



NIB ANNUAL REPORT 2025

Safety Investigation Authority

FINLAND

PREFACE TO REPORT

This is the annual report of railway sector of the Safety Investigation Authority, Finland (SIAF) for the calendar year 2025.

National investigation ID

From the beginning of the year 2012, the identification of accident investigation reports has been as follows:

Accident/incident categories

- L - Aviation accidents and incidents
- R - Rail accidents and incidents
- M - Marine accidents and incidents
- Y - Other accidents and incidents
- T - Social and healthcare accidents and incidents
- P - Exceptional events

Investigation identifier

Each investigation is designated by an identifier that consists of three parts, such as R2012-01.

- The first part refers to the investigation branch (L, R, M, Y, T or P).
- The second part refers to the year of accident occurrence.
- The third part is a sequence number referring to the order of the accident within its accident category in the year in question. "S" in the beginning of the number means that the investigation is a thematic investigation (safety study).

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1 INTRODUCTION TO INVESTIGATION AUTHORITY

1.1 Legal Basis

The SIAF is an independent and impartial authority that works as a part of the joint Agency for the Special Authorities in Judicial Administration. Agency brings together eleven independent and autonomous authorities and a unit providing administrative services for them. The SIAF was founded in 1996. The tasks of SIAF are specified in the relevant national Finnish legislation (Safety Investigation Act 525/2011). The Act also contains the overall framework of the methods and powers under which an investigation is carried out. In Finland, the Safety Investigation Authority is a multimodal investigation authority, which investigates aviation, maritime, rail, other accidents and incidents and social and healthcare accidents and incidents. The Safety Investigation Act also provides for the procedure to be followed in the event of exceptional and very serious events that, while not accident, have threatened or seriously damaged the basic functions of the society. The Safety Investigation Act also enables the investigation of several similar accidents in a single investigation as a safety study.

The current Safety Investigation Act is in harmony with the Railway Safety Directive.

1.2 Role and Mission

The purpose of a safety investigation is to promote general safety and prevent new accidents from occurring.

A safety investigation examines the course of events related to the accident or incident, its causes and consequences, search and rescue operations as well as actions taken by other authorities. The investigation specifically examines whether safety has adequately been taken into consideration in the activity leading up to the accident and in the planning, manufacturing, construction and use of the equipment and structures that caused the accident or incident or at which the accident or incident was directed. The investigation also examines whether the management, supervision and inspection activity has been appropriately carried out. The goal of a safety investigation is to discover causes and underlying factors contributing to the accident or incident in addition to its immediate cause, which may be found in e.g. the organisation, the instructions or the working methods.

When taking a decision to investigate, the seriousness and the probability that such an incident will recur are considered. An incident (or hazard) with minor consequences should be investigated if several people are in danger and if the investigation is estimated to significantly improve general safety and prevent future accidents from occurring.

Once a safety investigation is completed, an investigation report is published. The report contains safety recommendations that address specific issues discovered during the investigation and specific actions that help in preventing similar accidents from occurring in the future. The recommendations are addressed to appropriate authorities in charge of implementing the changes needed to prevent future accidents and incidents from occurring. SIAF monitors the implementation of recommendations.

Safety investigations are not conducted to allocate legal liability or handle matters of compensation. Other authorities and agencies are responsible for that task.

Task of Safety Investigation Authority

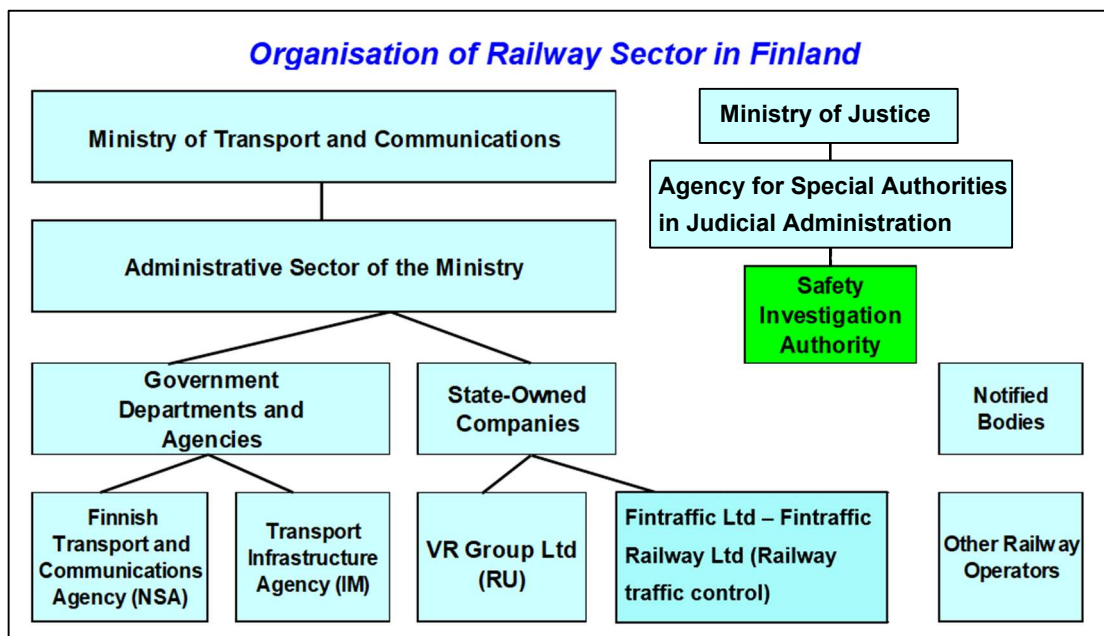
The Safety Investigation Act (525/2011) defines the task and the mandate of SIAF. The Safety Investigation Act of Finland provides definitions for the types of accidents and incidents investigated by the Authority and how they are investigated. References to EU and international regulations have been included in the Safety Investigation Act

The task of SIAF is to investigate all major accidents and serious incidents regardless of their type, as well as social- and health care, aviation, rail traffic and maritime traffic accidents and incidents.

SIAF task is to:

- ensure the general organisation, planning, guidance, provision of information, and supervision of a safety investigation
- train persons suitable to be investigators
- maintain readiness to quickly initiate an investigation
- attend international cooperation fora connected with the safety investigation field
- provide support for the investigation of exceptional events
- issues safety recommendations and monitors their implementation

1.3 Organisational flow



2 INVESTIGATION PROCESSES

2.1 Cases to be investigated

Accidents and incidents to be investigated:

- **Rail traffic accidents**, which due to fatalities or injuries, the extent of damage incurred to the environment, property or assets, or nature of the accident can be regarded as particularly serious (**major accident**)
- **Serious railway accidents** as specified in Article 3 of the Directive (EU) 2016/798 of the European Parliament and of the Council on railway safety.
- and **any similar accidents in private or public rail traffic**
 - metro accidents
 - tramway accidents

Any serious incident and other accident or incident may be investigated in accordance with the Safety Investigation Act. Also, a joint investigation of several similar accidents or incidents may be conducted in accordance with the Act.

2.2 Institutions involved in investigations

SIAF can investigate all rail accidents. Its investigation reports are public. According to The Rail Transport Act (1302/2018), the Finnish Transport and Communications Agency can investigate those occurrences that SIAF does not investigate. The investigation reports of the latter are not public.

Level crossing accidents

Road accident investigation teams of Finnish Crash Data Institute (OTI) investigate all fatal road and off-road traffic accidents in Finland, including level crossing accidents. Preventing them is crucial from the human perspective, but also from the economic perspective. In addition, the teams investigate on project basis accidents that have caused serious personal injury and property damage to clarify certain specific questions.

The main aim of the investigation is to promote road safety. Accident investigations do not handle guilt or compensation issues.

Investigation is regulated by legislation on the investigation of road and off-road traffic accidents (Act on the investigation of road and off-road traffic accidents, 1512/2016).

The Finnish Crash Data Institute (OTI) coordinates the work of road accident investigation teams but does not intervene in the independent working of the teams. OTI also takes care of the training of the teams, the use of investigation results, and information services.

There are 20 investigation teams operating in different parts of Finland. They have a total of approximately 300 members. The teams are mainly positioned according to the current regional borders. The teams independently study the reasons for road accidents and make proposals to improve safety. The investigation team members are subject to public liability and must respect a non-disclosure obligation.

The task of road accident investigation teams is to determine the underlying factors for an accident and to propose the necessary actions to improve traffic safety. The material collected is used in traffic safety work, the work of public authorities, international cooperation and communication. The teams do not investigate guilt or compensation issues related to accidents.

In addition to the above, SIAF can investigate any accident which has taken place in Finland, including road and off-road accidents. When SIAF has initiated an investigation, any other authority or instance that has initiated a safety investigation shall transfer any investigation material it has compiled to SIAF. Finally, it is worth mentioning that SIAF has investigated about 80 level crossing accidents and made four safety studies on level crossing accidents since it came into being.

2.3 Implementation of the Commission implementing Regulation (EU) 2020/572

Investigation reports of SIAF are issued following the structure described in the Regulation (EU) 2020/572, as closely as possible and adapted to the type and seriousness of the accident or incident. SIAF uses a common reporting format for all investigation branches; therefore, the structure does not completely follow Regulation (EU) 2020/572.

Summary and Safety Recommendations are also translated into a second official European language (in English and in Swedish). These translations are published at the same time as the investigation report.

SIAF sends the investigation report in Finnish and the translated parts of it in English to the Agency (ERA) in a digital format immediately after the report has been published (at the latest within 7 days).

In the following paragraphs is described, how SIAF's investigation report structure compares to the general EU/ERA structure as set in Regulation (EU) 2020/572.

1. Summary

SIAF drafts a summary of every investigation report. The matters which have been presented in Regulation (EU) 2020/572 have been dealt with in the report. Summaries are published as separate documents.

2. Investigation and its context

The matters that have been presented in this section have been dealt with in our investigation report in the section *Preface*, except for point 7 which has been presented in other parts of the report.

3. Description of the occurrence

The matters mentioned in the subsection (a) *The occurrence and background information* are handled as follows:

- Points 1, 2, 4, 5, 7 and 8 have been dealt with in a separate section *Data Summary*.
- Point 3 is in subsections *2.1 Environment, systems and equipment* and *2.2 Conditions* of the section *2 Background information*.
- Point 6 is in subsection *2.4 Personnel, organisations and safety management* of the section *2 Background information*.

The matters mentioned in the subsection (b) *The factual description of the events* are handled in section 1 *Factual information*.

4. Analysis of the occurrence, where necessary in respect of individual contributing factors

The matters that have been presented in this section have been dealt with in our investigation report in the section 3 *Analysis*. In our report the rescue operations and the actions of all relevant authorities are also analysed

5. Conclusions

The matters that have been presented in this section have been dealt with in our investigation report in the section 4 *Conclusions*.

6. Safety recommendations

The matters that have been presented in this section have been dealt with in our investigation report in the section 5 *Safety recommendations*.

Table of contents of SIAF's safety investigation reports:

SUMMARY (in separate file, translated in Swedish and English)

Data Summary (in separate file, translated in Swedish and English)

PREFACE (SYNOPSIS)

1 FACTUAL INFORMATION

1.1 Sequence of events

1.2 Alerting and rescue operations

1.3 Consequences

2 BACKGROUND INFORMATION

2.1 Environment, systems and equipment

2.2 Conditions

2.3 Recordings

2.4 Personnel, organisations and safety management

2.5 Authorities' preventing actions

2.6 Organisations participated in the rescue operations and their operation readiness

2.7 Rules, regulations and procedures

2.8 Other investigations and research

3 ANALYSES

3.1 Analysis of occurrence

3.2 Analysis of rescue measures

3.3 Analysis of authorities' action

4 CONCLUSIONS (translated in Swedish and English)

5 SAFETY RECOMMENDATIONS (translated in Swedish and English)

5.1 Title of a safety recommendation

5.2 Title of a safety recommendation

5.3 Measures that have been taken

REFERENCES

SUMMARY OF THE COMMENTS TO THE DRAFT FINAL REPORT

3 PEER REVIEW PROCESS

As part of the peer review process described in Directive (EU) 2016/798 on rail safety, SIAF's operations were reviewed in 2023. The questionnaire was answered during the summer and a peer review team visited SIAF on 14.-15 November 2023. A final report was published on 22 February 2024. The report is publicly available on ERA NIB Network webpage.

4 INVESTIGATIONS

4.1 Overview of investigations completed in 2025, identifying key trends

Type of accidents investigated	Number of accidents	Number of victims		Damages in € (approximation)	Trend in relation to previous year
		Deaths	Seriously Injured		
Collisions	0	0	0	0	1
Derailments	0	0	0	0	1
Level crossing accidents	0	0	0	0	1
Other	1	0	0	1 100 000	0

4.2 Investigations completed and commenced in 2025

Investigations completed in 2025

Date of occurrence	Title of the investigation (Occurrence type, location)	Legal basis	Completed (date)
15.11.2024	R2024-02 Collision of trams on light rail line 15 in Helsinki on 15 th October 2024 and collision of tram with end wall in Espoo on 15 th November 2024	II (2) (b)	17.11.2025

Investigations commenced in 2025

Date of occurrence	Title of the investigation (Occurrence type, location)	Legal basis

The Legal Basis for the decision to investigate accident/incident:

- I National rules imposed by implementing of the Directive on railway safety
 - (1) in light of Article 20, §1
 - (2) in light of Article 20, §2
 - (a) the seriousness of the accident or incident
 - (b) it forms part of a series of accidents or incidents relevant to the system as a whole
 - (c) its impact on railway safety on a community level
 - (d) requests from infrastructure managers, the safety authority or the Member State
 - (3) in light of Article 22
 - (§5) cross-border investigation or request to assistance
 - (§6) other reasons than those referred to in Article 20
- II Other national rules/regulations (covering possible areas excluded in Article 2, §2 and §3)
 - (2) (a) metros
 - (2) (b) trams and other light rail systems
 - (2) (c) networks that are functionally separate from the rest of the railway system
 - (3) (a) privately owned railway infrastructure, including sidings, used by the owner or by an operator for the purpose of their respective freight activities or for the transport of persons for non-commercial purposes, and vehicles used exclusively on such infrastructure

- (3) (b) infrastructure and vehicles reserved for strictly local, historical or tourist use
 - (3) (c) light rail infrastructure occasionally used by heavy rail vehicles under the operational conditions of the light rail system, where it is necessary for the purposes of connectivity of those vehicles only
 - (3) (d) vehicles primarily used on light rail infrastructure but equipped with some heavy rail components necessary to enable transit to be affected on a confined and limited section of heavy rail infrastructure for connectivity purposes only
- III Other national rules/regulations not referred to the Safety Directive.

4.3 Safety Studies completed and commenced in 2025

Safety Studies completed in 2025

Date of commission	Title of the Study (Occurrence type, location)	Legal basis	Completed (date)
N/A	N/A	N/A	N/A

Safety Studies commenced in 2025

Date of commission	Title of the Study (Occurrence type, location)	Legal basis
N/A	N/A	N/A

4.4 Summaries of investigations completed in 2025



R2024-02

Collision of trams on light rail line 15 in Helsinki on 15 October 2024 and collision of tram with end wall in Espoo on 15 November 2024

Two trams collided near the terminus of light rail line 15 in Itäkeskus, Helsinki, on 15 October 2024. The collision occurred as the driver of one of the trams left the terminus without permission to leave, passing a signal at danger. The switch system implementation directed the tram to a different track at the first switch, and it collided side-on with an oncoming tram. One passenger sustained minor injuries in the collision. The material damage caused by the accident was extremely large. The repair costs of the trams exceeded EUR 1 million.

A tram on light rail line 15 collided with the end wall of the track in Keilaniemi, Espoo, on 15 November 2024. The collision with the end wall occurred as the tram driver lost their functional capacity shortly before arriving at the terminus and was unable to stop the tram before the track end point. Four passengers were injured in the accident, one of whom sustained more serious injuries. The material damage caused by the accident was minor.

Light rail line 15, which serves areas of Helsinki and Espoo, is the first so-called express tramway in the Helsinki Metropolitan Area. The maximum speeds on this line are 70 km/h. The drivers operate in on-sight mode. The investigation found that all key traffic risks had not been identified comprehensively in the design and construction phases. The design principles of track, rolling stock and operation were guided by the view that light rail line 15 is an extension of the existing tram network. This design concept led to several implementation solutions that were not conducive to track and rolling stock safety.

Personnel factors contributed to both accidents. The tram operators' shift system exposes drivers to fatigue. In addition, the organisation's atmosphere does not optimally promote the making of safety observations and learning from deviation reports.

There is little or no regulation on tram traffic in Finland and the European Union. In the absence of official regulation and standardisation, a variety of technical implementations and modes of operation have evolved in the sector. For example, the selection process and health and training requirements of drivers are similarly less stringent in tram traffic than in rail traffic in Finland, and less stringent than what is commonly seen in tram traffic in the Nordic countries. On the basis of the investigation, it can be generally concluded that tram traffic is lagging significantly behind other modes of transport in the use of technologies that improve safety and assist drivers.

To improve safety, the Safety Investigation Authority recommends that:

1. The Finnish Transport and Communications Agency define national health requirements and a health monitoring system for tram drivers with a risk-based approach. [2025-S29]
2. In tram drivers' shift arrangements, urban rail operators take the drivers' alertness into consideration and define clear procedures for interrupting work if the driver feels tired. [2025-S30]
3. Urban rail operators deploy more technologies that improve safety and support drivers in tram traffic. [2025-S31]
4. The Ministry of Transport and Communications launch a regulatory project to define national safety requirements for and supervision of tram traffic. [2025-S32]

4.5 Comments and introduction or background to investigations

Investigations commenced in 2025 and not followed

Date of occurrence	Title of the investigation (Occurrence type, location)	Legal basis	Reason of non-following or suspension of investigations	Who, why, when (decision)
N/A	N/A	N/A	N/A	N/A

4.6 Accidents and incidents investigated during last five years (in 2021–2025)

Accidents investigated		2021	2022	2023	2024	2025	TOT
Serious accidents (Art 20.1)	Train collision	0	0	0	0	0	0
	Train collision with an obstacle	0	0	0	0	0	0
	Train derailment	0	0	0	0	0	0
	Level crossing accident	0	0	0	1	0	1
	Accident to person caused by RS in motion	0	0	0	0	0	0
	Fire in rolling stock	1	0	0	0	0	1
	Involving dangerous goods ¹	0	0	0	0	0	0
Other accidents (Art 20.2) + (Art 22.6)	Train collision	0	0	1	0	0	1
	Train collision with an obstacle	0	0	0	0	0	0
	Train derailment	2	0	1	0	0	3
	Level crossing accident	1	0	0	0	0	1
	Accident to person caused by RS in motion	0	0	0	0	0	0
	Fire in rolling stock	0	0	0	0	0	0
	Involving dangerous goods ¹	0	0	0	0	0	0
	Incidents in train traffic	0	0	0	0	0	0
	Accidents or incidents in shunting work	0	0	0	0	0	0
	Accidents or incidents in tram systems	0	0	0	1	0	1
TOTAL		4	0	2	2	0	8

¹ Belongs also to another category and is not calculated another time to the total amount.

4.7 Preliminary investigations

The Safety Investigation Authority, Finland has conducted in compliance with section 8 of the Safety Investigation Act (525/2011) preliminary investigations referred to as assessments. In these cases, SIAF decided, on the basis of a preliminary investigation, that the special characteristics of the case do not require a full investigation. The assessment report is sufficient to yield desired safety advantages. In addition, the reports contribute to openness of government agency activities. The events leading to the accident and immediate and indirect causes of the accident/incident are described briefly in the report. The assessment reports are published in Finnish and Swedish, and on a case-by-case basis in English.

The assessment reports have been published on SIAF website since 2013. In 2017 we developed a new layout for the report. The layout was updated in 2022, and reports have been published in html-format since then. The assessments have been found to be very cost effective in improving safety.

During the year 2025 SIAF published one assessment report of a rail occurrence:

R2025-E1, Accident involving an excavator in track work that turned in front of a train in Taavetti on 29 September 2025. Report was published 11.11.2025.

- East of Kouvola, on the Taavetti-Kaitjärvi line section, the rebuilding work of the northern track was underway.
- At the time of the incident, two teams, each consisting of a tracked excavator and a lookout, were working close to each other at the site.
- The lookouts at the work site did not notice the train until the last minute, and the sound signal they gave could not be heard in the excavator cabs due to noise at the worksite.
- The excavator turned in front of the locomotive so that the right front corner of the locomotive hit the left rear corner of the excavator.
- The locomotive and the first two wagons were damaged in the collision. The excavator was severely damaged in the collision.
- The lookout system is widely used in Finland to secure track work. The system has generally been considered reliable, but it is prone to human error.
- The instructions issued by the Finnish Transport Infrastructure Agency (IM) make it possible to use the lookout system very extensively in different types of situations, including ones where there is a risk of a serious collision.

4.8 Fatal level crossing accidents investigated by the road accident investigation teams

In 2025, a total of 12 level crossing accidents occurred. Of these accidents 7 were fatal. In total 8 persons were fatally injured in these accidents. Of these 7 fatal accidents, 4 involved pedestrians.

The road accident investigation team investigated 6 of the 7 fatal level crossing accidents. It is worth noting that of the investigated accidents all 3 that involved pedestrians were intentional. Below are short summaries of the 6 fatal accident investigation reports.

1. Fatal level crossing accident between Alavus and Ähtäri on 21st of May 2025

On Wednesday 21st of May 2015 at 10.10, a level crossing accident involving a passenger car, and a rail bus occurred at unprotected Matara level crossing on line between Alavus and Ähtäri.

A driver was driving a passenger car on a private road towards north. She had just left from her home that was located 400 meters from level crossing. She approached level crossing at a speed of 35-45 km/h and did not slow down at the level crossing. She drove into level crossing directly in front of a rail bus that was travelling towards east. Driver of the rail bus had no time to brake before the collision. Rail bus hit the left side of the car and car driver was killed instantly. Car was thrown 47 meters from the level crossing into ditch. Rail bus stopped 200 meters from level crossing. Car was destroyed in the collision. Front end of the rail bus suffered minor damage

The direct cause (*the key event*²) was that the car drove into the level crossing while train was approaching. Train driver did not have time to prevent the collision.

*Background risk factors*³:

- Visibility towards left when viewed from direction where car came is limited due to forest.
- Level crossing advance warning signs were missing.
- Speed limit on the road was 80 km/h.
- Level crossing was very familiar for car driver. It is known that familiar unprotected level crossing is a part in many level crossing accidents.

In order to prevent similar accidents, the investigation team made the following recommendations under *proposals and safety recommendations*⁴:

- Improving visibility at the level crossing with cutting the forest
- Installing level crossing advance warning signs.
- Lowering speed limit on the road to 50 km/h.
- Continuous media information about risks of level crossings
- Removal of unprotected level crossings.
- Equipping all unprotected level crossings on tracks that have regular traffic and train speeds are over 80 km/h with barrier or at least warning devices.

2. Fatal level crossing accident in Siilinjärvi on 3rd of August 2025

On Sunday 3rd of August 2025 at 13.23 a level crossing accident involving a van and a passenger train occurred at unprotected Tikkala level crossing in Siilinjärvi.

A driver with a passenger was driving a van on a private road towards west. At the same time, a passenger train was approaching the level crossing from south at a speed of

² Terms used by the road accident investigation teams.

³ Terms used by the road accident investigation teams.

⁴ Terms used by the road accident investigation teams.

139 km/h. Train driver observed a van approaching level crossing and slowing its speed. Van did not stop at the level crossing, but continued at slow speed on to tracks. Train driver did not have time to brake before collision. Locomotive hit left front corner of the van and pushed the van 745 meters before train stopped. Driver of the van and passenger were killed instantly in the collision. Van was completely destroyed in the collision. Front end of the locomotive suffered minor damage.

The direct cause (*the key event*) was that the van drove into the level crossing while train was approaching. Train driver did not have time to prevent the collision.

Background risk factors:

- Visibility to both directions when viewed from direction where van came is limited. Visibility to right is particularly limited, and this may have caught van driver's attention. Also, a mirror in the level crossing may have limited visibility to left.
- Sun was shining from the direction of approaching train; this may have affected in noticing the oncoming train.

In order to prevent similar accidents, the investigation team made the following recommendations under *proposals and safety recommendations*:

- Improving visibility at the level crossings
- Removing level crossings where visibility can not be improved to acceptable level.
- Replacing level crossings with bridges.
- Continuous media information about risks of level crossings

3. Fatal level crossing accident in Loimaa on 5th of August 2025

On Tuesday 5th of August at 16.41 a level crossing accident involving a van (registered in Finland as a light truck) and a passenger train occurred at Piltola level crossing on line between Kyrö and Loimaa. The level crossing is equipped with warning devices and half barriers, both of which were operating at the time of the accident.

A driver was driving a van towards south on a public road. Speed of the van is unknown, but it has a speed limiter that limits its maximum speed to 89 km/h. At the same time a passenger train was approaching the level crossing from south-west at a speed of 131 km/h. Van did not slow its speed when approached the level crossing. It hit the lowered half barrier and continued to tracks, where it collided to left side of the locomotive. Collision speed of the van was estimated to have been between 50 and 60 km/h. After hitting the locomotive, van collided with the left front corner of the first coach of the train. Impact threw the van on the side of the track where it hit the side of a shed that was located 20 meters from the tracks. Van driver was not wearing seat belts, so he was thrown from the cabin in the collision. He was killed instantly. Van was completely destroyed in the collision. Left side of the locomotive and front end of the first coach suffered minor damage.

The direct cause (*the key event*) was that the van drove at high speed through the lowered barriers into the level crossing while train was approaching. Van driver did not notice the

level crossing warning lights or barriers. Train driver did not have time to prevent the collision.

Background risk factors:

- It seems that van driver did not follow traffic situation at all when approaching the level crossing.

In order to prevent similar accidents, the investigation team made the following recommendations under *proposals and safety recommendations*:

- Collision alerting system to all vehicles
- Alerting road surface markings before level crossings.
- Positioning level crossing warning devices so, that driver has enough time to stop before tracks even if driving at the highest allowed speed.
- Driver alertness monitoring system to all vehicles.
- Removal of level crossings

4. Fatal level crossing accident in Turku on 7th of August 2025

On Thursday 7th of August at 0.51, a level crossing accident involving a pedestrian and a passenger train occurred on Vaalantie level crossing in Turku. The level crossing is equipped with warning devices and half barriers, both of which were operating at the time of the accident.

A pedestrian was waiting by the level crossing while warning lights were on and barrier were lowered. A passenger train heading west was approaching the level crossing at speed of 122 km/h. When train entered the level crossing, pedestrian run to the tracks from right. Locomotive front end hit pedestrian, and he was killed instantly. Train stopped 400 meters from level crossing.

The direct cause (*the key event*) was that the pedestrian run to tracks right in front of the approaching train.

Background risk factors:

- Pedestrian had personal issues in life that increased risk of suicide.
- Pedestrians can access the track in level crossing when the barriers are lowered.
- There have been several accidents in this level crossing, most of them have been intentional. Level crossing is easy to access, and trains are running at fairly high speed.

In order to prevent similar accidents, the investigation team made the following recommendations under *proposals and safety recommendations*:

- Preventing suicides in traffic is difficult. Suicide prevention must primarily be done in health- and social care.
- Removal of level crossings
- Moving barriers further away from tracks so that train driver has more time to react if person walks round barriers.
- Intelligent camera systems that can detect accident risk behaviour from persons movements and alert train drivers.

- Pedestrian airbags on locomotive front end.

5. Fatal level crossing accident in Turku on 12th of September 2025

On Friday 12th of September at 14.45, a level crossing accident involving a pedestrian and a passenger train occurred on Vaalantie level crossing in Turku. The level crossing is equipped with warning devices and half barriers, both of which were operating at the time of the accident.

A pedestrian was waiting by the level crossing while warning lights were on and barrier were lowered. A passenger train heading east was approaching the level crossing at speed of 123 km/h. When train entered the level crossing, pedestrian walked to the tracks from left. Locomotive front end hit pedestrian, and he was killed instantly. Train stopped 400 meters from level crossing.

The direct cause (*the key event*) was that the pedestrian walked to tracks and stopped right in front of the approaching train.

Background risk factors:

- Pedestrian had personal issues in life that increased risk of suicide.
- Pedestrian was under the influence of alcohol.
- Pedestrians can access the track in level crossing when the barriers are lowered.
- There have been several accidents in this level crossing, most of them have been intentional. Level crossing is easy to access, and trains are running at fairly high speed.

In order to prevent similar accidents, the investigation team made the following recommendations under *proposals and safety recommendations*:

- Preventing suicides in traffic is difficult. Suicide prevention must primarily be done in health- and social care.
- Removal of level crossings
- Moving barriers further away from tracks so that train driver has more time to react if person walks round barriers.
- Intelligent camera systems that can detect accident risk behaviour from persons movements and alert train drivers.
- Pedestrian airbags on locomotive front end.

6. Fatal level crossing accident in Parikkala on 30th of December 2025

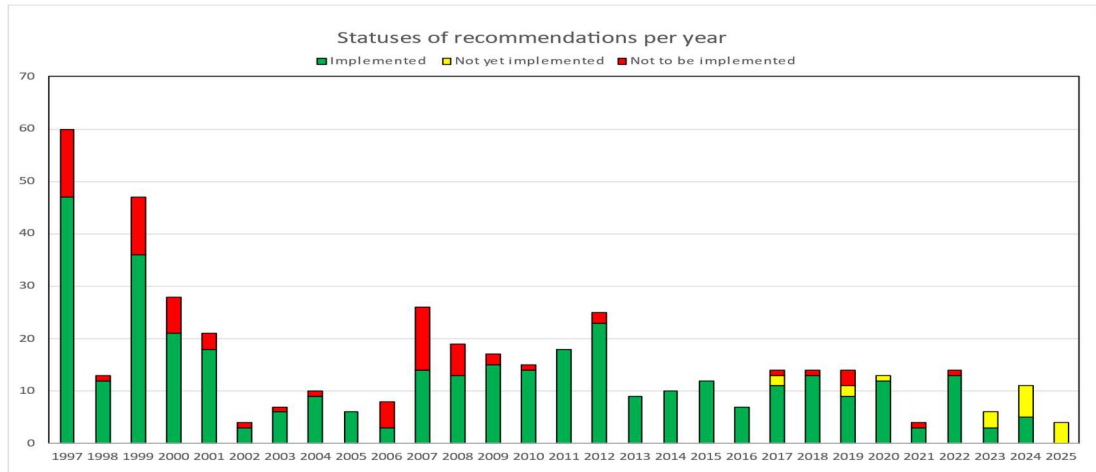
On Tuesday 30th of September at 13.37, a level crossing accident involving a pedestrian, and a passenger train occurred on Savikumpu level crossing in Parikkala. The level crossing is equipped with warning devices and half barriers, both of which were operating at the time of the accident.

Investigation report is not yet finalised at the time of writing, but it is clear that also this accident was intentional. Pedestrian walked in front of a train approaching level crossing at the speed of 120 km/h. Pedestrian was killed instantly.

5 RECOMMENDATIONS

5.1 Implementation of recommendations

In railway investigations, a total of 456 recommendations have been issued from 1997 through 2025. According to information available on 26th of May 2026, 365 (80,0 %) of the recommendations were implemented. On 73 (16,0 %) issued recommendations, SIAF received a reply stating that they would not be implemented



From 2011 through 2025 a total of 175 recommendations have been issued. 148 (84,6 %) have been implemented. On 9 (5,1 %) issued recommendations, SIAF received a reply stating that they would not be implemented. 18 recommendations (10,3 %) are currently under implementation.

Recommendations issued		Recommendation implementation status					
		Implemented		In progress		Not to be implemented	
Year	[No.]	[No.]	[%]	[No.]	[%]	[No.]	[%]
2011	18	18	100,0	0	0,0	0	0,0
2012	25	23	92,0	0	0,0	2	8,0
2013	9	9	100,0	0	0,0	0	0,0
2014	10	10	100,0	0	0,0	0	0,0
2015	12	12	100,0	0	0,0	0	0,0
2016	7	7	100,0	0	0,0	0	0,0
2017	14	11	78,6	2	14,3	1	7,1
2018	14	13	92,9	0	0,0	1	7,1
2019	14	9	64,3	2	14,3	3	21,4
2020	13	12	92,3	1	7,7	0	0,0
2021	4	3	75,0	0	0,0	1	25,0
2022	14	13	92,9	0	0,0	1	7,1
2023	6	3	50,0	3	50,0	0	0,0
2024	11	5	45,5	6	54,5	0	0,0
2025	4	0	0,0	4	100,0	0	0,0
TOTAL	175	148	84,6	18	10,3	9	5,1

Changes in implementation statuses of recommendations during 2025 are described in detail in Annex 1.

5.2 Recommendations issued in 2025

1. 2025-S29 (FI- 10631/1) Health requirements and health monitoring for tram drivers

There is very little regulation of health requirements for tram drivers, and these are mainly based on the requirements set by the operator. Based on the investigation, the demanding nature of the operating environment of tram traffic and, in particular, light rail tram systems such as tram line 15 have not been adequately recognised at an overall level in the drivers' health requirements or their health monitoring.

The drivers' irregular shift work requires regular age-based health monitoring that involves health examinations performed by occupational health nurses as well as examinations by an occupational health physician familiar with rail traffic.

The Safety Investigation Authority recommends that:

The Finnish Transport and Communications Agency define national health requirements and a health monitoring system for tram drivers with a risk-based approach. (2025-S29)

The health requirements set for rail transport drivers can be used as the basis for the health requirements for tram drivers.

2. 2025-S30 (FI-10631/2) Ensuring the state of alertness of tram drivers

In the cases investigated, the collision of a tram with an end wall in Keilaniemi was caused by the driver's incapacitation. The driver had felt tired throughout the shift but had continued to work. Fatigue may also have been a factor in the collision of trams in Itäkeskus. Accidents caused by incapacitation have also occurred in tram traffic in other countries.

The work shift system of tram line 15 has been identified as exposing drivers to working while fatigued. The threshold for reporting fatigue to the supervisor is perceived as high, and the drivers have not received instructions on how to act in such cases. In fact, working while tired has become a normal practice, resulting in a deterioration in safety.

The Safety Investigation Authority recommends that the Finnish Transport and Communications Agency ensure that the following recommendation is implemented:

In tram drivers' shift arrangements, urban rail operators take the drivers' alertness into consideration and define clear procedures for interrupting work if the driver feels tired. (2025-S30)

At the organisational level, it is important to identify the risks of working while fatigued in general and communicate about them. For example, alertness management tools used in aviation and waterborne traffic can be used to help ensure alertness.

3. 2025-S31 (FI-10631/3) Exploitation of technological development in improving safety of tram traffic

Based on the investigation, the tram industry has been lagging significantly behind other modes of transport in terms of introducing technology that improves safety and supports the driver. Rolling stock suppliers have such technology, but its utilisation in everyday traffic is limited.

All tram traffic in Finland is based on drivers operating in on sight mode, i.e. the driver is responsible for all operations. In such operations, technical systems play a major role in improving safety.

The Safety Investigation Authority recommends that the Finnish Transport and Communications Agency ensure that the following recommendation is implemented:

Urban rail operators deploy more technologies that improve safety and support drivers in tram traffic. (2025-S31)

A system that monitors speed limits and prevents overspeeding is an extremely important safety enhancement technology. The transmission of signal information to the tram would also promote safety significantly. The technology used to monitor the alertness of drivers should also be developed.

Real-time monitoring of the number of passengers in cars based on automatic passenger counting systems would, for example, make it easier to determine the correct response by the rescue services in case of an accident.

4. 2025-S32 (FI-10631/4) Development of tram traffic regulation in national level

The regulation of tram traffic at the EU and national levels has considerable shortcomings. In practice, all activities from planning and construction to operation are currently based on the operating models defined by operators in their safety management systems. Based on the investigation, this is not sufficient to guarantee the safety of tram traffic.

The lack of binding regulation as a whole prevents the uniform and systematic development of tram safety. In addition, the lack of regulation has resulted in the use of very different solutions and operating models in tram traffic. There are even significant differences in the training of drivers between the operators in the sector. The problem is well illustrated by the fact that the lack of regulation has made it necessary to extensively apply the internal guidelines of foreign countries in Finland.

The lack of regulation also makes it very difficult for the supervisory authority to monitor the safety of tram traffic and to intervene in detected shortcomings.

The Safety Investigation Authority recommends that:

The Ministry of Transport and Communications launch a regulatory project to define national safety requirements for and supervision of tram traffic. (2025-S32)

When developing regulation, it is important to take into account foreign accident investigation reports, especially those concerning the topic in the Nordic countries.

The development process can utilize the existing standards and international guidelines that have been harmonized for use in Finland.

ANNEX 1: Changes in implementation statuses of previous recommendations during 2025 and actions taken by the addressees

1. Recommendation number: 2015-S23 (ERA FI-4721 REC-000248)

Recommendation: The Finnish Transport Agency must draft readily available guidelines for time-intensive, non-trackwork-related use of level crossings or other similar work that poses a risk of a collision.

Issued in investigation: R2015-01, Level crossing accident in Kokemäki, Finland, on 6 February 2015

Previous status: Under implementation

New Status in 2025: Implemented

Description on implementation: The Finnish Transport Infrastructure Agency has carried out the following measures:

- The learning material for how slow-moving vehicles should cross level crossings is now available. The material is intended for professional qualification refresher training of professional drivers. Parties such as Finnish Transport and Logistics SKAL have been notified of the matter.
- The guide 'Tasoristeykset ja teiden kunnossapito' (Level crossings and road maintenance) has been updated. Text on slow-moving vehicles has been added to the section 'Tienkäyttäjän velvollisuudet' (Road users' obligations).

2. Recommendation number: 2019-S44 (ERA FI-5869 REC-000383)

Recommendation: An independent power supply is required for new rolling stock being type approved that guarantees the operation of the recorder for a minimum of 30 minutes after power has been cut off.

Issued in investigation: R2018-02, Level crossing accident in Kemijärvi on 12 December 2018

Previous status: Under implementation

New Status in 2025: Not to be implemented

Description on implementation: European Railway Agency (ERA) considers that the addition of an independent power supply granting the operation of the recorder after power cut-off is a far too detailed requirement to be dealt within the TSI revision process only, without taking into account the opinion of the working group in charge of drafting the EN Standard EN/IEC 62625-1: 2013. Therefore, the Agency proposes a two-step approach in order to meet your recommendation:

In a first stage, the Agency proposes to include your recommendation in the new EC standardisation request under Directive (EU) 2016/797 addressed to CEN CENELEC Management Centre (CCMC). In that request all the harmonised standards to be revised will be listed. The standardisation request is expected to be sent to the CCMC by June 2020. Once the revised EN Standard is published, the LOC&PAS TSI could be revised via the Control Change Management process (CCM) in order to consider the updated EN Standard. Please note that during this process, a cost-benefit analysis should be required in order to justify the additional cost of the independent power supply. (in principle, the independent power supply should meet very high integrity standards of the data recorders).

3. Recommendation number: 2021-S1 (ERA FI-6270/1)

Recommendation: The European Union Agency for Railways add requirements on protection against side collisions to regulations on diesel trains.

Issued in investigation: R2020-01, Level crossing accident in Mänttä-Vilppula on 14 May 2020

Previous status: Under implementation

New Status in 2025: Not to be implemented

Description on implementation: European Railway Agency (CERA) considers that safety recommendation goes in the direction of improving the passive safety. Passive safety requirements are set out in point 4.2.2.5 of the LOC&PAS TSI. These requirements concern the mechanical structure of vehicles, so it provides protection of the occupants in the event of a collision by limiting deceleration, maintaining survival space and structural integrity of the occupied areas, reducing the risk of overriding, reducing the risk of derailment and limiting the consequences of hitting a track obstruction. To meet these functional requirements, the TSI mandates the requirements of crashworthiness design set out in EN 15227 for several collision scenarios. However, all these collision scenarios are related to a collision of the front end of the vehicle under assessment. Requirements against side collisions are not required. Please note that the scenarios defined in the TSI and the EN 15227 are the consequence of an analysis of the railway accidents due to a collision in order to provide the maximum reasonably feasible level of passive safety. Additional crash scenarios should be agreed in a first step in the framework of this EN Standard. The Agency suggests that you address your recommendation to the Finnish Standardization Body in order to promote an update of the EN 15227 in this direction.

Once the revised Standard is published, the LOC&PAS TSI could be revised via the Control Change Management process (CCM) in order to consider the updated EN Standard with the additional crash scenario.

The Agency has to evaluate the consequences of mandating additional safety measures by European law, rather than the intrinsic merits of safety measures. In this light, the one particular concept has proven useful: the cost per avoided fatality. This evaluation will be performed in the framework of the CCM. Based on the above, we consider that ERA is not the right addressee for this recommendation, and we therefore conclude it as closed from our side.

4. Recommendation number: 2022-S14 (ERA FI-10069/5)

Recommendation: The European Union Agency for Railways (ERA) investigates the potential of expanding the possibilities of the national safety authority to monitor the operators in the field in practice.

Issued in investigation: R2021-01, Fire in the Dm12 rail bus between Hutokoski and Siikamäki in Joroinen on 5 June 2021

Previous status: Under implementation

New Status in 2025: Implemented

Description on implementation: In relation to this recommendation, European Railways Agency (ERA) considers that the existing EU legislative framework is not limiting the type of supervision activities a National Safety Authority (NSA) can apply. NSA supervision activities should be developed in line with Regulation (EU) 2018/761 “establishing common safety methods for supervision by national safety authorities after the issue of a single safety certificate or a safety authorization”.

Article 4 of this Regulation, dealing with techniques for supervision, clearly states that “National safety authorities shall adopt suitable techniques, such as audits and inspections, and select the most appropriate ones when planning their supervision activities.” From this, it should be concluded that NSAs are completely free to choose the most appropriate technique(s) to perform their supervision activities which should also include the “monitoring

of operators in practice”.

Since, based on the above, we see no limitations for an NSA to choose and apply the supervision techniques that will allow them for supervising also the adequate implementation of SMS applications as operators apply them in practice, we consider this recommendation as already satisfied, so without further need for actions from the side of ERA.

5. Recommendation number: 2022-S24 (ERA FI-10140/2)

Recommendation: The Ministry of Transport and Communications proposes that the Railway Act should be changed so that clearing the areas of unobstructed visibility to ensure their safety could also be done as smoothly as possible in level crossings, in which there are existing buildings or vegetation in the areas of unobstructed visibility.

Issued in investigation: R2021-03, Level crossing accident between a bus and a work train in Kaskinen on 5 October 2021

Previous status: Under implementation

New Status in 2025: Not to be implemented

Description on implementation: The Ministry of Transport and Communications is of the view that the Railways Act is not open to interpretation in the manner described in the safety recommendation. The infrastructure manager has the right to remove the vegetation and other natural obstacles from the visual clearance. The infrastructure manager also has the right to order the removal or relocation of a building, warehouse, fence or other structure or equipment located in the visual clearance if it endangers traffic safety or interferes with railway maintenance. If necessary, the infrastructure manager may carry out the measure at its own expense if the owner of the building, structure or equipment fails to carry out the measure within the reasonable time specified by the infrastructure manager.

Section 38 of the current Railways Act contains provisions on railway visual clearance and the right of the Finnish Transport Infrastructure Agency to remove the vegetation and other natural obstacles from the visual clearance. The provision also prohibits the keeping of a building, warehouse, fence or other structure or equipment in the visual clearance that, by limiting the visual clearance, may endanger traffic safety.

The openness of the Act to interpretation described in the safety recommendation arises from the exceptions laid down in section 41 of the Railways Act. Under the provision, section 38 of the Railways Act does not apply if, for example, a building, warehouse, fence or other structure or equipment has been erected before the right to use the area has been restricted. However, if a building, structure or equipment located in the visual clearance endangers traffic safety or interferes with railway maintenance, the Finnish Transport Infrastructure Agency may order it to be removed or relocated or order the necessary modifications to be made to it. If the owner fails to carry out the measure within the reasonable time specified for it, the Finnish Transport Infrastructure Agency has the right to carry it out at its own expense. Already under existing regulations, the infrastructure manager may remove obstacles from the visual clearance of a level crossing if a building, vegetation, structure or equipment endangers traffic safety or interferes with railway maintenance. The Ministry also draws attention to the fact that other laws such as the current Land Use and Building Act also impact on what basis obstacles can be removed from a visual clearance in an area covered by a local detailed plan, for example. The Ministry of Transport and Communications has examined the need to amend the Railways Act and the Highways Act in an assessment memorandum on the need to amend the transport infrastructure legislation. Updating the provisions on the visual clearance as described in the recommendation has not been considered necessary in the assessment.

6. Recommendation number: 2023-S11

Recommendation: When planning streets and pedestrian and cycle paths, cities with tramways take into account the special features of tram traffic and strive to plan traffic arrangements so that they guide other road users to act safely and in accordance with the rules.

Issued in investigation: R2021-S1, Themed investigation into accidents and incidents occurring in urban rail traffic

Previous status: Under implementation

New Status in 2025: Implemented

Description on implementation: The planning and dimensioning of tramways in the Helsinki Metropolitan Area is guided by the tramway planning guidelines. When planning new tramways and developing the existing network, the aim of the City of Helsinki is to ensure optimum separation between tramways and other traffic by, for example, using elevated tramway lanes, and clear and logical junction arrangements. The City of Helsinki is also continuously developing tramway crossing arrangements, and they are implemented as pedestrian or other marked street crossings. The selected arrangement depends on the properties of the location and its surroundings. A standard drawing has been prepared of the structures at the tramway crossing and a road marking between the rails warning of the tram is tested in them. The crossing is not used at street crossings included in specialised accessibility routes. The safety of tramway crossing arrangements is continuously reviewed and improved. For example, the Helsinki traffic safety development programme 2022–2026 includes an ongoing review and implementation of proposals for measures concerning street crossings. Moreover, road signs warning of trams have already been installed at certain street crossings where the arrangements differ from other street crossing arrangements in the area. The City of Helsinki is aware that people also cross streets outside marked crossings and junctions. As a rule, arrangements to prevent crossing of tram tracks at stops have not been introduced due to such considerations as the use of space, streetscape issues and maintenance. The City of Helsinki is taking measures to make the public aware of the dangers of crossing a tramway outside pedestrian crossings or other marked crossings. In particularly dangerous locations where, for example, visibility or space is severely limited, structural arrangements are made to prevent the crossing of tram tracks. In Helsinki, centre platforms are not recommended, which also makes shortcuts by exiting tram passengers across tram tracks less likely. Centre platforms may tempt people to cross the tramway and the carriageway at the middle of the stop.

In Tampere, tram accidents and near misses recorded by drivers are regularly reviewed by the joint traffic safety team of the City of Tampere and TRO, which meets on a regular basis. The safety team has promoted a number of safety improvement measures, and it also assesses the need to improve the planning instructions. The basic starting point in tramway planning is that vehicles turning left in front of the tramway must have a separate lane for making the turn. Left turns by vehicles have also been restricted in several junctions due to the accident risk. Only a limited number of locations where tramways intersect with pedestrian and bicycle traffic have been built, and a significant number of them are light-controlled. City of Tampere and TRO have also co-operated in traffic safety communications, in which they have provided information about traffic rules and urged road users to be vigilant when close to the tracks.

Together with the City of Helsinki and the Metropolitan Area Transport Ltd, which is responsible for the tram operations, City of Espoo closely monitors tramway safety, all

observed accidents and serious near misses. As accidents are different, the aim is to find case-by-case methods to prevent them from reoccurring. Unfortunately, most of the accidents occur because vehicles, cyclists or pedestrians fail to observe red lights. It is difficult for cities to find ways to improve the situation. Monitoring and improvement of the traffic environment require continuous efforts.

7. Recommendation number: 2023-S12

Recommendation: The Finnish Transport and Communications Agency ensure that, in the procedures for reporting and processing deviations in urban rail traffic, operators clearly distinguish safety-related matters from fault notifications and that safety deviations are systematically processed and analysed.

Issued in investigation: R2021-S1, Themed investigation into accidents and incidents occurring in urban rail traffic

Previous status: Under implementation

New Status in 2025: Implemented

Description on implementation: The Finnish Transport and Communications Agency issued the following regulation project decision on 18 March 2024: Raideliikenteen häiriöiden ilmoittaminen (Reporting disruptions in rail traffic) TRAFICOM/72302/03.04.02.00/2024. With this regulation project decision, the guideline on reporting disruptions in rail traffic that entered into force on 3 February 2022 will be changed into a regulation. As part of the change, urban rail traffic will be included in the scope of the regulation, which will harmonise the practices applied to rail traffic. The regulation clarifies the operating models for reporting disruptions, accidents and incidents (including time limits, information content and reporting channels) and specifies the disruption classifications used in the reporting. Measures have been taken to make the reporting of railway accidents and incidents as easy as possible for operators. Safety deviations can be reported on the electronic form available on the website of the Finnish Transport and Communications Agency. The form has been updated at the beginning of 2024 and it now also includes the deviation taxonomy for urban rail traffic. Entering the reports on safety deviations in urban rail traffic in the deviation information system of the Finnish Transport and Communications Agency via an interface is also under consideration (Deviations in Tampere tram traffic would be added to the system first as VR already has an interface for railways). The audits carried out by the Finnish Transport and Communications Agency in 2024 focused on the management of deviations by urban rail traffic operators. The challenges identified in the audits included the fragmentation of deviation management, ageing information systems and the reception of the deviation data from several different systems and channels. It was also found that the different systems did not have any interfaces. Operators have launched several IT projects to improve the situation, and some of them are already well advanced. The Finnish Transport and Communications Agency is also in the process of updating the information system related to the processing of safety deviation reports. In this connection, measures are taken to clarify the processing and analysis of the deviation data obtained from operators and the internal resources allocated by the Finnish Transport and Communications Agency for this work. The Finnish Transport and Communications Agency has also prepared internal work instructions for investigating rail traffic disruptions and accidents.

8. Recommendation number: 2023-S13

Recommendation: The Finnish Transport and Communications Agency define safety targets and their monitoring methods for metro and tram traffic.

Issued in investigation: R2021-S1, Themed investigation into accidents and incidents occurring in urban rail traffic

Previous status: Under implementation

New Status in 2025: Implemented

Description on implementation: At the end of 2024, the Finnish Transport and Communications Agency finalised the first national rail safety plan. The aim of the safety plan is to improve rail safety and to set out the national guidelines for improving rail safety. The safety plan includes national safety improvement measures, and the aim is for operators to consider how their own actions can promote national measures and thus possibly also define their own safety measures to support the achievement of national objectives. The safety plan includes a measure aimed at ensuring that the operators define safety objectives relevant to their operations and that progress towards achieving the objectives is monitored on a regular basis. The Finnish Transport and Communications Agency has also launched the work on a report based on the national safety plan, in which the development of urban rail safety is examined at international level. The aim of the report is to gain an understanding of the regulation and supervision of urban rail traffic in a small number of other European countries and the procedures used in them to monitor the safety situation and changes in it. The Finnish Transport and Communications Agency notes that the legislation does not allow it to set general safety targets for operators. Under the urban rail traffic regulation, the operator must determine the safety objectives for its own operations.

9. Recommendation number: 2024-S28 (ERA FI-10451/2)

Recommendation: The Finnish Transport Infrastructure Agency update the sections of the Rail Transport and Shunting Safety Guidelines that deal with reversing and standardised communications so that trains can only be reversed into locations that the train driver is able to see from the cab. The existing checklist for the safe coordination and execution of reversing manoeuvres should also be updated and incorporated into the Finnish Transport Infrastructure Agency's rail transport operation guidelines.

Issued in investigation: R2023-01, Collision of two goods trains in Tampere on 20 September 2023

Previous status: Under implementation

New Status in 2025: Implemented

Description on implementation: The Finnish Transport Infrastructure Agency has updated 'Junaliikenteen ja vaihtotyön turvallisuussäännöt' (safety rules for train traffic and shunting; Jt) for such matters as reversing. Section 10.7 of the guideline now details the measures that traffic control must take when specifying the permit for reversing. For example, traffic control must give the driver the location of the element to which it is safe to reverse the train so that the element can be seen from the driving cab in the original direction of travel. It is now also mentioned in the guideline that traffic control must use the reversing form. This guideline will enter into force on 1 June 2025.

10. Recommendation number: 2024-S29 (ERA FI-10451/3)

Recommendation: The Finnish Transport Infrastructure Agency improve its guidance drafting procedures so as to better recognise the effect of guidelines on safety and to systematically analyse and document the risks involved in introducing new guidelines also in respect of rail transport operation.

Issued in investigation: R2023-01, Collision of two goods trains in Tampere on 20 September 2023

Previous status: Under implementation

New Status in 2025: Implemented

Description on implementation: The Finnish Transport Infrastructure Agency has a process for technical and safety guidelines, which also includes risk management for the guideline work. The process is also followed in the railway operations guidelines. As part of the risk management of the guideline, the significance of the changes contained in the guideline is assessed in accordance with the CSM regulation on risk management. If the change is considered to be significant for the safety of the railway system, the regulation in question shall also apply. A justification memorandum on the guideline is already prepared when the need to update the guideline or the need to prepare a new guideline is identified. It also includes a preliminary risk assessment. The justification memorandum is supplemented throughout the guideline work. The justification memorandum describes such matters as the objectives of the guideline, changes to the guideline, impacts on other guidelines and on model documents, and the risk assessment carried out during the preparation of the guideline. The key risks of the guideline are entered in the justification memorandum. The justification memorandum is signed and entered in the Finnish Transport Infrastructure Agency's case management system. Before the publication of the guideline, the activities are verified, for example, by not signing the finalized guideline unless there is any evidence of the implementation of risk management. Furthermore, the guideline is not published if the assessment of the significance of the change has not been documented.

11. Recommendation number: 2024-S30 (ERA FI-10451/4)

Recommendation: The Finnish Transport and Communications Agency ensure not only compliance with the applicable rail transport operation guidelines but also the effectiveness of operators' self-regulation procedures in practice. The Finnish Transport and Communications Agency should also take a more active role in managing and improving railway safety across the whole system.

Issued in investigation: R2023-01, Collision of two goods trains in Tampere on 20 September 2023

Previous status: Under implementation

New Status in 2025: Implemented

Description on implementation: According to the Finnish Transport and Communications Agency, in addition to the supervision of the railway operations guidelines, it also ensures the effectiveness of the self-monitoring carried out by the operators. Experts of the Finnish Transport and Communications Agency familiarize themselves with the documents submitted by the supervised operator before the inspection visit. The inspection visits consist of observations made in the operating environment and interviews with personnel groups to ensure that the observations made during the document analysis carried out in advance are correct. The Finnish Transport and Communications Agency uses the above procedures to produce an understanding of the functioning of the operator's safety management procedures and their compliance with relevant provisions. During the supervision, it is also ensured that the operator carries out self-monitoring in accordance with the self-monitoring regulation (EU 1078/2012). In connection with this review, it is checked whether the activities self-monitored by the operator are linked to previous years' self-monitoring results and the most significant risks associated with its activities. In addition to the above-mentioned supervision, the Finnish Transport and Communications Agency also conducted a survey in 2021 and 2023 to investigate railway operators' self-monitoring practices. According to the Finnish Transport and Communications Agency, supervision of the guidelines used by the operators is part of the self-monitoring carried out by the operators.

According to the supervision strategy of the Finnish Transport and Communications Agency

for the coming years, one of the key objectives of the supervision is to enhance its effectiveness. The resources available for the supervision are limited, and in the future, possibly even more limited due to the central government productivity programme. For this reason, the Finnish Transport and Communications Agency plans to allocate the supervision resources so that they can ensure a high level of rail safety both now and in the future. In its own view, the Finnish Transport and Communications Agency already plays an active role in managing and developing the overall safety of the rail system. The Finnish Transport and Communications Agency is strengthening its role in the development of comprehensive security through the preparation of the national security plan. The plan defines a national vision for the development of rail safety and safety targets, the achievement of which is supported by safety measures for different operators. The aim is for the operators to take the national security targets into account when defining the security targets for their own operations.

In its own view, the Finnish Transport and Communications Agency is not the only party responsible for enhancing rail safety as each operator has its own roles and responsibilities in this respect. The Finnish Transport and Communications Agency supports the work carried out by operators to improve safety by, for example, coordinating the work of cooperation groups, the aim of which is in cooperation with operators to develop the operations and share information and good practices to enhance safety.

12. Recommendation number: 2024-S34 (ERA FI-10480/2)

Recommendation: The Finnish Transport Infrastructure Agency will examine the track maintenance process so that the impacts of delays in renovation projects on maintenance are taken into account in more detail when planning maintenance.

Issued in investigation: R2023-02, Derailment of a freight train in Tampere on 30 November 2023

Previous status: Under implementation

New Status in 2025: Implemented

Description on implementation: The Finnish Transport Infrastructure Agency regularly conducts internal discussions on project timetables and the impacts of any delays on maintenance. However, switch maintenance is carried out on a continuous basis so that the operability of the switches is ensured. The contract documents for track maintenance have been updated to highlight life cycle analysis and monitoring of overall condition.

13. Recommendation number: 2024-S39 (ERA FI- 10522/2)

Recommendation: The Finnish Transport Infrastructure Agency should update the planning guidelines for timber loading sites so that the sites can be planned without level crossings. If level crossings are needed at the sites, safety requirements that are independent of the site classification should be specified for them.

Issued in investigation: R2024-01, Level crossing accident at Kurkimäki timber loading site on 6 February 2024 resulting in the death of the shunting foreman

Previous status: Under implementation

New Status in 2025: Implemented

Description on implementation: The Finnish Transport Infrastructure Agency has published the updated guideline for planning timber loading sites in the rail network. The guideline entered into force on 1 March 2025 (VO 7/2025). The guideline puts more emphasis on safety already at the planning stage. Every effort will also be made in the future to ensure that the loading sites do not have any level crossings. However, if this is not possible, the risks associated with the level crossings must be identified and the necessary measures to

manage them must be planned. The term 'level crossing' is no longer used in the new guideline. In the future, the term 'loading site level crossing' will be used. This will avoid any confusion that may arise from the application of the requirements concerning publicly accessible level crossings at loading sites. All loading site level crossings must also be safe and function properly.