## ANNEX B - CHANGES IN LEGISLATION

Table 1

<b>RSD and its Amendments</b>	<b>Transposed (Y/N)</b>	<b>Legal Reference</b>	<b>Date of entry into force</b>
Directive 2004/49/EC	N	SI 61 of 2008	06/03/2008
Directive 2008/57/EC	Y	SI 419 of 2011	13/08/2011
Directive 2008/110/EC	Y	SI 70 of 2011	23/02/2011
Directive 2009/149/EC	Y	SI 70 of 2011	23/02/2011
Directive 2004/49/EC	Y	SI 444 of 2013	25/11/2013
Directive 2004/49/EC	Y	SI 258 of 2014	12/06/2014
Directive 2014/88/EU	Y	SI 280 of 2015	08/07/2015

Table 2

<b>Legislation And Regulation</b>	<b>Legal reference</b>	<b>Date of entry into force</b>	<b>Description of change</b>	<b>Reasons for the change</b>
Concerning the NSA	S.I. No. 69/2016	29/02/2016	The SI 69/2016 was subsequently enacted to effect the name change of the Railway Safety Commission to the Commission for Railway Regulation from 29 February 2016.	The purpose underpinning this was to reflect the national safety authority's expanded role as national regulatory body under Directive 2012/34/EU on a Single European Railway Area.
Concerning NoBos, DeBos, ABs, third party entities for registration, examination, etc.	Nil			
Concerning RUs/IMs/ECMs	Nil			



Implementation of other EU requirements (if concerning railway safety)	SI 390 of 2016	20/07/2016	European Union (Train Drivers Certification) Regulations 2010 (Amendment) Regulations 2016.	National transposition of Commission Directive (EU) 2016/882 of 1 June 2016 (OJ No. L 146 3.6.2016, p.22).
--	----------------	------------	---	--

## Annex C – NSA Ireland Audit of RUs and IM - findings of non-compliance

<b>Audit of Iarnród Éireann – Railway Undertaking</b> <b>Annex II, SMS Audit of the Operations department.</b>
<b>Report Issued : January 2017</b>
<b>Grand Hibernian AsBo Report</b> <p>The Auditors have found that the Assessment Body Report provided for the Grand Hibernian operation does not fully meet the requirements of the CSM REA Regulations EU402/2013, Annex III, Safety Assessment Report of the Assessment Body, clauses (b) and (d) (i).</p> <p>It is stated that the report will be updated and presented iteratively with a final issue on completion of scope. The Auditors suggest that the IE RU request the Assessor to include the required detail in the next iteration of the Assessment Report.</p>
<b>Audit of - Iarnród Éireann – Infrastructure Manager</b> <b>Annex II, SMS Audit of the Infrastructure Managers Operations dept.</b>
<b>Report Issued : 26/06/2016</b>
<b>Non-compliance with IMO-TCM14-006.</b> <p>The Security Room in Athlone is not specifically manned in Athlone LCCC in accordance with IEs own standard.</p>
<b>Non-compliance with Scada system accessibility (IMO-SMS-041).</b> <p>The IMO department is non-compliant with Scada system access within the CTC.</p>
<b>Non-compliance with IMO-SMS-002 Section 5.0.</b> <p>The IMO department is non-compliant with the requirements for area specific Safety Statements.</p>
<b>Non-compliance with IMO-SMS-033 Section 5.0</b> <p>The IMO department is non-compliant with the requirements the monitoring of safety critical communications.</p>
<b>Post Incident Inspection on Iarnród Éireann – Infrastructure Manager</b> <b>Following a possession irregularity at Lavistown in County Kilkenny.</b>
<b>Report Issued : 20/04/2016</b>
<b>Non-compliance with section TIII clause 9.4.2 of the IÉ-IM Rule Book</b> <p>The possession limits as stated in the Method Statement and in the Possession Alteration Notice were not all in-situ while works were ongoing. A Hand Signalman was not present at the possession limit (WL34) nor was a possession limit board or fog signals present at the time of the incident.</p>
<b>Non-compliance with section TIII clause 10.1 of the IÉ-IM Rule Book</b> <p>It has been determined that a worksite was not formally established insofar as no marker boards were positioned to indicate the limits of the worksite.</p>

**Post Incident Inspection on Iarnród Éireann – Infrastructure Manager**  
**Following an operational irregularity during single line working at Rathpeacon in county Cork.**

**Report Issued : 26/10/2016**

**ÍÉ-IM non-compliance with section N part 1 General Instructions, clause 2.6 Control of movements in the wrong direction over the single line.**

ÍÉ-IM CTC Signalman was advising the Hand signalman to show a green handsignal when it should be a Yellow handsignal, in accordance with IE Rule Book section N part 1 clause 2.6 Table N2 states, 'Opposite any other signal where trains may be required to stop'. As a consequence, corrective action is needed to prevent/minimise the chance of reoccurrence.

**ÍÉ-IM non-compliance with SGI TCB Regulations, clause 3.5 Signalling by Bell or telephone during a failure of signalling equipment or SLW.**

ÍÉ-IM Cork Cabin Signalman was non-compliant with IE Train Signalling Regulations and General Instructions to Signalmen, Track Circuit Block Regulations Issue 10/15, section N part 1 clause 3.5 Signalling by Bell or telephone during a failure of signalling equipment or SLW. Therefore corrective action is needed to prevent a reoccurrence.