## Public Agency of the Republic of Slovenia for Railway Transport

## Kopitarjeva ulica 5, 2000 Maribor

## Phone: +386 (0)2 234 14 27

## Fax: +386 (0)2 234 14 52

## Email: gp.azp@azp.si

## www.azp.si

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2017 Annual Safety Report

Annual report on the safety of the public railway infrastructure in the Republic of Slovenia

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# Introduction

## A.1. Purpose and scope of the report

The 2017 Annual Safety Report prepared by the Public Agency of the Republic of Slovenia for Railway Transport (hereinafter AŽP) presents the results in railway safety in the Republic of Slovenia as laid down in Directive 2004/49/EC, Directive 2009/149/EC, Commission Directive 2014/88/EU, Commission Implementing Regulation (EU) No 402/2013, Commission Regulation (EU) No 445/2011 and the applicable Railway Transport Act.

The 2017 Annual Safety Report is based on the template prepared by the European Union Agency for Railways (hereinafter ERA) and includes the requirements of Article 18 of Directive 2004/49/EC.

The 2017 Annual Safety Report contains data on railway transport safety and safety management. It is intended for everyone who is involved in or associated with the public railway system in the Republic of Slovenia.

# General safety performance and strategy

## B.1. Main conclusions for 2017

The railway transport safety situation in Slovenia is good. In 2017, the number of serious accidents remained stable in comparison with the previous year. Passengers and staff have not recorded any fatalities in recent years. Derailments, train collisions and fires on vehicles that could be qualified as serious accidents are rare in Slovenia.

The majority of serious railway accidents in Slovenia are accidents at level crossings. The number of level crossing accidents has decreased in the last decade. Nevertheless, we see a slight increase in the number of derailments (3) and number of precursors (148), which may indicate a high risk of accidents and incidents in the coming years.

There were 11 serious accidents in Slovenia in 2017, including one train collision, three derailments, six level crossing accidents, and one accident involving persons with vehicles in motion.

Figure 1: Serious accidents in 2013–2016 by type of accident.

|  |  |
| --- | --- |
| Trki vlakov | Train collisions |
| Iztirjenja | Derailments |
| Nesreče na nivojskih prehodih | Level crossing accidents |
| Nesreče oseb z vozili v gibanju | Accidents involving persons with vehicles in motion |
| Požari na vozilih | Fires on vehicles |
| Drugo | Other |

Slovenia has not currently set any national safety targets but determines the annual safety level based on national reference values (NRVs)[[1]](#footnote-2), which are determined for individual EU countries according to the common safety indicators. NRVs are determined for every country according to individual risk categories: passengers, employees, level crossing users, unauthorised persons, other individuals, and society as a whole.

In 2017, it was established that Slovenia did not exceed the NRVs compared to the weighted number of fatalities and serious injuries (FWSI) per year/billion train-kilometres[[2]](#footnote-3).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Risk category | (NRV)  [x 10-9] | 2013  (FWSI)  [x 10-9] | 2014  (FWSI)  [x 10-9] | 2015  (FWSI)  [x 10-9] | 2016  (FWSI)  [x 10-9] | 2017  (FWSI)  [x 10-9] |
| Passengers | **25.3** | 0 | 9.09 | 0 | 0 | 0 |
| Employees | **40.9** | 5.28 | 0 | 0 | 0 | 5.28 |
| Level crossing users | **364** | 259 | 195 | 116 | 285 | 275 |
| Unauthorised persons | **236** | 52.8 | 0 | 5.28 | 0 | 0 |
| Others | **14.5** | 0 | 0 | 0 | 0 | 0 |
| Society as a whole | **698** | 317 | 201 | 121 | 285 | 280 |

Table 1: Comparison of NRVs and FWSIs per risk category in 2013–2017.

## B.2. National safety strategy, programmes and initiatives

The national safety strategy for the Republic of Slovenia has not been adopted yet.

## B.3. Overview of the last year

AŽP’s activities ensure that the conditions for the safe functioning of the railway system are in place, namely through mechanisms for safety certificates, safety authorisations, licences, permits, keeping registers, including subsystems integrated into the operation and implementation of the supervision of safety management systems, etc. We believe that certain mechanisms will be performed to a superior quality because, in our opinion, our reorganisation has optimised the processes and installed additional systemic control mechanisms, which we estimate to have minimised the possibility of errors.

The Republic of Slovenia did not exceed any of the set reference values in any railway areas verified. We can therefore state that the established system is adequate and that the procedures performed by the AŽP were appropriate.

The staff completion and implementation of the works defined in the 2017 work programme were also influenced by the delayed implementation of the adopted 2016/2017 Work Programme of 12 October 2016, as a result of delays in the handover, which postponed the following planned activities:

* adoption of systemisation;
* redistributing workers involved in the tasks of setting up, issuing and collecting user charges, and allocating train routes to new tasks, as they were required to fulfil these tasks;
* launch of the call for tender for the recruitment of additional people, as publishing the job vacancies would have required adopting a new systemisation. It was possible to consider this new systemisation further after the adoption of the Decision amending the Decision establishing the Public Agency of the Republic of Slovenia for Rail Transport.

## B.4. Focus areas for next year

In 2018, focus areas are centred around the supervision of the infrastructure managers’ and undertakings’ safety management systems, issuing of licences, maintenance systems for entities in charge of rolling stock maintenance, and training and verification entities.

# Developments in safety performance

## C.1. Detailed analysis of recent recorded trends

The trend in safety performance in the areas defined by some of the most important common safety indicators has remained at roughly the same level in recent years. The total number of accidents (11) in 2017 remained stable compared to the previous year. The number of fatalities also remained at the same level compared to the previous year, while the number of seriously injured persons slightly decreased. The main risk category remains level crossings, where the majority of serious accidents on the Slovenian railway network occur. The number of precursors increased in comparison with previous years. In 2017, the number of suicides decreased in comparison with the previous year.

The total number of train-kilometres has been gradually increasing over recent years, and in 2017 it covered over 22 million kilometres.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 2013 | 2014 | 2015 | 2016 | 2017 |
| Total number of serious accidents | 13 | 15 | 14 | 11 | 11 |
| Number of accident precursors | 100 | 81 | 142 | 125 | 148 |
| Economic impact of serious accidents (EUR) | 6 652 317 | - | - | 7 035 919 | 10 377 627 |
| Total number of train-kilometres  (million km) | 20.14 | 20.52 | 21.55 | 21.28 | 22.00 |

Table 2: Basic overview of safety trends in 2013–2017.

### Serious accidents

The total number of serious accidents decreased in the last three years, from 14 in 2015 to 11 in 2016 and 2017. The average value of the total number of serious accidents in the last five years is 12.8. In 2017, six out of the total 11 accidents were level crossing accidents. One accident was recorded as a train collision, three as derailments and one as an accident involving persons with vehicles in motion.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 2013 | 2014 | 2015 | 2016 | 2017 |
| Total number of serious accidents | 13 | 15 | 14 | 11 | 11 |
| Train collisions | 0 | 4 | 1 | 1 | 1 |
| Derailments | 1 | 1 | 0 | 1 | 3 |
| Level crossing accidents | 11 | 9 | 10 | 8 | 6 |
| Accidents involving persons with vehicles in motion | 0 | 0 | 2 | 0 | 1 |
| Fires on vehicles | 1 | 1 | 0 | 0 | 0 |
| Other | 0 | 0 | 1 | 1 | 0 |

Table 3: Overview of serious accidents by type of accident.

### Fatalities and seriously injured persons

In 2017, there were five railway accident fatalities in Slovenia, which equals the figure from the previous year. All fatalities were level crossing users. The number of seriously injured persons decreased to three in 2017. Two serious injuries were recorded among level crossing users.

Figure 2: Fatalities and seriously injured persons in railway accidents in 2007–2017.

|  |  |
| --- | --- |
| Število smrtnih žrtev | Number of fatalities |
| Število hudo poškodovanih | Number of seriously injured persons |

Figure 3: Number of accidents, fatalities and seriously injured persons at level crossings in 2013–2017.

|  |  |
| --- | --- |
| Število hudo poškodovanih uporabnikov nivojskih prehodih v nesrečah na nivojskih prehodih | Number of seriously injured persons among level crossing users in accidents at level crossings |
| Število smrtnih žrtev uporabnikov nivojskih prehodih v nesrečah na nivojskih prehodih | Number of fatalities among level crossing users in accidents at level crossings |
| Število nesreč na nivojskih prehodih | Number of accidents at level crossings |

Figure 4: Comparison of the number of fatalities in all accidents and among level crossing users.

|  |  |
| --- | --- |
| Število smrtnih žrtev uporabnikov nivojskih prehodih v nesrečah na nivojskih prehodih | Number of fatalities among level crossing users in accidents at level crossings |
| Število smrtnih žrtev v vseh nesrečah | Number of fatalities in all accidents |

Figure 5: Comparison of the number of seriously injured persons in all accidents and among level crossing users.

|  |  |
| --- | --- |
| Število hudo poškodovanih uporabnikov nivojskih prehodih v nesrečah na nivojskih prehodih | Number of seriously injured persons among level crossing users in accidents at level crossings |
| Število hudo poškodovanih v vseh nesrečah | Number of seriously injured persons in all accidents |

An analysis of recent trends needs to pay special attention to accidents at level crossings, where 43 accidents have occurred in the last five years – an average of 8.6 accidents per year. Particularly worrying is the fact that level crossing users are prevalent in terms of fatalities and serious injuries. In the last five years, level crossing users thus accounted for the majority of fatalities in railway accidents. Out of the total 19 railway accident fatalities, no less than 18 fatalities were level crossing users. Similarly, out of the total of 38 people who were seriously injured in railway accidents over the last five years, 34 were level crossing users.

### Hazardous substances

No serious accidents involving hazardous substances were reported in 2017.

### Suicides

The number of suicides decreased to 15 in 2017, whereas the year before there were 26. That is the second lowest figure in the last five years.

Figure 6: Number of railway suicides in 2007–2017.

### Accident precursors

The total number of accident precursors rose to 148 in 2017, reaching its highest point in the last five years. The year before there were 125 accident precursors. The number of broken rails slightly decreased, while the number of track deformations, signals passed at danger (SPADs) and broken wheels on vehicles increased.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 2013 | 2014 | 2015 | 2016 | 2017 |
| Total number of accident precursors | 100 | 81 | 142 | 125 | 148 |
| Broken rails | 72 | 61 | 85 | 116 | 113 |
| Track deformations | 28 | 12 | 50 | 6 | 25 |
| Wrong signalisation by signalling markers | 0 | 0 | 0 | 0 | 0 |
| SPADs | 0 | 8 | 7 | 3 | 9 |
| Broken wheels on vehicles | 0 | 0 | 0 | 0 | 1 |
| Broken axles on vehicles | 0 | 0 | 0 | 0 | 0 |

Table 4: Overview of accident precursors per type in 2013–2017.

Figure 7: Total number of accident precursors in 2007–2017.

## C.2. Results of safety recommendations

In 2017, the investigation body for railway accidents and incidents investigated seven accidents, namely:

* three train derailments;
* three level-crossing accidents;
* one collision.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type of accident investigated | Number of accidents | Number of casualties | | Damage in EUR (estimated) | Trend in comparison with 2016 |
| **Fatalities** | **Seriously injured persons** |
| Train collision | 1 | 0 | 0 | 55 523.90 | 1 > 0 |
| Train derailment | 3 | 0 | 0 | 1 756 247.44 | 3 > 2 |
| Other | 3 | 4 | 1 | 5 500.00 | 3 < 4 |

Table 5: Overview of accidents investigated by the investigating body in 2017.

The body charged with investigating railway accidents issued 16 recommendations in 2017:

* five related to maintenance processes for public railway infrastructure maintenance;
* two related to the educational processes of the regular periodic training of workers who are directly involved in traffic and train driver management;
* one related to the technological process involved in the uncoupling of parked locomotives;
* one related to the upgrading of a level crossing with road traffic signs for road users;
* one related to the upgrading of front lights of diesel trains;
* five related to ensuring visibility at regulated level crossings marked with road traffic signs;
* one related to the upgrading of safety equipment for securing a level crossing by means of a maze for pedestrians and cyclists.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Recommendations issued | | Situation regarding implementation of recommendations | | | | | |
| **implemented** | | **being implemented (or already prepared)** | | **will not be implemented (rejected)** | |
| YEAR | **no** | **no** | **%** | **no** | **%** | **no** | **%** |
| 2013 | 5 | 4 | 80 |  |  | 1 | 20 |
| 2014 | 8 | 5 | 62.5 |  |  | 3 | 37.5 |
| 2015 | 4 | 4 | 100 |  |  |  |  |
| 2016 | 5 | 3 | 60 | 2 | 40 |  |  |
| 2017 | 16 | 13 | 81.3 | 3 | 18.77 |  |  |

Table 6: Overview of safety recommendations issued and their implementation in 2013–2017.

## C.3. Implemented measures related to safety recommendations

No measures related to safety recommendations were implemented in 2017.

# Supervision

## D.1. Strategy and plans

In accordance with the provisions of Regulation (EU) No 1077/2012, which defines the methods for supervision of undertakings and infrastructure managers by the national safety authority AŽP (also ECM in line with the Fourth Railway Package), in 2017 the AŽP established the basis for preparing the supervision strategy. An analysis of similar systems has been launched, on the basis of which an upgraded supervision system will be set up based on the risks identified.

## D.2. Human resources

In 2017, three people were employed in implementing the supervision.

## D.3. Providing competences

We do not have a system in place for ensuring competences of employees in the field of supervision.

## D.4. Decision-making

We do not have a decision-making criteria system in place in the area of supervision.

## D.5. Coordination and cooperation

The AŽP is actively involved in the international environment in all the tasks assigned to it, so that it may implement them as efficiently as possible. This cooperation will be strengthened through a suitably supplemented staffing structure. However, it is necessary to wait for the Fourth Railway Package to enter into force in order to set up the complete system, thus creating all the conditions for an active integration with the other NSAs and ERA.

## D.6. Findings on the implemented measures

In 2017, four out of six scheduled checks were carried out to verify the safety management system of infrastructure managers and undertakings.

Also in 2017, eight out of four scheduled checks were carried out to verify the supervision of training and testing centres for train drivers and drivers of motor track vehicles.

The focus was on the supervision of training and testing entities. Compared to the scheduled checks, the total scheduled checks reached 120%, with the checks of training and testing centres at 200% and the checks verifying the implementation of infrastructure managers’ and undertakings’ safety management systems at 66.6%. The increased scope of checks of training and testing entities is the result of identified individual dilemmas and possible shortcomings that have been clarified by detailed checks of the centres and users.

With regard to the findings of the checks, eight recommendations were issued to the undertakings.

# Safety certification and authorisation

## E.1. Guidelines

Guidance material for obtaining a safety certificate and authorisation is published on the AŽP’s website. This guidance material comprises practical information on filing applications for obtaining a safety certificate and authorisation.

There was no new guidance material published in 2017 or any changes to the existing guidance material for obtaining a safety certificate and authorisation.

## E.2. Contacts with other safety authorities

There were no requirements made by other safety authorities in 2017 on obtaining safety certificates for parts A or B.

Likewise, there were no requirements made by the AŽP for other safety authorities on obtaining safety certificates for parts A or B.

## E.3. Procedural issues

In 2017, five undertakings in Slovenia had a Part A Safety Certificate and six undertakings had a Part B Safety Certificate. One of those undertakings provided passenger transport services, while all the others provided freight transport services.

There is one public railway infrastructure manager in Slovenia with a valid safety authorisation.

## E.4. Feedback

Feedback is obtained through individual meetings between the AŽP and the undertakings or the infrastructure manager. There are currently no specific formalised standards for obtaining feedback that would enable the undertakings and the infrastructure manager to express their opinions on the procedures or practices or to file complaints.

# Changes in legislation

## F.1. Railway Safety Directive

There were no changes in legislation in this area in 2017.

## F.2. Changes of legislation and regulations

There were no changes in legislation in this area in 2017.

# Application of the CSM for risk evaluation and assessment

## G.1. Experience of the safety authority

In terms of changes to the railway system (of either a technical, operational or organisational nature, or a new introduction), the proposers prepared risk assessments, which included risk analyses and risk evaluation. They took into account Commission Regulation (EU) No 402/2013 of 30 April 2013 on the common safety method for risk evaluation and assessment and repealing Regulation (EC) No 352/2009 amended by Commission Implementing Regulation (EU) 2015/1136 of 13 July 2015.

In the beginning, the proposers considered the potential impact of the change on the safety of the railway system. If the proposed change had an impact on safety, they assessed the significance of the change using an expert’s judgement. If the change was considered significant, they applied a risk management process. The proposers evaluated the risk acceptability of a significant change by using one or more risk acceptance principles. If the change was considered not significant, the proposers kept adequate documentation to justify the decision.

In 2017, they reviewed and adopted the appropriate risk assessments for the following projects:

* construction of Vič underpass (SŽ — Infrastruktura, d.o.o.);
* replacement of the Hasler A16i mechanical speedometer with the Hasler Teloc 1500 electronic speedometer (SŽ — Tovorni promet, d.o.o.);
* application for rolling stock operating licence (SŽ – Tovorni promet, d.o.o.);
* upgrade of the X4-E-lok locomotive software (Siemens, d.o.o.);
* ETR 563 electric multiple-unit set (CAF-Construcciones y Auxiliar de Ferrocarriles S. A.);
* renewal of level crossings including protection on the Grosuplje–Ortnek section of the No 82 Grosuplje–Kočevje regional railway line (SŽ – Infrastruktura, d. o. o.);
* inclusion of the dual-system electric locomotive 91 81 1822 004-8 into the safety management system of Adria Transport, d.o.o. (Adria Transport, d. o. o.);
* Inclusion of the Siemens electric locomotive 92812016907-5 in service (RTS Rail Transport Service GmbH).

## G.2. Feedback from stakeholders

The assessment body (AŽP) received risk assessments from the proposers where a change had an impact on safety but the change itself was not considered essential.

If the proposers defined a change as significant, risk management procedures should be applied accordingly. In such a case, the assessment body (AŽP) would carry out an independent assessment of the suitability of the application of the risk management process and of its results, and provide the appropriate safety assessment report.

## G.3. Audit of the national strategy report while taking into account the CSM for risk evaluation and assessment

No national strategy report was audited in 2017.

# Derogations from the ECM certification scheme

Only ECM certification schemes are applied in Slovenia.

# Annex A: Common safety indicators

|  |  |
| --- | --- |
| Trki | Collisions |
| Nesreče na nivojskih prehodih | Level crossing accidents |
| Požari na vozilih | Fires on vehicles |
| Iztirjenja | Derailments |
| Nesreče, ki so jih povzročila vozila v gibanju | Accidents caused by vehicles in motion |
| Ostalo | Other |

|  |  |
| --- | --- |
| Potniki | Passengers |
| Zaposleni | Employees |
| Uporabniki nivojskih prehodov | Level crossing users |
| Nepooblaščene osebe | Unauthorised persons |
| Ostali | Other |

|  |  |
| --- | --- |
| Trki | Collisions |
| Nesreče na nivojskih prehodih | Level crossing accidents |
| Požari na vozilih | Fires on vehicles |
| Iztirjenja | Derailments |
| Nesreče, ki so jih povzročila vozila v gibanju | Accidents caused by vehicles in motion |
| Ostalo | Other |

|  |  |
| --- | --- |
| Število hudo poškodovanih po uporabnikih | Number of seriously injured persons per type of user |
| Potniki | Passengers |
| Zaposleni | Employees |
| Uporabniki nivojskih prehodov | Level crossing users |
| Nepooblaščene osebe | Unauthorised persons |
| Ostali | Other |

|  |  |
| --- | --- |
| Trki | Collisions |
| Nesreče na nivojskih prehodih | Level crossing accidents |
| Požari na vozilih | Fires on vehicles |
| Iztirjenja | Derailments |
| Nesreče, ki so jih povzročila vozila v gibanju | Accidents caused by vehicles in motion |
| Ostalo | Other |

|  |  |
| --- | --- |
| Potniški vlakovni kilometri | Train passenger-kilometres |
| Tovorni vlakovni kilometri | Train tonne-kilometres |

|  |  |
| --- | --- |
| Potniški kilometri | Passenger-kilometres |

|  |  |
| --- | --- |
| Progovni kilometri | Line-kilometres |

|  |  |
| --- | --- |
| Tirni kilometri | Track-kilometres |

|  |  |
| --- | --- |
| FWSI na vlakovni potniški kilometer (v milijardah) | FWSI per billion train passenger-kilometres |

|  |  |
| --- | --- |
| FWSI na potniški kilometer (v milijardah) | FWSI per billion passenger-kilometres |

|  |  |
| --- | --- |
| FWSI na vlakovni kilometer (v milijardah) | FWSI per billion train-kilometres |

|  |  |
| --- | --- |
| FWSI na vlakovni kilometer (v milijardah) | FWSI per billion train-kilometres |

|  |  |
| --- | --- |
| FWSI na izpostavljenost nevarnosti | FWSI per exposure to hazard |

|  |  |
| --- | --- |
| FWSI na vlakovni kilometer (v milijardah) | FWSI per billion train-kilometres |

|  |  |
| --- | --- |
| FWSI na vlakovni kilometer (v milijardah) | FWSI per billion train-kilometres |

|  |  |
| --- | --- |
| Zlomi tirnic | Broken rails |
| Napačna signalizacija signalnih znakov | Wrong signalisation by signalling markers |
| Zlomi koles na vozilih | Broken wheels on vehicles |
| Deformacije tirov | Track deformations |
| Prevozi signalov | SPADs |
| Zlomi osi na vozilih | Broken axles on vehicles |

|  |  |
| --- | --- |
| Skupno število aktivnih nivojskih prehodov | Total number of active level crossings |
| Skupno število pasivnih nivojskih prehodov | Total number of passive level crossings |

# Annex B: Changes in legislation

|  |  |  |  |
| --- | --- | --- | --- |
| Supplements to the Railway Safety Directive | Transposition performed  (YES/NO) | Legal basis | Date of entry into force |
| / | / | / | / |

Table 7: Supplements to the Railway Safety Directive

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Legislation and regulations | LEGAL BASIS | Date of entry into force | MODIFICATION DESCRIPTION | Reason for modification |
| On the work of the safety authority | / | / | / | / |
| On the work of the NoBo, DeBo, AsBo, third entities for registration, overviews, etc. | / | / | / | / |
| On the work of the RU/lM/ECM | / | / | / | / |
| Implementation of other EU requirements (if it impacts safety) | / | / | / | / |

Table 8: Changes of legislation and regulations.

1. The NRV is expressed as the number of fatalities and serious injuries per risk category per year resulting from serious accidents/billion (109) train-kilometres per year. [↑](#footnote-ref-2)
2. The FWSI is expressed as the weighted number of fatalities and injuries per year/billion (109) train-kilometres, where one injured person is considered equivalent to 0.1 fatalities. [↑](#footnote-ref-3)