

Safety Performance Report

2017

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# **Introduction**

The report provides a summary of information on the operation and results of the State Railway Technical Inspectorate (hereinafter referred to as SRTI) in 2017. Report analyses the performance results of SRTI, and provides an assessment of the traffic safety situation and data analysis. The report contains the following information:

- assessment of the traffic safety situation;

* traffic safety tendencies;
* data analysis;
* processes of supervision;
* certification.

It also contains an evaluation of SRTI results and highlights amendments to laws affecting the railway processes.

This report has been prepared by SRTI in accordance with paragraph 57 of Cabinet Regulation No 999 of 26 October 2010 ‘Procedures for the Classification, Investigation and Recording of Railway Traffic Accidents’ in order to disseminate information about the level of traffic safety and railway transport processes.

The following information sources were used in preparing the report:

* SRTI recording registers;
* SRTI Activity Plan for 2017 (20 February 2017);
* SRTI Activity Strategy 2017 - 2019 (approved by Order of the Minister of Transport No 01-03/133 of 8 September 2017);
* SRTI Supervision Strategy 2017 - 2019 (approved 11.09.2017.);
* Guidelines for the Development of Transport 2014-2020 (Cabinet Order No 683 of 27 December 2013);
* Transport in Latvia 2017. Compilation of statistical data. (Central Statistical Bureau of the Republic of Latvia, Riga, 2018).
* Safety Performance Report of the State Joint Stock Company *Latvijas dzelzceļš*. 2017 (Rīga, 2018).
* Safety Performance Report 2017 of *LDZ CARGO* Ltd. (Riga, 2018);
* Safety Performance Report of the Joint Stock Company *Baltijas Ekspresis*. 2017 (Ventspilis, 2018);
* Safety Performance Report 2017 of the State Joint Stock Company *Pasažieru vilciens* (Riga, 2018);
* SAFETY PERFORMANCE REPORT 2017 OF THE JOINT STOCK COMPANY *BALTIJAS TRANZĪTA SERVISS* (Riga, 2018);
* SRTI Public Report 2017 (Riga, 2018).
* Annual Report 2017 of the State Railway Administration (Riga, 2018).

# **Report Summary**

Railway freight carriage continued to decrease in 2017. Total volume of freight (it was 5.4% less than in 2016, but in comparison with 2015, decrease in freight volume reached 20.6% already[[1]](#footnote-2)). The total freight turnover in the reporting year was 15,014 million tonne-kilometres[[2]](#footnote-3), in 2016 it was 15,873 million tonne-kilometres, and in 2015 it was 18,906 million tonne-kilometres. However, passenger carriage continues to grow; a small but stable increase can be observed since 2015. Increase is 1.80% annually. Increase is related to zone tariff introduction, trade of interactive tickets, balanced schedule, etc.

The number of accidents in 2017 has increased, and the number of victims has increased. However, when conducting the data analysis, a decrease in the number of accidents can be observed from 2004, and a decrease in the number of accidents and victims can be predicted if the current trend continues. If an increase of the number of accidents will be observed in future, a decrease in accidents will be slower.

Data analysis also shows no correlation between the train-kilometres and victims. Currently, it is not possible to assert that the number of accidents has increased due to increase in volume of carriage. Correlation coefficient for accidents is 0.290 (weak correlation) and for victims 0.284 (weak correlation). It is necessary to perform a deeper analysis in order to assess whether such factors affect increase or decrease in the number of victims or number of accidents. It should be noted that the number of accidents to persons caused by rolling stock in motion has been significantly reduced, while the number of accidents at level crossings has increased. Pedestrians form the largest proportion of persons injured at level crossings. In relation to categories of victims, in 2017 none of the passengers or employees were harmed.

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| *Figure 1.* ***Forecast regarding victims*** |
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| *Figure 2.* ***Correlation between the victims (x axis) and train-kilometres (y axis), by years*** |

In the reporting period, 124 examinations were performed and one Safety Management System audit was provided within the scope of the functions prescribed by the Railway Law. Ten safety certificates and 95 safety authorisations were issued to undertakings working in the railway sector. Within the scope of railway specialist certification, 136 traction vehicle drivers, 91 assistant drivers and 23 driver instructors, as well as 25 safety consultants responsible for the transport of dangerous goods and 171 railway specialists – members of the specialist certification committees of railway undertakings – were certified during the year. Operation permits were issued to seven new types of rolling stock, and 75 rolling stock units and 36 railway infrastructure facilities were accepted for placing into service. More than 131 decisions were taken regarding construction matters.

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|  | In 2017, SRTI began work on the development of amendments to the Railway Law, providing transposition of the technical pillar of the fourth railway package (DIRECTIVE (EU) 2016/798 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 May 2016 on railway safety; DIRECTIVE (EU) 2016/797 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 May 2016 on the interoperability of the rail system within the European Union). Further priorities of SRTI are:- participation in development of laws in relation to implementation of the 4RP (31 December 2019);- participation in development of the EU draft laws in relation to 4RP (participation in EC or work meetings) (during the whole period); - active participation in working groups of European Union Agency for Railways (hereinafter referred to as ERA) regarding safety and interoperability issues (during the whole period). |

# **Summary in English**

The State Railway Technical Inspectorate (NSA Latvia) in accordance with art has prepared the present report. Article 57 of the Cabinet Regulations of 26 October 2010 No. 999 “Procedures for the Classification, Investigation and Recording of Railway Traffic Accidents” gives the NSA Latvia task to prepare Safety Report providing information on traffic safety level and processes in railway traffic. The report contains summarised information about the NSA Latvia safety strategy, its targets, tasks, initiatives and its development, safety performance, certification and authorisations processes as well as realized supervision activities. The report contains the following information:

* Directions of actions according to the NSA Latvia strategies;
* Developed analysis of accidents (common Safety Indicators) and tendencies;
* Assessment of traffic safety;
* Description of certification processes - description of the current situation;
* Supervision activities;
* Changes in national legislation;
* Safety Culture.

In the reporting year, the number of serious accidents grow up. Due to of such rise, there is an increase of casualties as well. However, doing a deep data analysis, there is decrease of accidents since 2004. The prognosis shows that decrease of accidents and casualties continues, if the current level continues. If there is an increase in accidents in the future, the decrease of accidents will be slower. The data analysis also indicates that there is no correlation between train km and victims. At this stage, it cannot be to argue that due to the increase of the traffic volume will be increase of numbers of accidents. The correlation coefficient to serious accidents is 0,290 (weak correlation) and to casualties is 0,284 (weak correlation). It is necessary to make detailed analysis to which factors have impact on decrease or increase of accidents. It is worth to note, that there is strong decrease of casualties in accidents during movement of train. With regard to categories of casualties in 2017 – no casualties in categories – employees and passengers.

The total traffic volume continued to fall in 2017 due to economic impact to traffic to third countries.

Within the scope of the NSA Latvia functions determined by the Railway Law, the Inspectorate has supervised 124 rail objects. Ten safety certificates of part A and part B issued. The NSA Latvia issued 95 safety permits (authorisations) for railway sector. Within the framework of certification procedure 136 train drivers, 91 train driver assistants and 23 train driver instructors, as well as 25 safety consultants on dangerous goods deliveries and 171 railway sector experts – commission members for attestation specialists of railway undertakings were certified. Operation permits were issued to 7 new rolling stock types, 75 rolling stock units and 36 railway infrastructure facilities were placed into service. More than 131 decisions of building permits were taken.

# **SRTI Activity Directions 2017 - 2019**

In 2017, SRTI approved two strategies – activity and supervision – for the three-year period (2017 - 2019).

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|  | The main activity directions of SRTI are: - adequate supervision of the railway traffic safety level; - provision of supervision;- ensuring certification;- work on the fourth railway package, implementation of requirements of the legal framework into the laws of Latvia;- improving work capacity of SRTI. |

Business is safe if risks are effectively managed each day. It is best accomplished by companies which have established good safety management systems, which mutually coordinate their actions and assess the risks and effectively manage these. SRTI approach is aimed at identification of business risks. The task of SRTI is to ensure how the sector does it, and if it complies with the law by doing it. In order to implement it, SRTI has to clearly identify the aims of its activity and expected results:

- by collecting evidence on risk management of railway companies, implementing it by regular audits and inspections;

- by reacting to causes of accidents;

- by ensuring that recommendations prepared by the Transport Accident and Incident Investigation Bureau are duly taken into consideration and applied as much as practically possible;

- by summarising safety indicators and performing risk analyses;

- by examining complaints and proposals.

 The aim of SRTI is identification of safety risks and ensuring appropriate supervision. It is important to follow up the improvement measures in order to have an effective and safe railway in the area of transportation.

Sub-aims of SRTI are:

- safe carriage – it must be ensured that safety improvements of the companies involved in the railway transport sector are implemented continuously and that the state safety level is not below the level required by the EU laws;

- supervision of activity in railway transport – to supervise the work of the companies and compliance with technical specifications of interoperability;

- complete and safe information concerning the traffic safety situation in commercial companies;

- implementation of open and transparent requirements to all participants of the railway sector;

- improvement of internal processes.

# Supervision of the railway traffic safety level

Statistical data shows that over the last ten years, serious railway traffic accidents in Latvia have significantly decreased. However, the number of victims in Latvia is still significantly high.

SRTI ensures registration of safety indicators, identifies the risks and analyses safety condition on railways. Ensuring and promoting cooperation between all responsible institutions is significantly meaningful to successful implementation of safety improvement measures. These institutions are involved in processes that are related to educating and informing the public, improving the infrastructure, development of the legal system, etc.

*Table 1.* ***Assessment of total execution criteria of the safety indicators***

|  |  |  |
| --- | --- | --- |
| **Indicators** | **2017** | **Execution criterion** |
| Passenger risk (*NRV* 1.1)[[3]](#footnote-4) | 78.20 (x10-9) | Not exceeded |
| Passenger risk (*NRV* 1.2) | 0.665 (x10-9) | Not exceeded |
| Employee risk (*NRV* 2) | 64.80 (x10-9) | Not exceeded |
| Level crossings user risk (*NRV* 3) | 239.0 (x10-9) | Not exceeded |
| 'Other' person risk (*NRV* 4) | 11.60 (x10-9) | Not exceeded |
| Unauthorised persons on railway premises risk (*NRV* 5) | 1,310.0 (x10-9) | Not exceeded |
| Society risk (*NRV* 6) | 1,660.0 (x10-9) | Not exceeded |
| Number of serious accidents | 25 | Not exceeded |
| Indicator of serious accidents per train-kilometres  | 1.50 (x10-6) | Not exceeded |
| Indicator of victims per train-kilometres  | 1.45 (x10-6) | Risks exist |

In 2017, the number of victims exceeded the planned result, which can be linked to an increase of the number of victims in collisions on level crossings and a decrease in carriage volume. In general, the condition of traffic safety has not worsened in 2017, but risks have been identified that may affect railway transport safety.

Attention should be paid not only to factors directly influencing railway safety (number of accidents, number of fatalities and victims, harm to environment, etc.), but it should also be noted that safety depends on the attitude of persons involved in railway transport traffic, the technical condition of the railway or road vehicle, and infrastructure. The most significant conditions affecting safety in railway transport:

* non-compliance with safety requirements for persons when crossing railway (not observing the situation when crossing, reckless behaviour on the platform, failure to notice signals);
* Persons under influence still cause significant risks;
* The attitude of drivers towards road traffic safety (failure to comply with road signs, failure to comply with traffic light signals).

In 2017, SRTI started the analysis of statistical data of accidents in order to evaluate the effect of causes on a decrease or increase in the number of accidents. The same may be applied to categories of victims, age, gender and other social factors.

# Supervision

With its activity, SRTI must achieve the outcome of each company related to transport service provision linking their duties to safety. When performing supervision, SRTI should comply with the basic principles of the national safety authority - proportionality, consistent approach, expedience, transparency, responsibility and cooperation. SRTI ensures supervision on the basis of identified risks – registered accidents, detected shortcomings and degrees thereof, safety reports. By its inspections, SRTI performs the operational control during use, supervision of equipment, safety devices, competence of personnel, supervision in the area of hazardous goods railway transport, compliance with the requirements of laws, supervision of the activity area, etc.

*Table 2.* ***Assessment of execution criteria of the supervision indicators***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Operational result** | **Performance indicator** |  | **2017** | **Execution criterion** |
| Audits of the elements of safety management systems (SMS) are ensured  | Audits of *SMS* elements performed per year | Achieved % | 100 | Achieved |
| Ensured inspections | Number of inspections per year | Achieved % | 124 | Exceeded |
| Conformity inspections for the rolling stock units | Units of the rolling stock accepted for placing into service per year | Achieved % | 125 | Exceeded |
| Conformity inspections for the rolling stock types | Types of the rolling stock accepted for placing into service per year | Achieved % | 350 | Exceeded |
| Inspections of level crossings | Annual inspections of level crossings | Achieved % | 180 | Exceeded |
| Conformity inspections for the railway construction objects | Construction objects accepted for placing into service per year | Achieved % | 102 | Achieved |

# Certification

Preventive supervision includes certification procedures. During the certification process the applicant must prove safety and define procedures. The safety certification system and authorisation is implemented, but in relation to implementation of 4RP, development of a single safety certificate is underway. Certification processes will be changed. The same is applicable to authorisation of rolling stock.

*Table 3.* ***Assessment of execution criteria of certification indicators***

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| --- | --- | --- | --- | --- |
| **Operational result** | **Performance indicator** |  | **2017** | **Execution criterion** |
| Ensuring of theoretical examinations for representatives of commercial companies | Number of examinations per year | Achieved % | 199 | Exceeded |
| Issuance of safety certificates | Number of issued certificates per year | Achieved % | 333 | Exceeded |
| Issuance of safety permits | Number of permits issued per year | Achieved % | 237 | Exceeded |
| Issuance of construction permits | Decisions taken per year | Achieved % | 136 | Exceeded |
| Examination of compliance with the provisions included in the construction permit | Decisions taken per year | Achieved % | 280 | Exceeded |
| Examination of provisions regarding construction works  | Decisions taken per year | Achieved % | 260 | Exceeded |
| Ensuring of examination of the drivers, driver assistants and driver instructors | Number of examinations per year | Achieved % | 111 | Exceeded |

# The fourth railway package

The fourth railway package is an aggregate of planned changes in railway transport framework in the European Union. The purpose of the fourth railway package is to prevent obstacles to development of a single European railway space. The EU laws issued reform the railway sector. These implement structural and technical reforms by achieving a higher level of safety, interoperability and reliability in the European railway network. Changes are aimed at reducing administrative costs of railway companies and to facilitate involvement of new carriers in the market. The fourth railway package includes also standards and authorisation of rolling stock, as well as criteria relating to the skills of the workforce.

The current task of SRTI is to participate in transposition of the EU laws, to identify risks and problems in relation to specifications of the 1,520 mm railway network, as well as to participate actively in the introduction of new laws and development of delegated draft laws arising from the fourth railway package.

*Table 4.* ***Assessment of execution criteria of operational results***

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| --- | --- | --- |
| **Operational result** | **Performance indicator** | **2017** |
| Analysis and assessment of compliance of TSIs and the national rules with the conformity criteria | Number of studies per year within the framework of ERA OSJD working group | 2 TSIs studies |
| Transposition of the fourth railway package  | Requirements of the EU laws implemented in the national laws | Work on transposition |

Since the specifics of the network require special attention, active participation is needed in the working groups of the EU, railway international organisations and ERA group work, from the development of draft laws to complete approval in the EU institutions, in order to avoid degradation of safety and interoperability.

In 2017, SRTI has actively worked on cooperation agreement options between the Baltic States, as provided by the EU laws.

# **Traffic Safety Performance Evaluation**

SRTI ensures control over the accuracy of railway traffic accident classification and performs the registration thereof. Timely provision of information regarding accidents helps to implement measures for the elimination of the effects of accident consequences. SRTI grants special attention to quality control of the data, analysis of accidents and control of issued safety recommendation measures.

Railway traffic safety data is essential for the creation of data management strategy. The data allows identification of problems and causes. The more is known about security measures and possible improvements the better the solutions that can be planned. Reliable and analysable data is necessary to ensure that the possible solutions are optimally prepared. This means that it is necessary to have information on many areas – general accident statistics, range of victims, identified places, range of security measures, etc. Data collection methods are very important for good documentation as well as for data structuring.

*Table 5* ***Serious railway traffic accidents and victims, by year***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Significant accidents in total** | **Victims (total number)** | **Fatalities** | **Injuries** | **Suicides** |
| 2004 | 70 | 74 | 32 | 42 | 12 |
| 2005 | 57 | 66 | 34 | 32 | 3 |
| 2006 | 63 | 63 | 30 | 33 | 6 |
| 2007 | 51 | 45 | 28 | 17 | 11 |
| 2008 | 61 | 60 | 29 | 31 | 9 |
| 2009 | 31 | 30 | 18 | 12 | 10 |
| 2010 | 41 | 37 | 22 | 15 | 13 |
| 2011 | 35 | 34 | 13 | 21 | 10 |
| 2012 | 25 | 26 | 18 | 8 | 7 |
| 2013 | 26 | 24 | 14 | 10 | 2 |
| 2014 | 22 | 22 | 15 | 7 | 6 |
| 2015 | 25 | 26 | 8 | 18 | 11 |
| 2016 | 18 | 18 | 15 | 3 | 10 |
| 2017 | 24 | 24 | 15 | 9 | 8 |
| Total | 549 | 549 | 291 | 258 | 118 |
|  |  |  |  |  |  |
| Average indicator | 39.21 | 39.21 | 20.79 | 18.43 | 8.43 |
| Median (central value) | 33 | 32 | 18 | 16 | 9,5 |
| Mode (most frequent value) | 25 | 26 | 15 | -[[4]](#footnote-5) | 10 |
| Range of variation | 52 | 56 | 26 | 39 | 11 |
| Smallest indicator | 18 | 18 | 8 | 3 | 2 |
| Largest indicator | 70 | 74 | 34 | 42 | 13 |

In 2017, the number of persons who sustained serious bodily injuries has significantly increased, but the number of fatalities has remained at the level of 2016. Average indicator when comparing data for 10 years: 54% of accidents have been with fatal consequences. Users of level crossings and people on platforms or crossing rail tracks, especially when under the influence of alcohol, are the highest risk categories.

In 2017, 24 serious accidents were detected that can be classified as derailment of trains; 15 accidents with people during the movement of rolling stock; and 7 accidents on level crossings with consequences). There were casualties in 99% of accidents.

In terms of traffic safety performance (serious accidents) as far as the volume of transport is concerned (train-kilometres) (2006 - 2017), the relative indicator is decreasing. In 2017, the increase can be seen, yet it has not exceeded the average ratio that is 0.21%.

71% of the data stands within the distance of one standard deviation from the arithmetical average. All data on accidents are within two standard deviations. Data corresponds to the normal distribution.

Accidents to people caused by rolling stock in motion still make up the largest proportion (on average 80–90%) of the total volume of accidents. Accidents with trains cause serious consequences because there are victims with serious or fatal consequences. When analysing data from 2004, it can be concluded that from the total number of accidents 54% are with fatal consequences; in 46%, victims sustain serious bodily injuries.

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| *Figure 3* ***Ratio of accidents per million train-kilometres*** |
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| *Figure 4.* ***Placement of serious accidents within one standard deviation and two standard deviations (2004 - 2017)*** |

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| --- | --- |
| Kopa nopietni negadījumi x | Serious accidents in total x |
| vidējais | Average |

Second largest ratio consists of accidents on level crossings. Whereas in these accidents, the largest percentage is formed not by collisions with road transport, but cases of colliding with a person who was crossing the level crossing. The number of collisions with vehicles has decreased significantly since 2009 and reached an average of three collisions a year, accounting for only 7.7% of the total number of accidents at level crossings. Persons who have not complied with safety requirements when crossing rail tracks (pedestrians, bicyclists) comprise 71% of the total number of accidents on level crossings. The causes of such accidents are both social and economic factors affecting the results of the accident. It is important to reduce the risk for users of level crossings, where people violate safety regulations.

Regardless of decrease in volume of railway carriage, accidents generally tend to decrease. Currently, it may not be ascertained that the number of fatal cases is decreased along with the number of accidents.

|  |  |
| --- | --- |
| Kopējais nopietnu negadījumu skaits | Total number of serious accidents |
| miesas bojājumi | injuries |
| letāls iznākums | Fatalities |
| Linear (Kopējais nopietnu negadījumu skaits | Linear (Total number of serious accidents |

|  |
| --- |
|  |
|  | **Accidents in total** | **Fatalities** | **Victims** |
| Trend | **Noticeable drop** | **Remains unchanged** | **Noticeable drop** |

*Figure 5.* ***Trends of victims (2006 - 2017)***

According to analysed data, it can be seen that as the number of accidents decrease to 35 accidents, the number of fatalities decreases as well. As the number of accidents drops below 35 accidents, the number of fatalities does not tend to decrease, indicating that most accidents are fatal.

*Table 6* ***Distribution of victims by age groups (2004 - 2017)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Age groups** | **Number** | **Absolute frequency %** | **Cumulative frequency %** | When analysing data by age groups (2004 - 2017), it is distributed throughout all age groups. A marked tendency has not been detected for a specific age group. For most of the victims the age is not known due to data privacy. Median of age groups is 68, signifying that 50% of victims do not reach the age of 68, and 50% is not less than median. Risk group in railway transport are persons older than 70 who cannot always critically assess the timing of crossing the rail tracks. For this age group, routine or usual customs for crossing the rail tracks should be mentioned. Routine creates danger to critical thinking. For example, the time for crossing the rails is not selected correctly before the approaching train. |
| 0-10 | 13 | 1.9% | 2% |
| 11-20 | 47 | 6.9% | 9% |
| 21-30 | 78 | 11.5% | 20% |
| 31-40 | 68 | 10.0% | 30% |
| 41-50 | 73 | 10.8% | 41% |
| 51-60 | 80 | 11.8% | 53% |
| 61-70 | 46 | 6.8% | 60% |
| 71 un vecāki | 54 | 8.0% | 68% |
| Nav zināms | 219 | 32.3% | 100% |
|  |  |  |  |

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|  | Factors affecting railway traffic safety can be shown schematically. |



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| --- | --- |
| Drošības ievērošanas kultūra | Culture of safety compliance |
| kritiskā domāšanā | In critical thinking |
| Vecums | Age |
| Sociālie faktori | Social factors |
| Dzimums | Sex |
| Laika apstākļi | Weather conditions |
| Cietušie | Victims |
| Infrastruktūrā | Infrastructure |
| Tehniskie faktori | Technical factors |
| Ritošais sastāvs | Rolling stock |
| Drošības aprīkojum | Safety equipment |
| Kustības organizācija | Traffic organisation |
| Ekonomiskie faktori | Economic factors |
| Vadība | Management |
| Mērķi | Aims |
| Finanses | Finances |

Social factors have a major influence, and it can be concluded that a high risk consists in critical thinking, sex and culture of safety compliance.

The largest ratio of accidents is recorded from 18:00 to 24:00, being 40% of the total number of accidents. 54% of accidents involved passenger trains and 46% of accidents involved freight trains. The breakdown by accident location is similar: 50% of accidents occurred at stations and 49% of accidents occurred at railway sections. The largest proportion of casualties were registered in the Riga agglomeration, especially on the section between Zasulauks and Priedaine (suburban traffic) and on route Riga – Krustpils (21% of the total number of accidents), where the train traffic density is high. When specific stations are considered, the highest number of accidents has occurred at Zemitāni station and Rēzekne 2 station which has heavy freight traffic.

Most victims in Latvia are found in the months of December (a reason might be Christmas depression); second comes February (cold weather and snow, people do not hear the sound signals); third is June (summer holiday begins and children suffer more), and September (return from holiday). The smallest number of victims is recorded for March. Serious accidents tend to be seasonal.

In 65% of accidents, the number of victims extends from one to five victims per month (2004 - 2017). The largest number of victims has been 18, when in 2005 a railway accident with many casualties was recorded. Most frequent (in 45 cases) are accidents with three victims per month.

When analysing demographic data (2004 - 2017), 70.89% of victims are men, moreover, of working age. 23.63% of victims are women. The injured men were under the influence of alcohol in 68% of cases and had not complied with safety regulations in the vicinity of rail tracks.

When distributing by categories of victims (2006 - 2017), the greatest percentage are unauthorised persons located in the area of increased hazard and crossing the level crossings. A rather large percentage is also formed by categories of those victims who had not complied with safety regulations on platforms. Writing text messages, listening to music on headphones and talking on the phone has affected the increase in number of victims on platforms. Social factors significantly affect the accidents in Latvia, and it is difficult to influence these factors.

It should be noted that since 2008, no accident has been registered with victims who are passengers. It is a very good indicator at the EU level. Distribution of victims by categories from 2004 to 2017 is shown in Figure 9.

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| *Figure 6.* ***Histogram of number of victims per month*** |
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| --- | --- |
| Biežums | Frequency |
| Vairāk | More |
| Intervālu viduspunkti | Midpoints of intervals |

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| *Figure 7.* ***Distribution of victims by sex (2004 - 2017)*** |
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|  |  |
| --- | --- |
| Sieviete | Female |
| Vīrietis | Male |
| Bez cietušajiem | Without casualties |

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| *Figure 9.* ***Categories of victims (2004 - 2017)*** |
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|  |  |
| --- | --- |
| nodarbinātais | Employee |
| pārbrauktuves lietotājs | Level crossing user |
| cita persona ārpus perona | Other persons outside the platform |
| cita persona uz perona | Other persons on the platform |
| pasažieris | Passenger |
| nepiederoša persona | Unauthorised person |

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*Table 7* ***Accidents to people caused by rolling stock in motion, by years***

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| --- | --- | --- |
| Year | Accidents to people caused by rolling stock in motion | When analysing the victims in the category of accidents to people caused by rolling stock in motion, the excess coefficient is 1.0981195. It can be concluded that variation row values of victims have been dispersed over a wide range; the values are not concentrated in arithmetic average vicinity (30.07).But the coefficient of asymmetry is 0.74817. Variation row is positively asymmetric; lower values than arithmetic average can be observed (30.07 accidents per year). |
| 2004 | 57 |
| 2005 | 50 |
| 2006 | 52 |
| 2007 | 37 |
| 2008 | 45 |
| 2009 | 19 |
| 2010 | 27 |
| 2011 | 26 |
| 2012 | 18 |
| 2013 | 22 |
| 2014 | 18 |
| 2015 | 20 |
| 2016 | 15 |
| 2017 | 15 |

Accurate data which provides information on how, where and how far people move and on the identity of these people is necessary for the development of railway traffic safety and understanding of security problems. Together with the information on accidents, it allows assessment of the risk to society as a whole or with regard to certain categories of risks or accident types. In order to assess the differences of risks and in development of risks, there is a need for regular evaluation. Therefore, in particular, the Inspectorate shall draw attention to accident data records.

SRTI has performed multi-factor regression analysis (2004 - 2017). As influencing factors, the number of train-kilometres and population in the country were taken. It can be concluded that if the number of train-kilometres increases by 1 million, the number of accidents decreases by 1.29 cases (or decreases by 1.2%); and if the population increases by 1,000, the number of accidents increases by 0.15 cases (or increases by 0.4%).

Focusing on specific topics, regular data analysis is performed, for example, characterisation of injuries and causes of action, as well as a forecast of safety level for the next period.

*Figure 10.* ***Multi-factor regression of serious accidents***

|  |  |
| --- | --- |
| Kopa nopietni negadījumi | Serious accidents in total |
| Lineārais modelis | Linear model |
| Nelineārais modelis | Non-linear model |

If we analyse railway traffic safety violations, a slight increase in the number of railway traffic safety violations in 2017 can be observed. The number of violations when the rolling stock passed the prohibitive signal has increased slightly. Cases where a more permissive signal is switched on instead of a prohibitive one have not been registered since 2010.

*Table 8* ***Railway traffic safety violations, distribution thereof by types, by years***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Total violations** | **Broken rails** | **Geometric deviations of tracks** | **Cases when a more permissive signal is switched on instead of a prohibitive one** | **Rolling stock passing the prohibitive signal** | **Damaged or broken wheel axles** | **Fractures of wheel axles** |
| 2004 | **15** | 6 | 1 | 1 | 4 | 3 | 0 |
| 2005 | **29** | 8 | 9 | 0 | 5 | 6 | 1 |
| 2006 | **16** | 1 | 1 | 3 | 4 | 5 | 2 |
| 2007 | **18** | 5 | 1 | 0 | 2 | 9 | 1 |
| 2008 | **14** | 4 | 3 | 0 | 5 | 2 | 0 |
| 2009 | **20** | 11 | 4 | 0 | 4 | 1 | 0 |
| 2010 | **14** | 7 | 0 | 1 | 6 | 0 | 0 |
| 2011 | **13** | 9 | 2 | 0 | 2 | 0 | 0 |
| 2012 | **17** | 9 | 5 | 0 | 3 | 0 | 0 |
| 2013 | **12** | 4 | 2 | 0 | 4 | 2 | 0 |
| 2014 | **10** | 3 | 2 | 0 | 3 | 2 | 0 |
| 2015 | **7** | 1 | 0 | 0 | 6 | 0 | 0 |
| 2016 | **4** | 2 | 1 | 0 | 1 | 0 | 0 |
| 2017 | **6** | 1 | 1 | 0 | 3 | 1 | 0 |
| Total | 195 | 71 | 32 | 5 | 52 | 31 | 4 |
|  |  |  |  |  |  |  |  |
| Average indicator | 13.93 | 5.07 | 2.29 | 0.36 | 3.71 | 2.21 | 0.29 |
| Median (central value) | 14 | 4.5 | 1.5 | 0 | 4 | 1.5 | 0 |
| Mode (most frequent value) | 14 | 1 | 1 | 0 | 4 | 0 | 0 |
| Range of variation | 25 | 10 | 9 | 3 | 5 | 9 | 2 |
| Smallest indicator | 4 | 1 | 0 | 0 | 1 | 0 | 0 |
| Largest indicator | 29 | 11 | 9 | 3 | 6 | 9 | 2 |

The number of cases of broken rails has significantly decreased due to compliance with welding procedures. There is a close link or visible correlation between broken rails and weather conditions, when rapid fluctuations in temperature can be observed. The number of violations of railway safety regulations is tending to decrease; however, some risks have been identified in connection with traffic safety problems in specific sections of public railway infrastructure, i.e. defects of signalling and communication equipment and violations of operational processes.

The largest percentage of violations (2006 - 2017) is made up of broken rails (36.4% of violations) and passing the prohibitive signal. The central value of violations is 14 violations, indicating that 50% of the violations annually are under the central value, and 50% are above the central value. The least number of accidents has taken place due to fractures of wheel axles.

Passing the prohibitive signal is affected by the following factors: placement of signals, knowledge of route, personal factors (fatigue, length of work, load, skills and competence), communication and compliance with conversation regulations.

Analysing the data for the period from 2004 to 2017, the total number of accidents does not exceed 20 cases per year. The number of violations of railway traffic safety also displays a trend to decrease.

By performing a multi-factor regression analysis of violations and assessing how it is affected by volume of carriage by rail (number of train-kilometres) and population in the country, it may be concluded that if the number of train-kilometres increases by 1 million, the number of violations increases by 1.7 cases; and if the population increases by 1,000, the number of violations increases by one case. By assessing this data, it may be concluded that assessment of violations and causes thereof has a significant effect. Serious consequences and casualties are not observed from violations.

|  |
| --- |
|  |
| *Figure 11.* ***Distribution of violations by type (2006 - 2017)*** |
|

|  |  |
| --- | --- |
| Sliežu lūzumi | Broken rails |
| Sliežu ceļu ģeometrijas novirzes | Geometric deviations of tracks |
| WSSF | WSSF |
| SPAD | SPAD |
| Riteņu ass bojājumi vai lūzumi | Damaged or broken wheel axles |
| Ass lūzumi | Broken axles |

 |

|  |
| --- |
|  |
| *Figure 12.* ***Multi-factor regression on violations (2004 - 2017)*** |
|

|  |  |
| --- | --- |
| Kopa pārkāpumi | Total violations |
| Lineārais modelis | Linear model |
| Nelineārais modelis | Non-linear model |

 |

By performing an analysis of indicators, it can be seen that the number of railway traffic accidents is tending to decrease. Traffic safety in the country is not worsening. SRTI underlines that each accident must be investigated because it is necessary to identify causes and risks in order to prevent similar cases. Causes of accidents may be shortcomings in maintenance, non-compliance with procedures, as well as incorrect action of specialists in work and emergency situations, lack of knowledge, fatigue or inattention. It is impossible to completely avoid these instances, however, such measures must be introduced that reduce the number thereof to a minimum.

# **Certification**

SRTI is responsible for issuing Parts A and B of Railway Safety Certificates and Safety Certificates, as well as for testing and certifying railway specialists. The procedure of verifying compliance is free of charge.

|  |  |
| --- | --- |
|  | All information on the certification process is available on the website of SRTI [www.vdzti.gov.lv](http://www.vdzti.gov.lv/), section Certification/Safety certification or Certification/Safety permits or Certification of engine drivers. Information is updated continuously.  |
|  |  |

# Safety Certificate

Cabinet Regulation No 168 of 10 March 2008 ‘[Regulations Regarding the Procedures and Criteria](http://www.likumi.lv/doc.php?id=172807)’ states that railway carriers should provide and maintain the safety management system, which shall include the risk assessment and control, competence and security management. A safety certificate shall be issued to railway undertakings that comply with the requirements for technical operations and meet the safety requirements regarding personnel, rolling stock and the internal structure of a commercial company.

There are six commercial companies in Latvia, which, in accordance with the current safety regulations, have the right to provide railway (freight, passenger) transport services using the public railway infrastructure: *LDZ Cargo* Ltd., JSC *Baltijas Ekspresis*, JSC *BALTIJAS TRANZĪTA SERVISS*, *Gulbenes –Alūksnes bānītis* Ltd. (narrow gauge railway), JSC *Pasažieru vilciens, Euro Rail Cargo Ltd.* and JSC *Lietuvos geležinkeliai*.

|  |  |  |
| --- | --- | --- |
|  | Average indicator  | 5.42 |
| Central value | 6.5 |
| Most frequent value | 8 |
| Trend | Noticeable drop |
| Lowest indicator | 0 |
| Highest indicator | 10 |
| Total indicator | 76 |
| *Figure 13.* ***Certification indicators, by year (2004 - 2017)*** |  |  |

Since 2004, SRTI has issued 76 certificates. Average indicator is 5.42 certificates per year. The most safety certificates were issued in 2017. By assessing the data and taking into account implementation of the single safety certificate, it can be expected that the number of issued safety certificates will decrease.

*Table 9* ***Indicators of issued certificates, by year (2011 - 2017)***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** |
| **Safety certificate issued - Part A** | **1** | **0** | **4** | **0** | **1** | **2** | **2** |
| new safety certificate | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| renewed safety certificate | 1 | 0 | 4 | 0 | 0 | 1 | 0 |
| adjusted/amended safety certificate | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| for passenger and freight transport | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| for passenger transport | 1 | 0 | 1 | 0 | 0 | 2 | 0 |
| for freight transport | 0 | 0 | 2 | 0 | 1 | 0 | 2 |
| **Safety certificate issued - Part B** | **6** | **1** | **3** | **2** | **1** | **3** | **8** |
| new safety certificate | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| renewed safety certificate | 1 | 0 | 3 | 1 | 0 | 1 | 6 |
| adjusted/amended safety certificate | 5 | 0 | 0 | 1 | 1 | 2 | 1 |
| for passenger and freight transport | 2 | 1 | 0 | 1 | 0 | 0 | 1 |
| for passenger transport | 2 | 0 | 1 | 0 | 1 | 2 | 0 |
| for freight transport | 2 | 0 | 2 | 1 | 0 | 1 | 7 |
|  |  |  |  |  |  |  |  |

|  |  |
| --- | --- |
|  | Safety certificate Part A is registered in a unified register maintained by ERA under a certificate number defined for the member state. Safety certificates (Part A) issued by member states to the carrier companies may be viewed on the website of the European Union Agency for Railways.  |

In 2017, SRTI received 12 applications for receipt of safety certificates, and 10 decisions were made on the matter. Two decisions were made in January 2018.

# Safety permit

 Cabinet Regulation No 57 of 18 January 2011 ‘[Regulations Regarding the Criteria and Procedure for the Issuance, Suspension and Revocation of a Safety Permit](http://www.likumi.lv/doc.php?id=225509)’ set out requirements **for the issue of railway safety permits.** Safety permits are issued for construction and repair of rolling stock, construction, repair and maintenance of equipment for railway infrastructure, management of railway infrastructure and shunting operations.

During the reporting year, SRTI issued 95 safety certificates, suspended 21 safety certificates and revoked 19 safety certificates.

*Table 10* ***Indicators of issued safety permits, by year (2011 - 2017)***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|   | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** |
| **Fields of operation** |  |  |  |  |  |  |  |
| construction, repair and maintenance of rolling stock  | 6 | 7 | 9 | 6 | 7 | 4 | 5 |
| entity responsible for maintenance, including |  | 20 | 20 | 30 | 18 | 4 | 34 |
| *maintenance of freight wagons* |  |  | 18 | 10 | 6 | 2 | 22 |
| construction, repair and maintenance of equipment for railway infrastructure | 29 | 35 | 54 | 33 | 38 | 23 | 51 |
| shunting operations | 3 | 4 | 7 | 12 | 6 | 18 | 5 |
| railway infrastructure management | 56 | 14 | 39 | 39 | 102 | 101 | 49 |
|  | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** |
| **Type of safety permit** |  |  |  |  |  |  |  |
| new safety authorisation | 65 | 60 | 48 | 25 | 84 | 29 | 46 |
| renewed safety authorisation | 10 | 6 | 29 | 25 | 42 | 46 | 41 |
| adjusted/amended safety authorisation | 10 | 4 | 24 | 24 | 23 | 27 | 8 |
| **Safety permits revoked** | **3** | **10** | **17** | **12** | **27** | **20** | **19** |
| **Suspended safety permits** | **9** | **11** | **20** | **11** | **20** | **44** | **21** |

|  |  |  |
| --- | --- | --- |
|  | Average indicator  | 62.64 |
| Central value | 72 |
| Most frequent value | N/A |
| Trend | Observed increase |
| Lowest indicator | 0 |
| Highest indicator | 161 |
| Total indicator | 947 |
| *Figure 14.* ***Indicators of issued safety permits, by year (2004 - 2017)*** |  |  |

The average number of issued safety permits per year is 62.64 permits. The highest indicator was in 2010, when 161 safety permits were issued, which may be related to the expiry of transitional period. When assessing the data, it can be observed that the number of issued safety permits tends to increase. Increase is related to renewable permits - due to change of name of the commercial company, change of registered office, changes in the area of commercial activity or restructuring of companies.

# Certification of traction-vehicle drivers, assistant drivers and driver instructors

Certification process of SRTI is regulated by the Cabinet Regulation No 236 of 28 March 2006 ‘[Regulations on the Qualification Requirements of a Traction Vehicle Driver’s (Train Driver’s) Instructor and a Traction Vehicle Driver’s (Train Driver’s) Assistant and the Certification Procedure](http://www.likumi.lv/doc.php?id=132340)‘ (lays down the certification requirements for certification of train driver instructors and assistants) and the Cabinet Regulation No ‘[Regulations Regarding Obtaining a Traction Vehicle Driver’s (Train Driver’s) Qualification and Licence to Drive a Traction Vehicle (14 September 2010)](http://www.likumi.lv/doc.php?id=219230)’ (lays down the certification requirements for certification of train drivers).

In the reporting year, SRTI has organised 306 examinations, granting certificates to 240 persons, that is 78% of the total number of examinations. It can be observed that the results of examinations are improving. That is, more examinations have been passed with a positive result in relation to all organised examinations.

*1*

*Table 11* ***Descriptive indicators of issued safety permits (2005 - 2017)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Train-driver instructors | Train-drivers | Train-driver assistants | Total |
| Average indicator  | 17.21 | 193.28 | 117.07 | 327.57 |
| Central value | 15.5 | 164 | 108 | 306.5 |
| Most frequent value | 36 | 346 | - | - |
| Trend | 10.54 | 108.45 | 55.97 | 156.68 |
| Lowest indicator | 0 | 0 | 0 | 0 |
| Highest indicator | 36 | 346 | 203 | 548 |
| Total indicator | 241 | 2706 | 1639 | 4586 |

When assessing the data, it can be observed that on average 327.57 certificates were granted per year; the largest number of granted certificates was in 2008, when 548 certificates were granted. The number of granted certificates is tending to increase. Certification is characteristically cyclical because the certificates are issued for five or six years. When evaluating the cycle, when after each five or six years, the drivers of traction vehicles are repeatedly certified, the number of certified specialists does not significantly change; in separate categories an increase of 5-10% can be seen. The highest percentage of the granted certificates consists of certificates granted to tractions vehicle drivers (train drivers). This forms 59% of the total number of certificates. Since 2005, SRTI has issued a total of 4,586 certificates.

# **Supervision**

Railway carriers, managers of infrastructure and other parties involved in railway transport must effectively implement their safety management and internal supervision systems in order for the railway system in general to be safe.

|  |  |
| --- | --- |
|  | SRTI areas of supervision are technical use supervision; to inspect whether carriers and infrastructure managers comply with their legal status; assessment of efficiency of safety management systems; to ensure whether companies are aware of their risks and manage these; to ensure inspections of rolling stock and railway infrastructure construction objects; supervision of dangerous goods carriage; supervision of level crossings; and investigation of railway traffic accidents. |

# Inspections, audits and checks

To schedule the inspections, SRTI has defined clear criteria for the frequency and periodicity of checks in commercial enterprises. Each year on the basis of risks, SRTI prepares a supervision plan by defining which railway objects and companies should be inspected. After preparation of the annual plan on the basis of collected information and identified risks, a monthly work plan is developed in more detail, defining accurately the objects to be inspected. In determining the overall scope of an inspection, SRTI appraises information already available to the Inspectorate and analyses risks and collects information on the implementation of recommendations given during the last inspection.

In 2017, 124 inspections were carried out. When analysing the inspections, it can be seen that the number of inspections tends to increase. º

|  |  |  |
| --- | --- | --- |
| *Figure 15.* ***Supervision indicators, by year*** | Average indicator  | 137.38 |
| Central value | 124 |
| Most frequent value | 161 |
| Trend | Observed increase |
| Lowest indicator | 94 |
| Highest indicator | 186 |
| Total indicator | 1786 |

It can be expected that the number of inspections may decrease in future due to gradual implementation of safety management systems auditing (hereinafter referred to as DPS). Auditing of one carrier requires an assessment period of at least six months. For that reason, it is planned that the scope of inspections has been decreasing gradually over a five-year period by 6-13% a year on average. In 2017, SRTI concluded a large-scale inspection DPS audit for one carrier which was initiated in 2016.

DPS auditing is planned for the period of three years. There are DPS identified risks by carriers. Currently, priority audits and the number of audited elements have been identified.

*Table 12* ***Assessment of planned audits 2018 - 2021***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Priority** | **Number of carriers** | **Planned year of auditing** | **Scope of auditing** | **Expected period of auditing (in months)** | **Previously performed audit (year)** | **Assessment** |
| high | 2 | 2018 | large | 18 | N/A | N/A  |
| small | 6 | yes | 2 DPS elements must be post-tested |
| Medium | 5 | 2019-2021 | large | 18 | yes | Improvements necessary in separate DPS elements |
| Medium | 9 | yes/no | N/A  |
| small | 6 | yes | Improvements necessary in separate DPS elements |

When performing DPS audits, DPS elements have been identified which carriers need to develop in order to improve the management of organisational safety. After summary and analysis of data, risks exist for the following elements:

* Safety policy;
* Qualitative and quantitative objectives for maintenance and improvement of safety, plans and procedures for achieving such objectives;
* Circulation of internal information, especially regarding circulation of dangerous goods;
* Performance of internal audits for DPS elements;
* Procedures and methods for carrying out risk assessment and implementing risk control measures whenever operating conditions or other materials impose new risks on operation.

Taking into account the significance of these elements, SRTI has ensured negotiations with each carrier regarding possible improvement measures of DPS elements.

From the total number of inspections in 2017, in 85% of cases the planned inspections were ensured. The number of unscheduled inspections by year varies by 15-30%. In 2017, in approximately 67% of cases, SRTI carried out comprehensive inspections in order to reduce the administrative burden and at the same time check all possible areas of work. In specific inspections, individual in-depth inspections are carried out, for example, standards for the maintenance of railway tracks or technical condition of rolling stock, or supervision of the transport of dangerous goods.

*Table 13* ***Supervision indicators, by year***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** |
| **Inspections** | **121** | **94** | **161** | **186** | **174** | **161** | **126** |
| Audit of the elements of the safety management system | 6 | 7 | 6 | 2 | 1 | 1[[5]](#footnote-6) | 1 |
| **comprehensive inspections** | 17 | 35 | 55 | 55 | 91 | 84 | 81 |
| **specific inspections** | 98 | 54 | 100 | 128 | 82 | 77 | 44 |
| **Decisions taken regarding** |  |  |  |  |  |  |  |
| Prohibition of use of rail tracks  | 26 | **10** | 35 | 17 | 48 | 62 | 74 |
| Removal of the rolling stock from use  | 13 | **8** | 5 | 10 | 24 | 22 | 23 |
|  Suspension of the railway specialists from work duties | 0 | **0** | 3 | 6 | 13 | 2 | 1 |
| Orders issued  | 78 | **75** | 118 | 150 | 89 | 75 | 75 |
| Audit reports drawn |  |  |  | 2 | 1 | 0 | 1 |
| Administrative reports drawn | 4 | **2** | 2 | 1 | 8 | 10 | 7 |

Each year the number of prohibitions on use of rail tracks increases. Insufficient attention to technical condition of rail tracks can be cited as a reason. In 2017, seven administrative protocols were drafted by applying fines for non-compliance with the proximity of structures, non-compliance with safe traffic organisation, insufficient maintenance of rail tracks and organisation of unauthorised works.

|  |  |
| --- | --- |
|  | After amendments to the Railway Law in relation to transposition of the fourth railway package, SRTI will ensure development of annual safety plans by setting out measures intended to achieve common safety goals. |

SRTI ensures inspection of level crossings as well. Senior inspectors participated in 213 annual level crossing commission inspections in 2017. It is the highest achieved indicator as of 2004. According to statistical calculations, the average number of inspected crossings is 130 crossings per year.

The inspections of level crossings are organised in accordance with Cabinet Regulation No 392 of 6 October 1998 ‘[Regulations on Constructing, Equipping, Servicing, and Closure of Railway Level Crossings](http://www.likumi.lv/doc.php?id=50059)’. Apart from participating in the annual commission inspections, the senior inspectors also participated in the commission work on the construction, equipping or closure of railway level crossings. In the reporting year, inspectors have taken part in nine level crossing installing, equipping or closing commission work.

# Commissioning of construction objects

In 2017, SRTI has commissioned 36 construction objects. Commissioning of infrastructure facilities is carried out in accordance with Cabinet Regulation No 530 of 2 September 2014 ‘[Railway Building Regulations](http://likumi.lv/doc.php?id=269165)’.

When commissioning the railway infrastructure facilities, compliance of the facilities with railway technical operation and interoperability requirements shall be verified.

|  |  |
| --- | --- |
|  | All information on commissioned construction objects can be found on SRTI website [www.vdzti.gov.lv](http://www.vdzti.gov.lv/), Construction plans section. |

*Table 14* ***Indicators of commissioned construction objects, by year***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** |
| **Commissioned construction objects** | **101** | **98** | **33** | **38** | **76** | **51** | **36** |
| renewal | 5 | 6 | 11 | 11 | 14 | 5 | 3 |
| newly erected building | 29 | 60 | 13 | 10 | 17 | 6 | 22 |
| rebuilding | 9 | 5 | 9 | 7 | 45 | 40 | 11 |
| modernisation | 58 | 27 | 0 | 0 | 0 | 0 | 0 |

The highest indicator was achieved in 2011 when 101 objects were commissioned by means of the EU structural funds. Currently, a drop can be observed in construction that might be related to initiated projects that are not yet finished.

|  |  |
| --- | --- |
|  | After approval of amendments to the Railway Law, SRTI will ensure granting of permits to use of train control and stationary signalling field equipment, energy supply and infrastructure sub-systems. |

# Putting rolling stock into service

Cabinet Regulation No 1211 of 28 December 2010 ‘[Regulations on Construction, Modernisation, Renovation Repairs, Compliance Assessment and Putting into Service of Rolling Stock](http://www.likumi.lv/doc.php?id=223860)’sets out the procedure for putting rolling stock type and unit in use. Before starting the operation, the rolling stock shall be authorised for placing into service in Latvia.

In 2017, SRTI accepted 7 rolling stock types and 75 rolling stock units into service. The number of new rolling stock types placed into service has increased, but the number of units placed into service has significantly decreased, which might be due to completion of change of the rolling stock and also economic influence due to decrease in freight transport.

*Table 15* ***Indicators of rolling stock accepted into service, by year***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** |
| **Accepted types of rolling stock** | **3** | **7** | **3** | **5** | **6** | **8** | **7** |
| traction vehicle | 2 | 6 | 1 | 1 | 2 | 5 | 3 |
| freight wagon | 1 | 1 | 0 | 3 | 0 | 1 | 3 |
| special vehicle | 0 | 1 | 1 | 1 | 3 | 2 | 1 |
| passenger wagon | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| **Units of the rolling stock accepted for placing into service** | **296** | **807** | **565** | **325** | **146** | **82** | **75** |
| freight wagon | 282 | 791 | 552 | 304 | 102 | 53 | 28 |
| special rolling stock | 1 | 1 | 5 | 6 | 14 | 4 | 5 |
| traction rolling stock | 13 | 15 | 8 | 15 | 20 | 25 | 42 |
| passenger wagon | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| after modernisation | 38 | 14 | 16 | 10 | 15 | 28 | 14 |
| newly built | 154 | 730 | 521 | 289 | 14 | 5 | 22 |
| used, placed on the market for the first time | 104 | 63 | 28 | 26 | 117 | 49 | 39 |

|  |  |
| --- | --- |
|  | Information on types and units of rolling stock put into service can be found on the SRTI website [www.vdzti.gov.lv](http://www.vdzti.gov.lv/), under the section Certification/Putting into service of rolling stock.  |

#

# **Draft laws**

In 2017, SRTI prepared and submitted to the Ministry of Transport a draft law regarding issues of safety certification in relation to transposition of the EU laws. Cabinet regulations are binding to all parties involved in the railway sector.

*Table 16* ***Number of prepared draft regulatory enactments*** ***by year***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|   | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** |
| Number of prepared draft regulatory enactments in the reporting year | 10 | 11 | 7 | 8 | 8 | 3 | 1 |

Amendments in 2017 were made to Cabinet Regulation No 168 of 10 March 2008 ‘[Regulations Regarding the Procedures and Criteria for Issuing, Suspending and Revoking Part A and Part B of a Safety Certificate](http://www.likumi.lv/doc.php?id=172807)’.

|  |  |
| --- | --- |
|  |  In 2017, work was started on transposition of the fourth railway package by preparing proposals for amendments to the Railway Law The work is continued in 2018 as well, and has been planned for 2019. Significant changes to processes have been planned, and new tasks and authorisations have been set.  |
|  |  |

#

# **Safety culture**

The term used to describe the ideas, habits and social behaviour of a particular group of people that affects safety.

SRTI at first wishes to identify shortcomings identified during audits, analyse these and only after identification of accurate problems to begin discussions with the parties involved in railway transport matters of safety culture. An accurate assessment must be performed that would affect safe behaviour and safe culture. Analysis of interviews with employees of organisations allows the main influencing factors to be determined.

Currently, SRTI has identified that preventive elements in organisations are:

* Lack of common vision, mission or aims, that is, strategies do not fully assess the safety risks;
* Failure to implement the safety policy: inability to introduce or implement the safety requirements;
* Human factor: inappropriate work environment and work conditions, non-compliance with technological processes, unwillingness to learn from the previous accidents, failure to identify correlations;
* Significance of understanding safety: priority has not been set for safety, opportunity to learn from the mistakes of others is not used;
* Management organisation is separate processes not in line with safety and aims of organisation: there is no open communication with the employees;
* Identification of risks, failure to identify risks;
* Structured approach of change management.

In order to continue solving these issues, involvement of employees within the organisations is necessary, as well as open communication within the organisation and description of processes. Approach to process organisation, definition of goals, reducing the human factor should be correct and of high quality.

Annex

**Frequency indicators in histograms (2004 - 2017)**

|  |  |  |
| --- | --- | --- |
| Significant accidents in total |  |  |
| *Midpoints of intervals* | *Frequency* | *Cumulative frequency %* |
| 18.00 | 1 | 7.14% |
| 35.33 | 7 | 57.14% |
| 52.67 | 2 | 71.43% |
| More | 4 | 100.00% |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
| Accidents on level crossings |  |
| *Midpoints of intervals* | *Frequency* | *Cumulative frequency %* |
| 2.00 | 1 | 7.14% |
| 5.33 | 4 | 35.71% |
| 8.67 | 3 | 57.14% |
| More | 6 | 100.00% |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Accidents during movement of rolling stock |
| *Midpoints of intervals* | *Frequency* | *Cumulative frequency %* |
| 15 | 2 | 14.29% |
| 29 | 7 | 64.29% |
| 43 | 1 | 71.43% |
| More | 4 | 100.00% |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Victims in accidents  |
| *Midpoints of intervals* | *Frequency* | *Cumulative frequency %* |
| 18 | 1 | 7.69% |
| 34 | 7 | 61.54% |
| 50 | 2 | 76.92% |
| More | 3 | 100.00% |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Fatalities |
| *Midpoints of intervals* | *Frequency* | *Cumulative frequency %* |
| 8 | 1 | 7.14% |
| 16.67 | 5 | 42.86% |
| 25.33 | 3 | 64.29% |
| More | 5 | 100.00% |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Injuries |
| *Midpoints of intervals* | *Frequency* | *Cumulative frequency %* |
| 3 | 1 | 7.14% |
| 16 | 6 | 50.00% |
| 29 | 3 | 71.43% |
| More | 4 | 100.00% |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
| Biežums | Frequency |
| Vairāk | More |
| Intervālu viduspunkti | Midpoints of intervals |

1. Annual Public Report 2017 of the State Railway Administration. [↑](#footnote-ref-2)
2. Transport in Latvia 2018. Compilation of statistical data. [↑](#footnote-ref-3)
3. Commission Decision of 23 April 2012 (2012/226/EU) on the set of common safety targets as regards the rail system [↑](#footnote-ref-4)
4. Does not contain homogeneous data [↑](#footnote-ref-5)
5. Initiated [↑](#footnote-ref-6)