



Bureau d'Enquête sur les Accidents
de Transport Terrestre

ANNUAL REPORT 2023



The word of director

The report of activity of BEA-TT for 2023 is the one of his 20 years.

This is an opportunity to review its form after 10 years without change: in 2023 I have announced the end of all impression paper. We have completed the restructuring of our website, and the annual report is adapting to this new medium.

So, that's The end of flipping pages and classic layouts. It's likely that this new formula will see other developments that could result, dear reader, from your [constructive comments](#).

This anniversary is also a time for taking stock: this is what that we did during the seminar on February 8, 2024 at The Hôtel de Roquelaure, involving our alumni and in front of a focused audience that I thank again. This seminar will have some follow-ups, notably in the sections, once again, of our website.

This site shows the 250 reports of investigations (comprising 835 recommendations) published by the BEA-TT since its creation in January 2004. A detailed table is available [here](#).

He proposes also the note of presentation for each investigation in progress, of which the number is stabilized around 22. The number of annual publications is also stabilized, between 10 and 12. The duration of the investigations often exceeds 20 months: it tends to increase with the complexity of the technologies in the road sector, and with the multiplication of layers and actors in the railway sector.

Let us remember that the opening of investigations, always decided within the BEA-TT, are based on the potential for new lessons rather than on the seriousness. On the 272 investigations open, 162 have not caused death. 19 have caused 5 or more.

For the accidents with casualties, the BEA-TT works in good intelligence with the judicial authorities within the framework of the legislative provisions of the Transport Code and an agreement that I signed with the Director of Criminal Affairs and Pardons in April 2023.

In 2023, out of nearly 2,600 events of which it was aware, the BEA-TT examined 826 before deciding to open 12 investigations, the list of which is given below and presents interesting particularities.

He has published 11 reports of investigations:

- 2 in "heavy" rail, operating within the framework of authorizations issued by the EPSF and the European Union Agency for Railways;
- 4 at level crossings (including a pedestrian crossing), accidents which result as always from error or bad behavior of the users of the road, and remain a sensitive subject, although not easily compressible given the numbers involved;
- 4 in the vast sector of the road, of which 3 on highways and 1 in Paris.

- 1 In the sector of tourist trains, acting as to has him below the control of the STRMTG, and who has given place has a intervention of BEA-TT at Congress of UNECTO (Union of Tourist and Museum Railway Operators)

The follow up of the recommendations is rendered audience as each year, and this times by means of navigation links which should allow better access to the information sought.

Thank you for your interest in land transport safety issues, and let us thank you above all the actors of all orders who have not constantly ensuring and improving it, each for their part and all together.

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1 Accidents of the year 2023

1.1 Sources of information on accidents and incidents

As stipulated in the Transport Code, land transport incidents and accidents are brought to the attention of the BEA-TT as soon as possible after their occurrence. In practice, this information is mainly provided by flashes and reports from the Ministerial Centre for Operational Monitoring and Alerts (CMVOA) of the Ministry of Ecological Transition. and Territorial Cohesion, as well as through daily alerts and reports from major transport operators.

Monitoring involves exploiting this information in real time. After an initial screening, a brief analysis of the selected accidents is carried out to understand the circumstances and assess the appropriateness of opening an investigation. This task, carried out daily, is summarized in the table -below.

It should be remembered that the BEA-TT does not produce statistics, nor is it responsible for conducting accident studies, as its close partners (EPSF, STRMTG, ONISR, etc.) do. The selection of accidents to be investigated is geared solely towards the objective of producing new recommendations. The severity of the accident is not always the overriding criterion.

The BEA-TT is intended to focus primarily on transport "carried out by professionals." Thus, for road transport, the reported events generally involve at least one vehicle transporting goods or passengers.

The results of this analysis for 2023 are as follows:

	Reported events	Events analyzed	Investigations opened
Road, river and national railway transport sector	1279	599	7
Field of rail and guided transport	1286	227	5
Total	2565	826	12

1.2 Investigations opened in 2023

The BEA-TT has engaged 12 investigations in 2023:

- 2 for the road sector: the fire followed by the explosion of a tanker truck transporting liquefied gas, and the collision between a bus (replacing a train) and a light vehicle;
- 3 for the railway sector: endangering people during a train breakdown, and two accidents on border sections; The prolonged immobilization of a TGV in the Fréjus tunnel and the electrocution of a tree surgeon in Belgium;
- 3 for level crossings, the collisions between: a TER and a vehicle electric, a TER and a school bus without passengers, a TER and an exceptional convoy transporting part of a wind turbine mast;
- 2 for guided transport, two accidents of people: one on the line 6 of metro in Paris, The other on RER line B;
- 2 for waterways, the striking of a road bridge base by a boat carrying of fertilizer on the Aisne and on the Seine in Paris, the collision of two boats carrying more than two hundred passengers.

Each of These investigations has do the object of the publication of an information note on the website. Summaries can also be found below.

1.2.1 Road transport

1) Fire And blast of a tanker truck transporting of hazard goods on the 20 January 2023 in Fillinges (74)

The Friday 20 January 2023, towards 8 hours, a tanker truck transporting of gas propane circulates on departmental road 907 known as "Route de la vallée du Giffre".

So that he crosses a area strongly urbanized and after to have identified a emanation of suspicious smoke in the driver cabin, the driver decided of stop her vehicle near the intersection of the RD 907 with the RD 292, in a less dense area.

His attempt to extinguish the fire failed to contain it. By The time firefighters arrived, it had spread throughout the vehicle, causing the tank to heat up and become over pressured until it exploded.

The Blève who has followed up has cause casualties, one severe, and of the damage materials on certain homes and vehicles located within a radius of approximately 1 km.

The analysis of the debris of vehicle thus that the exam of photos or videos show that this event is most likely of electrical origin.

2) Collision between a bus and a light vehicle on the 28 July 2023 at Mezieres-sur-Seine (78)

Friday, July 28, 2023, around 7 a.m., a bus that was providing a route towards Épône from Mantes-la-Jolie, replacing a rail service that had been cancelled to allow for work on the infrastructure, was hit head-on by a light vehicle traveling in the opposite direction, which veered to the left road lane.

The bus transported a fifties of passengers, the driver of light vehicle was alone.

Following the collision, the light vehicle ended its trajectory by hitting a tree. The driver, who had a blood alcohol level of approximately 2 g/l, was injured.

The bus as to has him, circulating has a speed of approximately 80 km/h, has deported on the left, crossed the roadway and ended up in a ditch below the road. Two passengers died, and five were seriously injured.

1.2.2 Rail transport

1) Immobilization extended of a TGV in the tunnel of Frejus on the 9 october 2022

On the 9 October 2022 at 5 p.m., in the railway Franco-Italian tunnel of Frejus (Or Mont-Cenis), a alarm fire himself triggers on a TGV has destination of Milan and in origin from Paris. In absence of traction, the train stops in the French part of the tunnel. Even if the departure of fire will be proven later, none fire is not noted by the train driver. The troubleshooting procedures were unsuccessful. The TGV with the passengers on board was then rescued. The convoy arrives at Modane at 9.35 p.m., or more than 4 h 30 after the initial shutdown. No human consequences were reported.

Given the circumstances of this incident on a cross-border section with organizational particularities, the director of BEA-TT and his Italian counterpart, director of DiGIFeMa, have decided to open a joint technical investigation.

2) Bet in hazard of people during of a distress of train on the 25 June 2023 at Nights (89)

The event occurred on the night of June 25-26, 2023 on the classic line between Paris Gare de Lyon towards Dijon, located approximately 1 km in upstream of the train station named Nuits-sous-Ravières, located in the Yonne department. The train operated by OSLO railway company, a subsidiary of SNCF Voyageurs company, was carrying 700 passengers. This train, consisting of a set of Corail-type cars, after two stops to manage a technical anomaly of the locomotive, stops definitively upstream of the Nuits-sous-Ravières train station a little before 10 p.m.

While waiting for help, passengers from the train in distress descend onto the track without authorization. The intervention of an on-call duty of SNCF Voyageur put people back on the train and allow SNCF Réseau to resume traffic on the adjacent track.

Following the illness of passengers on board train 5765, the fire brigade was called. Their intervention was carried out without protective measures against railway risks and while three trains were about to pass at normal speed on platform 2.

3) *Death by electrocution of a tree surgeon on the 10 July 2023 at Quévy (Belgium)*

On Monday, July 10, a tree surgeon works on private land along line 96 in Quévy (Belgium) close of the Franco-Belgian border. A branch falls on a cable of the 3kV catenary and causes the opening of a circuit breaker at the electrical distributor in Mons.

The re-engagement being without effect, a team catenary Infrabel was dispatched on place and notes this preceded. Towards 13 h 15 the measures of protection are implemented and the branch is removed.

Towards 2 p.m. the head of a fir tree that the tree surgeon was cutting touch electric cable powered from France by of 25kV~. A bow electric himself creates between the cable, the branch and the tree surgeon who is fatally electrocuted.

This investigation is conducted in cooperation with the Belgian NIB.

1.2.3 Level crossings

1) *Collision between a TER And a electric vehicle on 26 December 2022 at Ayse (74)*

Monday, December 26, 2022, at 8 p.m., regional express train (TER) no. 884 684 from of Saint-Gervais-les-Bains and with destination to Annemasse has hit a electric road vehicle on level crossing (LC) no. 13 in the commune of Ayse in the Haute-Savoie department. This vehicle was immobilized on the level crossing before the closing of the barriers. It has taken fire while it was stuck under the front part of the train locomotive.

This LC has automatic red road traffic lights and sound with two half-barriers, its geometry is without particularity.

The TER, which was running at the time of the collision at 106 km/h, did not derail and stopped under emergency braking 430 meters after the LC. Neither the train driver, neither none of the 11 occupants of the train were injured. The driver of the road vehicle was outside his vehicle and safe at the time of the impact. Material damage was minor.

It is the behavior of electric vehicle who has motivated the opening of this investigation.

2) *Collision between a TER and a coach on the 24 January 2023 at Cevins (73)*

Tuesday, January 24, 2023 in Cevins (73), at 7 a.m., while the weather conditions were favorable, a coach having not yet started its collection circuit school, has immobilized on the railway at LC No. 42. The attempts of driver have not permit of clear the unique track before the arrival of express train regional No. 883 158, ensuring the route from Bourg-Saint-Maurice (73) to Aix-les-Bains (73), which hit him at the speed of almost 100 km/h.

The bus broke up; the rear part was projected against the cliff at right of the track in the sense of traffic of train, the front part was projected in a ditch left side of the track. Stayed in the bus, the driver was seriously injured.

The train has derailed in incoming in a tunnel has a ten of meters after the LC, has bounced off the walls, then helped by a rail switch got back onto the rails as it was about to come off. In his cab, the train driver was protected and was not injured. However, three passengers in the first car of the train had to be evacuated by the emergency services.

3) *Collision between a TER and as oversized road transport on the 19 June 2023 at Le-Clerjus (88)*

Monday, June 19, 2023 around 7.25 p.m., at the border of the territories of the communes of Clerjus and Trémonzey (Vosges), a regional express train (TER) connecting Épinal to Belfort hit an exceptional road convoy immobilized on level crossing (LC) n° 51. This road convoy was compound of a tractor road and of a semi-trailer low-loader carrying a section of steel wind turbine mast. It was flanked by two light protection vehicles.

In line right, and by a good reflex, the train driver has triggered the emergency braking 400 m upstream of the LC. As a result, the speed of the TER during the collision was reduced to about 20 km/h, which greatly limited the consequences of the collision, limited to a few minor injuries on the train. The securing of the road load did not withstand. The investigation will focus in particular on the conditions of preparation and execution of the road transport related to the construction of wind farms.

1.2.4 Guided Transport

1) *Accident of person on the 22 April 2023 at the station Bel Air, line 6 of metro in Paris*

Saturday, April 22, around 4.07 p.m., a train is at the platform at Bel-Air station. The doors close on the clothing of a passenger who has gotten off, dragging her along when they are put on movement of the train. The train stopped by the activation of a handle alarm by a traveler in the metro. The traveler was seriously injured between the platform and the train, and will die.

2) *Fall of a traveler on the line B of RER on the 13 September 2023 at Bourg-la-Reine (92)*

A body is discovered at 1.50 a.m. on Thursday, September 14, 2023, approximately 50 meters after the platform 1 bis at Bourg-la-Reine station, in the direction of Robinson. We see on the recordings video of the station that a few hours earlier, the 13 September a 9.43 p.m., the victim was the last person to get off, and that his foot fell into the gap (space) between the train and the platform, which was particularly wide in this curved station. This caused its fall. It is dragged for a few meters onto the platform and then another 50 m beyond.

1.2.5 Waterways

1) *Clash of a bridge road on The Aisne by THE CELERITAS on the 17 January 2023 at Berneuil-sur- Aisne (60)*

With a driver, a sailor, and a cargo of 293 tons of fertilizer, the Dutch-flagged vessel CELERITAS was sailing up the Aisne River early in the afternoon on Tuesday, January 17, 2023.

At level of the bridge of Berneuil-sur-Aisne, the driver has borrowed the pass reserved to the downstream, believing that the other pass would be more dangerous given the flow and the current. The boat then struck with its left stern the submerged base of the central pier of the bridge.

The shock has created a breach at level of the hull and of reservoir port, below of the waterline, causing fuel to leak into the river and flooding the engine. The crew was able to get closer to the bank and moor to a tree. After temporarily plugging the leak, the boat moved the next day for about one kilometer, in order to park safely.

2) *Collision of two boat has passengers on the 2 september 2023 on the Seine River at Paris*

Saturday, 2 September, 2023 at 10.50 p.m., The GRAND PAVOIS and the IVOIRE, two boats carrying dinner cruises with 136 and 91 passengers on board, collided at The Grenelle bridge in Paris.

The first had just completed its U-turn downstream from the bridge and was preparing to return to the main branch of the Seine, going upstream. The second, which followed it a few minutes later, came of cross the bridge downstream and was in train of turn of manner to borrow rising the secondary arm of the river, said “arm of Grenelle”. Having suffered only minor damage, they were able to reach the riverbank and park. Sixteen people, including passengers and crew, were slightly injured. The investigation will focus in particular on the rules of good conduct on this busy section of the Seine.

1.3 Study open

An accident study on safety events on the service tracks of the national rail network was initiated on April 13, 2023

The evolution of all the collected safety events constitutes a warning signal to be used to improve the overall level of safety of the railway system.

A first phase of the study aimed at the exhaustive collection of events for the year 2022 And the three first quarters of the year 2023, thus that their classification by significant risk or consequence. The results of this first phase led to proposing, for the second phase, the deepening of a several themes among the following:

- among the safety accidents: derailments and collisions;
- among the safety incidents: untimely receptions on occupied track, overrunning the stopping point, catenary incidents and tailgating.

2 Reports published in 2023

2.1 Road Transport

2.1.1 Published investigations

Four reports have treaty of accidents of traffic road (except Level crossing and intersection with tram lines).

Date	Nature And location of The accident	Nb of fatalities
05/27/2021	Collision between a HGV and a coach on The A62 At Mas-d'Agenais (47)	0
06/08/2021	Collision between a HGV and a minibus on the A75 at Saint-Poncy (15)	1
12/12/2021	Collision between a salt spreader And A light vehicle on The A20 at Nespouls (19)	4
12/07/2022	Accident involving an electric minibus on The line The Crossing » Vaugirard Street at Paris ^{15th}	0

The first investigation made it possible to address the limits of use of automatic emergency braking (AEBS) in real configurations, too far removed from the homologation test conditions. It has also been the opportunity of emphasize the importance of respect for the so-called "rule" "safety corridor" and real-time information for drivers about the occurrence of unexpected events on the road they are using.

The second highlights the problem of driver lack of vigilance and reduced attention span, and makes the connection with the organizational arrangements for minibus transport in holiday and leisure centers. It highlights the risk factor posed by heavy goods vehicles, which, on motorways, are required to travel at low speeds uphill.

The third case suffered from a lack of data that could help understand the causes of the accident. However, the probable failure to wear a seat belt likely aggravated the consequences of the collision for the salt spreader driver. Beyond of interest obvious of this equipment, he has published useful of to wonder on the practices and reasons that may lead to not using the safety belt.

The fourth highlighted the risk, when regenerative braking is combined with the accelerator pedal, that a driving habit could lead to an error in an emergency situation. The consequences of confusion between acceleration control and braking control are further accentuated by the strong accelerations inherent in electric propulsion.

2.1.2 The recommendations issued

In conclusion to these four reports, the BEA-TT made 12 recommendations.

Nature of the recommendations

- 1 concerns the identification of the psychological, organizational, and human factors underlying the failure of operating personnel to wear seat belts, and awareness-raising actions regarding the need to wear this equipment;
- 2 aim to systematize the use of hazard warning lights by drivers who are forced to travel at slow speeds on steep motorway inclines: through training and a modification to the Highway Code;
- 2 concern the strengthening of signage and accident monitoring on steep inclines;
- 1 concerns the preventive measures to be taken by organizations using a 9-seater minibus for passenger transport;
- 1 concerns the performance of the automatic emergency braking system; □ 1 concerns the motorway traffic rule known as the "safety corridor";
- 2 concern real-time information for drivers, via navigation services, on road safety-related events;
- 2 concern the use by drivers of regenerative braking in electric vehicles.

Recipients

Six of these recommendations were each addressed, with the same wording, to multiple recipients, bringing the total number of recommendations received by recipients to 21, including:

- 9 to the central directorates of ministries responsible for regulations;
- 2 to heavy vehicle driver training organizations;
- 1 to road managers;
- 2 to a passenger road transport company;
- 2 to an association of private motorway concessionaires;
- 4 to navigation service providers;
- 1 to a coach transport company.

Actions planned by recipients

The table below shows the action taken by the recipients as of the end of 2023.

Investigation	Recommendations			
	Number	Accepted	No accepted	No answer
Mas-d'Agenais	10	5	1	4
Saint-Poncy	7	5	0	2
Nespouls	2	0	0	2
Paris-Vaugirard	2	2	0	0
TOTAL	21	12	1	8

2.1.3 The monitoring of actions

The status of follow-up to recommendations submitted between 2016 and 2023 is as follows:

Year of publication of The report	Number of recommendations addressed and followed			
	Total	Fenced		In progress
		Made	Not accepted	
2016	5	5	0	0
2017	-	-	-	-
2018	-	-	-	-
2019	8	5	0	3
2020	7	7	0	0
2021	7	3	0	4
2022	-	-	-	-
2023	12	1	0	11
Total 2013 - 2023	39	21	0	18

2.2 Rail Transport

2.2.1 Published investigations

Two accidents involving rail traffic excluding level crossings were the subject of an investigation report published in 2023. The nature, dates, and locations of these accidents are detailed in the table below.

In accordance with Articles L. 1621-1 and L. 1621-2 of the French Transport Code, only one of the two accidents, given its consequences, constitutes a "serious" accident requiring a technical investigation. It is marked in red in the table below.

Date	Nature and location of the accident	Nb of fatalities
09/17/2020	Derailment of a train of freight RegioRail has Corbonod (01)	0
02/06/2022	Fall of a dump truck on THE ways railways has Saint-Chamond (42)	0

The first accident involved a freight train transporting mineral water between the town of Publier in Haute-Savoie and the United Kingdom. The first axle of the fifth car derailed, destroying almost 3 km of track.

The immediate cause of the derailment was the failure of an axle journal, the part that supports the car on the axle. The loss of the connection between the axle and the car caused the axle to pivot, then climb onto the rail, followed by the derailment. The axle became stuck under the car, destroying the track. Also rubbing against the metal frame structure while rotating, the axle caused a shower of sparks that started a fire.

The axle journal broke due to its high temperature due to the jamming of the bearing into which the journal is inserted. This blockage was caused by the loosening of the bearing assembly screws, evidenced by the "trepanning" of the bearing housing cover.

The Saint-Chamond accident involved a dump truck falling from Boulevard de Fonsala onto the SNCF tracks, after leaving its lane just before the road bridge. In its fall of more than 9 meters, it tore off the overhead lines, causing a power outage on both railway lines. The truck driver suffered only minor injuries. No train was passing nearby at the time of the truck's fall, which also accidentally activated the train arrester.

The truck's fall was caused by its excessive speed and loss of control on the variable-radius curve upstream of the bridge. It climbed onto the sidewalk about twenty meters before the bridge and then struck the extension of the bridge's guardrail. The restraining devices were unable to prevent the truck from falling. A broader study was conducted on the protection of existing railway crossing structures against vehicle falls. A method for prioritizing structures by risk level is proposed, as a preliminary to a reduction approach recommended at the national level and which would be implemented in each department.

2.2.2 The recommendations issued

In these two reports, eight recommendations were made by the BEA-TT.

Nature of Recommendations

- One recommendation concerns the creation of a state-of-the-art inventory of axle cap assembly operations in the workshop, with a view to improving operating procedures, monitoring, and traceability, and ensuring long-lasting prestressing of the cap screws;
- One recommendation concerns verifying the completeness of feedback on the use of "SNCF" type brake plates for wagons and, if a risk is observed, initiating actions to address this risk.
- One recommendation concerns a request for a survey of railway companies on feedback on "SNCF" type brake plates. If risks are confirmed, decide on a request for a correction to the relevant VPI reference document;
- One recommendation concerns the road bridge where the accident occurred;
- Four recommendations concern the national trajectory for progressively reducing the risk of similar accidents on the national rail réseau. This trajectory necessarily involves project owners other than the State.

Recipients

One of these recommendations was addressed, with the same wording, to several recipients, bringing the total number of recommendations received by recipients to nine, including:

- 4 to a central administration department (DGITM);
- 3 to wagon owners' associations (AFWP and UIP);
- 1 to the railway company SNCF Voyageurs;
- 1 to Saint-Etienne Métropole.

Actions planned by recipients

The table below shows the actions taken by recipients as of the end of 2023.

Investigation	Recommendations			
	Number	Accepted	No accepted	No answer
Corbonod	4	0	0	4
Saint-Chamond	5	3	1	1
TOTAL	9	3	1	5

2.2.3 The managing of the actions

The Public Railway Safety Agency (EPSF) monitors actions following the recommendations made by the BEA-TT to rail transport stakeholders.

The status of recommendations submitted between 2004 and 2023 is as follows:

Year of publication of The report	Number of recommendations addressed and followed			
	Total	Fenced		In progress
		Made	Not Accepted	
2004-2016	162	152	7	3
2017	17	11	0	6
2018	5	5	0	0
2019	12	6	0	6
2020	3	0	0	3
2021	10	0	3	7
2022	14	4	0	10
2023	8	0	1	7
Total 2004-2023	231	178	11	42

The follow-up is as follows regarding the fire that occurred on board a Eurotunnel freight shuttle on 17 January 2015.

Year of publication of The report	Number of recommendations addressed and followed			
	Total	Fenced		In progress
		Made	Not Accepted	
2016	6	5	0	1

2.3 Level crossings

2.3.1 Published investigations

Four investigations into level crossing accidents were published in 2023. The table below details the nature, location, and dates of these accidents.

In accordance with Article L. 1621-1 of the French Transport Code, one of these accidents, given its consequences, constitutes a "serious" accident requiring a technical investigation. It is identified in red in the table below.

Date	Nature and location of the accident	Nb of fatalities
01/15/2021	Collision between A TER And A vehicle light has Peronnas (01)	1
06/16/2021	Collision between A train of freight And a transport exceptional has Rumigny (08)	0
8/11/2021	Clash of a pedestrian by A train in Héricy (77)	0
05/29/2022	Incident between a TGV And a coach has Bizanos (64)	0

The first investigation failed to identify the causes of the light vehicle's presence on the level crossing platform at the time of the train's arrival, given the death of its driver, who was alone on board, and the condition of the vehicle after the collision.

The second investigation, Rumigny, noted, on the carrier's side, non-compliance with several regulatory requirements and numerous shortcomings in the preparation and conduct of this exceptional transport, including the failure to inform SNCF Réseau and the failure to appoint a convoy leader. On the management side, previous railway works had hardened the longitudinal profile of the road, which exacerbated the difficulties of crossing this level crossing without the road manager being aware of it. The third investigation identified a perception of risk, and therefore insufficient vigilance on the part of pedestrians when crossing railway tracks, due to the attention paid to their smartphones, the lack of audible and visual equipment indicating the approach of a train, and reduced visibility due to weather conditions and the environment around the tracks.

The fourth investigation highlighted a lack of preparation for the journey and inappropriate use of the smartphone's GPS navigation system, leading to failure to comply with road signs, which are themselves not free from ambiguity. The failure of the level crossing's emergency call points caused by repeated acts of vandalism prevented the alert from being transmitted to the railway manager.

2.3.2 The recommendations issued

For these four investigations, 13 recommendations were made by the BEA-TT. In addition, an immediate safety recommendation was issued as part of the ongoing investigation into the collision between a TER train and an exceptional transport vehicle that occurred on June 19, 2023, in Clerjus (88).

Nature of the recommendations

- 7 concern regulatory developments and the development of road infrastructure for level crossings, including pedestrian crossings, and the provision to carriers of associated data relating to their longitudinal profile;
- 3 concern the regulation of the movement of exceptional road convoys and the status of the documents authorizing it;

- 1 concerns the regulations relating to the performance of the mountings of certain portable equipment located in the carriages and in the train driver's cab;
- 1 concerns raising awareness among train drivers regarding the issues of initializing ground-to-train radio, particularly near level crossings;
- 1 concerns the training of drivers of a coach transport company on the specific issues of crossing level crossings;
- 1, immediate, concerns the verification of the longitudinal profile of the level crossing and its inclusion in the list of level crossings with difficult crossings.

Recipients

Some recommendations were addressed, with the same wording, to several recipients, so that the total number of recommendations received by recipients amounts to 15, including:

- 2 to the main infrastructure manager of the national rail network, SNCF Réseau, including one immediate recommendation;
- 4 to municipalities, authorities with traffic policing powers;
- 2 to the Road Safety Delegation (DSR) of the Ministry of the Interior, responsible for regulations on the movement of exceptional convoys;
- 2 to the General Directorate for Infrastructure, Transport, and Mobility (DGITM) of the Ministry of Ecology, responsible for regulations on level crossing equipment and the national implementation of the level crossing safety policy;
- 1 to all railway companies.
- 1 to all railway infrastructure management companies;
- 1 to a road coach transport company;
- 2 to the Public Railway Safety Establishment (EPSF).

Actions planned by the recipients

The table below shows the action taken by the recipients as of the end of 2023.

Investigation	Recommendations			
	Number	Accepted	No accepted	No answer
Peronnas	4	4 ¹	0	0
Rumigny	5	5 ²	0	0
Héricy	3	2	0	1
Bizanos	2	0	0	2
THE Clerjus	1	1	0	0
TOTAL	15	12	0	3

¹ The recommendation addressed to the whole of railway companies generated 15 answers

² The recommendation addressed to the whole of railway infrastructure managers generated 3 answers.

2.3.3 Managing the actions

The Public Railway Safety Agency (EPSF) monitors actions following recommendations issued by the BEA-TT.

The status of follow-up to recommendations submitted between 2016 and 2023 is as follows:

Year of publication of The report	Number of recommendations addressed and followed			
	Total	Fenced		In progress
		Made	Not Accepted	
2016	5	5	0	0
2017	-	-	-	-
2018	-	-	-	-
2019	8	5	0	3
2020	7	7	0	0
2021	7	2	0	5
2022	-	-	-	-
2023	12	1	0	11
Total 2016 - 2023	39	19	0	20

2.4 Guided transport

2.4.1 Published investigations

An investigation into a guided transport accident was published in 2023.

Date	Nature and location of the accident	Nb of fatalities
06/04/2022	Accident of train sightseeing of Coni'fer has The Cluse-et-Mijoux (25)	0

This involved the drifting of a wagon and a dining-wagon, leading to a steam locomotive catching up. This accident occurred during a maneuver upstream from the Fontaine Ronde terminus station. The collision occurred at an estimated speed of between 5 and 10 km/h. The cause was the poor immobilization of the two vehicles on a steep slope, at the location of the uncoupling maneuver. The investigations focused on the immobilization and uncoupling maneuver of the vehicles, the safety functions of the agents and the means of stopping a drift, and finally on the safety management within the operator.

2.4.2 The recommendations issued

Eight recommendations were made by the BEA-TT.

Nature of the recommendations

Of these eight recommendations:

- 2 concern improving driver training;
- 4 concern improving procedures, the allocation of safety functions, and, more generally, the operator's safety management;
- 2 relate to the operator's oversight by the inspection service.

Recipients

These recommendations were addressed to:

- 4 to the system operator;
- 4 to the Ski Lifts and Guided Transport Technical Service (STRMTG).

Actions planned by recipients

The table below shows the action taken by the recipients as of the end of 2023.

Investigation	Recommendations			
	Number	Accepted	No accepted	No answer
Coni'fer	8	8	0	0

2.4.3 Managing the actions

Based on the monitoring carried out by the technical service for guided transport and ski lifts (STRMTG), the progress of actions following the recommendations made between 2017 and 2023 following guided transport accidents is as follows:

Year of publication of The report	Number of recommendations addressed and followed			
	Total	Fenced		In progress
		Made	Not accepted	
2017	17	17	0	0
2018	6	6	0	0
2019	3	3	0	0
2020	13	11	0	2
2021	7	5	0	2
2022	22	12	2	8
2023	8	5	0	3
Total 2017-2023	76	59	2	15

2.5 River transport

2.5.1 Published investigations

No survey was published in 2023 for the river sector.

2.5.2 Managing the actions

The following table presents the progress report established by the BEA-TT based on information obtained from the various stakeholders concerned.

Year of publication of The report	Number of recommendations addressed and followed			
	Total	Fenced		In progress
		Made	Not accepted	
2020	2	2	0	0
2021	6	5	0	1
2022	3	0	0	3
2023	-	-	-	-
Total 2020-2023	11	7	0	4

2.6 Ski lifts

2.6.1 Published investigations

No survey was published in 2023 in the field of ski lifts.

2.6.2 Managing the actions

Based on the monitoring carried out by the technical service for guided transport and ski lifts (STRMTG), the operational implementation of the recommendations made between 2017 and 2023 following ski lift accidents, and which received a response, is as follows:

Year of publication of The report	Number of recommendations addressed and followed			
	Total	Fenced		In course
		Made	No accepted	
2017	8	8	0	0
2018	5	3	0	2
2019	3	3	0	0
2020	0	0	0	0
2021	0	0	0	0
2022	0	0	0	0
2023	0	0	0	0
Total 2016- 2022	16	14	0	2

3 Progress notes published in 2023

Progress Reports

Depending on the nature of the accident and when the time required to complete the investigation exceeds one year, the publication of progress reports to inform stakeholders and the public of the progress of the investigations and to announce the initial preventive guidelines to the entities concerned is mandatory for serious rail accidents. The BEA-TT has decided to extend this practice to all modes of land transport.

In 2023, eight "one-year" progress reports were posted online.

Four concerned investigations whose reports were published in 2023. They are therefore no longer available on the website. The other four are still:

- The collision between a TER and a HGV on February 24, 2022, on level 22 in Hochfelden (67)
- The fire involving two RATP electric buses in April 2022 in Paris
- The prolonged immobilization of a TGV on October 9, 2022, in the Fréjus tunnel (73)
- The derailment of a freight train on November 23, 2022, at Carcassonne station (11)

Appendix 1: Table of the Public Railway Establishment (EPSF) presenting the monitoring of the implementation of the recommendations issued by the BEA-TT in the field of rail transport

This document presents the progress as of December 31, 2023, in the implementation of actions following the recommendations issued by the BEA-TT to stakeholders in the rail sector.

The updated status of actions for the 2023 fiscal year is shown in bold.

Railway transport: Recommendations issued in 2015

Date of the report	Title of the survey	No.	Label of the recommendation of BEA- TT	Recipients	State of the actions followed by EPSF at the end of 2023	Code :
05/2015	Collision following drift at Modane (73) on 01/24/2013	R1	Tighten and clarify the maintenance rule aimed at finding and eliminating, on the fleet of wagons for which you are the entity responsible for maintenance, coupling tensioners not bearing the marks of conformity to the European standard or to recognized national standards.	ERMEWA	ERMEWA responded with a commitment to take action on the inspection of its fleet's coupling tensioners. By the end of 2021, 46% of the wagon fleet affected by this recommendation had been addressed. The EPSF is awaiting a provisional schedule for completing the action plan. Despite the EPSF's follow-up, no information on the progress of the implementation of these actions has been provided. Actions in progress	O
		R3	As soon as the modification covered by recommendation R2 is finalized, apply it during the revisions of the distributors concerned of the wagons for which you are the entity responsible for maintenance.	SNCF Voyageurs Equipment Department	Faiveley plans to supply SNCF with prototypes of so-called "-50°C" membranes in September 2020. The first type is currently being serviced. The other type of membranes planned, after acceptance and inspection, will be applied starting in June 2021. Since June 2021, Faiveley's membranes have been used for Level 4 maintenance. SNCF Voyageurs was unable to provide EPSF with information on the progress of implementing this action in 2023. Actions in progress	O

Railway transport: Recommendations issued in 2016

Date of the report	Title of the survey	No.	Label of the recommendation of BEA- TT	Recipients	State of the actions followed by EPSF at the end of 2023	Code :
11/2016	A TER train drifted after a collision with cattle in Serqueux (76) on 10/20/2015	R2	Positioning of the obstacle clearing device and protection of sensitive underbody components Involving the railway sector and after determining the most appropriate form for the European context: ➤ Explain how to calculate and use the rolling stock construction gauge to optimize the positioning of the obstacle clearing device with regard to the risk of overlapping an obstacle located on the track; ➤ ➤ Formulate useful requirements for the identification of sensitive underbody components, their protection, and their positioning in height relative to the obstacle clearing device.	EPSF	The passive safety standard (EN 15227) was published in 2020 with a new wording that meets the BEA-TT recommendation. Regarding the rolling stock gauge standard (EN 15273-2), publication is not expected before early 2024. After analysis, EN 15273-2 does not appear to be the standard that could include requirements that meet the recommendation. Conversely, the Loc&Pas TSI guide could be usefully amended. To this end, in May 2023, the EPSF proposed a commentary in the appropriate application guide. The proposal was not accepted by the European Railway Agency and will require a more precisely formulated amendment request. Action in progress	○

Railway transport: Recommendations issued in 2017

Date of the report	Title of the survey	No.	Label of the recommendation of BEA- TT	Recipients	State of the actions followed by EPSF at the end of 2023	Code
01/2017	Derailment of a TER train on the switch station entrance of Sainte-Pazanne (44) 10/12/2015	R1	- Launch relevant studies or investigations to improve knowledge of the wheel fouling phenomenon. - Without delay, consider this phenomenon and the possibility of wheel fouling on clean rails when considering the risk associated with wheel fouling, including on ITE track circuits, and examine the relevance of equipping X 73500s with scrubbers (or any other wheel cleaning equipment). - Take the results of these studies into account to develop, if necessary, the equipment admission standards for the RFN and at the European level, in conjunction with the European Railway Agency.	SNCF voyageurs SNCF réseau EPSF	Studies were conducted to better understand the phenomenon of wheel fouling. They provide details on electrical insulation characteristics. Various wheel cleaning solutions on equipment not equipped with brake blocks were tested, particularly on X73500s in the Auvergne-Rhône-Alpes region. The entire X73500 fleet will be equipped by SNCF Voyageurs in 2023. In 2022, joint work between SNCF Réseau and EPSF resulted in a draft version of SAM004. In 2023, discussions were extended to the entire sector to produce a final version. A consolidated version resulting from the working group will be submitted for consultation to the sector, with publication planned before the first half of 2024. Action underway	O
		R3	Formalize the criteria and process for granting S6A No. 4 exemptions so as to limit them to cases where they correspond to a real need for the operation of the position concerned.	SNCF Réseau	SNCF Réseau implemented the principle of risk analyses to address this recommendation. By the end of 2020, two-thirds of the establishments had completed these risk analyses, and this phase is expected to be completed by the third quarter of 2021. In August 2023, SNCF Réseau submitted a supporting document relating to "measuring the effectiveness of the WYBO method to better control the risk of de hunting and to enable the lifting of precautionary measures." After analyzing the file, the EPSF acknowledged the conclusions and did not object to the lifting of the measures under the conditions recommended in the file. Action closed	C

Railway transport: Recommendations issued in 2017

Date of the report	Title of the survey	No.	Label of the recommendation of BEA- TT	Recipients	State of the actions followed by EPSF at the end of 2023	Code
01/2017	Derailment of a TER train on the switch station entrance of Sainte-Pazanne (44) 10/12/2015	R4	Conduct a study on the functionalities of modern stations in order to be able to adapt them to the real needs of the stations where they are located and thus limit their vulnerability in the event of de hunting.	SNCF Réseau	Consideration of the de hunting issue in the design of signal boxes will be included in the specifications for the preliminary studies of the réseau's centralized controls. In early 2023, information was submitted demonstrating that the issues raised by this recommendation have been taken into account in the IG 33311 signaling study directive concerning the choice of track circuit type. Actions closed	C
11/2017	Multiple rail breaks between the Beillant and Jonzac stations (17) on 12/13/2016	R3	Develop and then implement a policy for deploying convoy anomaly detectors on the main freight traffic flows. This set of detectors should aim to stop convoys containing vehicles with dangerous wheel defects but also to identify and report to the railway company, the entity in charge of maintenance or the relevant keeper, vehicles with non-critical defects but likely to damage the infrastructure.	SNCF Réseau	SNCF Réseau is committed to studying the principles of implementing train anomaly detectors on the national rail réseau. The progress schedule, which includes the necessary technical studies and risk analyses, indicates a deadline of the end of 2022. A feasibility test for alarm reporting in the substation was conducted at the end of November 2022. The report of this test demonstrated the technical feasibility of the solution. In 2023, SNCF Réseau informed EPSF of the existence of a draft deployment master plan. A technical and economic study is underway to finalize this plan. EPSF is awaiting the conclusions of this study, which should specify the deadlines for completing these actions. Actions in progress	O

Railway transport: Recommendations issued in 2019

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code
04/2019	Pedestrian struck by train on crossing on February 22, 2018 in station from Écommoy (72)	R1	Study the technical conditions under which light signals for public crossings of railways can be equipped with means of recording their operational proof. Define a modernization plan to enable, within a timeframe to be specified, the equipment to be equipped with this recording capability.	SNCF reseau	SNCF Réseau is committed to studying the technical conditions under which the TVP light signals can be equipped with means of recording their proof of operation. The target date is the end of September 2021. The plan for deploying a technical solution remains without a target date and depends on the completion of the previous action. The technical studies were completed in 2022. For the "local TVP recorder" requirement, a technical solution was selected. In 2023, SNCF Réseau deployed the technical solution on eight planned construction sites, without, however, defining a deployment plan for all sites equipped with TVPs with pictograms. The EPSF is still awaiting this plan specifying a target date. Actions in progress	O
		R3	Finalize tests to improve warning signs at road crossings by strengthening road markings indicating the danger zone, improving the ergonomics of the signs, and adding a second mode of perception other than visual. Following this, develop a plan for implementing the improvements.	SNCF Reseau	SNCF Réseau is committed to testing and defining fixed warning signage for track crossings in stations (signs and floor markings) with improved ergonomics. The deployment of the new fixed signage will be specified once it has been defined. The addition of a second mode of perception other than visual is included in its response to Recommendation 5. In March 2023, the "RRA 20069 Station Safety Signage" application guide was published. The overall deployment plan is currently being defined by a working group led by SNCF Gares & Connexions and will begin in late 2023. Action in progress	O

Railway transport: Recommendations issued in 2019

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code
04/2019	Pedestrian struck by train on crossing on February 22, 2018 in station from Écommoy (72)	R4	Study and deploy new awareness-raising solutions aimed at raising the awareness of risks among travelers who have to use railway crossings and encouraging them to adopt real preventive behaviors to address these risks.	SNCF voyageurs	In addition to the measures already implemented in situations where stations equipped with TVPs are served (station signage, on-board and in-station announcements, distribution of flyers in stations, etc.), SNCF Voyageurs will enhance the content of presentations made during school outreach activities. Based on the identification of risky situations in the railway environment of each school, the prevention message will be tailored to the local context to better raise awareness among young people. Action still ongoing as of December 31, 2023 Note: Following the evidence submitted to the EPSF in March 2024 on the enhancement of school outreach activities and their adaptation to each student level, the action will appear as completed in the 2024 action monitoring document.	O
		R5	Drawing lessons from the risk study conducted by SNCF Réseau on pedestrian crossings of tracks at level, by testing defenses against the risk of being struck by a train in the station in the event of a lack of attention to light signals, for example the presentation of a physical obstacle. These solutions, once validated, could be proposed in crossing safety projects.	SNCF réseau	SNCF Réseau has launched a research project to objectify all the factors involved and develop a strategy for improving TVPs. SNCF Réseau is committed to piloting the selected measures by the end of 2024 and, where appropriate, integrating them into the safety policy for preventing the risk of collisions in stations on TVPs. In 2022, the pilots have been postponed to the end of 2026. The update of the station collision risk policy is scheduled for June 2025. The TVP NG (new generation) project officially launched in January 2023. The update of the station collision risk policy has been postponed to December 2025. Action underway	

Railway transport: Recommendations issued in 2019

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code ²
12/2019	Study Fatal Accidents Due to Trespassing on Railway Property Analysis of Accidents in 2015 and 2016 and Prevention Policies	R2	Deploy a tool for understanding the fencing assets on the network, describing the installation and condition of the devices, for monitoring purposes by local managers of the risk of online collisions.	SNCF Réseau	SNCF Réseau is continuing the deployment and quality assurance of the GAIA tool, designed to inventory all of its assets and, ultimately, store data relating to closures. In January 2022, SNCF Réseau indicated the following commitments to the EPSF: - over a 12-month period: consolidate the inventory system, identify the various available data sources, establish a procedure and work program, and mobilize the necessary resources; - over a 24-month period: conduct an inventory of all assets without conducting exhaustive field visits, and enter them; - over a 24-month period: conduct the necessary field visits to collect information that could not have been obtained previously. In 2023, no additional information on the progress of the implementation of this action could be obtained. Action in progress	O

Railway transport: Recommendations issued in 2019

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code ²
12/2019	Study Fatal Accidents Due to Trespassing on Railway Property Analysis of Accidents in 2015 and 2016 and Prevention Policies	R3	Study the opportunity to establish a regulatory requirement requiring the construction of a physical barrier between railway rights-of-way and adjacent land, in and near so-called urban areas within the meaning of the Urban Planning Code.	DGITM	As part of the feedback meetings organized specifically for infrastructure managers, an ad hoc working group will identify alternatives or complementary measures to fencing that can prevent intrusions. The group's work will be recorded in a report that will also include an assessment of their effectiveness from a safety perspective, taking into account the investments required. Following this work, the DGITM will consider the possibility of establishing a regulatory requirement. The target date, initially set for December 31, 2021, could not be met. The working group will be launched in the fourth quarter of 2024. Its objectives will be to assess railway rights-of-way equipped with fencing and, if possible, to assess their effectiveness. At the same time, a benchmark and cost analysis will enable continued research into alternatives or complementary measures to fencing, consistent with the objectives of the double compensation rule. Action in progress	O

Railway transport: Recommendations issued in 2021

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions followed by EPSF has end of 2023	Code ²
05/2021	Axle jammed on freight train between Romilly-sur-Seine and Troyes (10) THE 07/26/2019	R4	Re-examine the terms of the approval tests for "LL" pads, taking advantage of feedback on deterioration by digging of the wheel tread, during brake application incidents, on wagons equipped with these pads.	ERA	The Agency responded with a two-step approach. First, UIC should reconsider the brake application tests defined in its UIC leaflet, taking into account the conclusions of the technical investigation report. When the UIC leaflet is updated, it could then be considered by the appropriate working group responsible for the revision of TSIs to amend the technical document referred to in Regulation 321/2013 (TSI Wagon). In February 2022, the JNS urgent procedure "Extreme effects of thermal overload in special cases of freight operation" (Joint Network Secretariat) resulted in the dissemination of the group's conclusions regarding the identified risk. The JNS normal procedure "Consequences of unintended brake applications with LL blocks" is still ongoing. Action in progress	O
				Bureau of Railway Standardization (BNF)	The BNF has not yet provided the BEA-TT with a response to this recommendation. In April 2023, the EPSF reminded the BNF of the existence of this recommendation. Currently, standard NF EN 16452 (Railway Applications – Braking – Brake Blocks) is in the design stage with no specific deadline for its publication. Action in progress	O
				UIC	The UIC responded to the recommendation by initiating a working process with its members to secure funding for a project to review the certification testing procedures for "LL" soles. No information on the progress of the implementation of these actions was received by the EPSF in 2023. Action in progress.	O

Railway transport: Recommendations issued in 2021

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
07/2021	Exceeding the authorized speed limit by a TGV on the BPL line at La Miliesse (72) on 12/22/2019	R1	Review the "ETCS signaling" production processes to ensure that a verification error is not propagated throughout the rest of the production process.	HITACHI RAIL STS	The configuration verification and validation process has been reanalyzed, taking into account the precursors of each activity, and revised to prevent errors from propagating throughout the rest of the process. The "Configuration Verification Plan" documentation has been updated for the BPL and SEA projects and is currently being developed for the LGVEE project as part of the N1/N2 transitions, where the client was expected to submit documents by December 2021. The target date for this final action, allowing for the completion of the monitoring, is set for the first quarter of 2022. The EPSF is still awaiting evidence to complete this action. No information on the progress of the implementation of actions has been received by the EPSF in 2023. Actions in Progress	O
		R2	Study the implementation of formal method algorithms in the context of proving the safety of signaling systems.	HITACHI RAIL STS	This recommendation will be considered as part of upcoming HITACHI RAIL STS projects. The ARGOS projects already include formal proof activities, and studies will be conducted within this framework. This action remains open pending evidence on formal method implementation studies. The EPSF is still awaiting evidence to complete this action. No information on the progress of the implementation of these actions has been received by the EPSF in 2023. Action in progress	O

Railway transport: Recommendations issued in 2021

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
07/2021	Exceeding the authorized speed limit by a TGV on the BPL line at La Miliesse (72) on 12/22/2019	R3	Formalize a process for exploiting precursors during verification and validation operations in order to research and treat the root causes.	HITACHI RAIL STS	Hitachi Rail STS's response is identical to that provided for recommendation R1. The target date is the first quarter of 2022. The EPSF is still awaiting evidence to complete this action. No information on the progress of the implementation of these actions has been received by the EPSF in 2023. Action in progress	O
		R4	Review the evaluation methodology regarding "system validation" according to CENELEC 50126 and following standards in order to guarantee the validity of the evaluation.	CERTIFER	CERTIFER has drafted an internal document called RFU, applicable (unless justified) and relating to the "evaluation of the configuration process." Its purpose is to specify and clarify regulatory or normative requirements. This document will be referenced by the RF0015 standard, "For the Certification of the Safety Integrity Level of Products or Systems According to CENELEC Standards EN50126, EN50128, and EN50129." The application of this RF0015 standard is monitored by COFRAC during its periodic CERTIFER audits. The EPSF is still awaiting evidence to complete this action. No information on the progress of the implementation of these actions has been received by the EPSF in 2023. Action in progress	O

Railway transport: Recommendations issued in 2022

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
01/2022	Derailment of a TGV on the East European high-speed line on March 5, 2020 in Ingenheim (Bas-Rhin)	R1	Strengthen the requirements of the technical reference system for the construction of high-speed lines concerning the supervision of the consistency of tests leading to the choice of geomechanical parameters for verifying the stability of large excavation slopes.	SNCF RÉSEAU	SNCF Réseau undertakes to amend, by providing the necessary clarifications to the existing parties concerned, the requirements of the technical reference document dealing with the consistency of the tests to be conducted to define the choice of geomechanical parameters for verifying the stability of large cutting slopes for the construction of high-speed lines. In 2023, the resumption of the LGV IN3278 design reference document, initially scheduled for December 31, 2023, has been postponed to June 30, 2024. Action in progress	O
		R2	Complete the analyses and projects for remedial works following the accident, in order to address the risk of embankment slippage on the eastern terminal section of the LGV Est Européenne.	SNCF RÉSEAU	In addition to the studies conducted on structures consisting entirely or partially of the same geological formation as the embankment involved, SNCF Réseau will conduct additional analyses on all structures on section H of the LGV Est line. The target date has been set for December 31, 2022. In April 2023, the EPSF received the analysis of the stability of the high-rise excavated material on section H of the LGV Est line, which enabled the action to be completed. Actions closed	C
		R3	Study and decide on the benefit of incorporating radar interferometry analyses, or any other relevant technique, into the monitoring operations of spoil classified as sensitive under the maintenance policy.	SNCF RÉSEAU	SNCF Réseau continues to use InSAR interferometry while pursuing the development and implementation of a set of complementary digital monitoring tools. These tools are based on technologies from metrology and geosciences and will improve the detection of early warning signs of problems in the coming years. A summary will be written on the feedback from the use of InSAR as well as the prospects for other technologies. In June 2023, the summary note "Evaluation of the contribution of satellite radar interferometry to monitoring the stability of railway spoil" was submitted to the EPSF, enabling the project to be completed. Project closed	C

Railway transport: Recommendations issued in 2022

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
01/2022	Derailment of a TGV on the East European high-speed line on March 5, 2020 in Ingenheim (Bas-Rhin)	R4	Review the requirements for monitoring internal drainage structures on large embankments with a view to ensuring their inspection by camera and knowledge of their proper working order.	SNCF RÉSEAU	SNCF Réseau is committed to amending existing requirements for drainage monitoring and maintenance, particularly the standard that defines the type of maintenance to be carried out on earthworks and their associated structures, such as drainage trenches. In 2023, the amendment to the relevant standard, initially scheduled for December 31, 2023, has been postponed to March 31, 2024. Action in progress.	O
07/2022	Infrastructure maintenance workers struck by a regional express train in Schiltigheim (67) on March 18, 2020	R1	Develop specific training and exercises in safety communications between maintenance agents and signal boxes. Develop monitoring regarding the quality of these exchanges using appropriate means (for example, recordings where available).	SNCF RÉSEAU	SNCF Réseau has committed to four actions: • Incorporate a safety communication component into the "new S9" training scheduled for 2023 for all maintenance and signal box operators. • Create, as part of continuing education, specific exercises on inter-professional safety communication for maintenance and signal box operators in 2024. • Include, starting in January 2025, joint exercises on safety communications in the initial training of maintenance and signal box operators. • Study and describe the communications monitoring methodology in 2023. In 2023, evidence of the incorporation of a safety communication component into the "new S9" training was submitted to the EPSF. The other actions are still ongoing.	O
		R2	Implement a safety watch to verify the adequacy between the walking tours carried out and the construction site insurance actually taken out where prescribed, to anticipate any difficulty that could affect safety	SNCF RÉSEAU	SNCF Réseau is committed to studying the provision of information relating to the actual completion of work operations as part of the development of digital tools related to work within the Maintenance and Works entities. The study, whose conclusive results were initially expected by the end of 2023, was not completed and has been postponed with no target date at this stage. Action in progress	O

Railway transport: Recommendations issued in 2022

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
07/2022	Infrastructure maintenance workers struck by a regional express train in Schiltigheim (67) on March 18, 2020	R3	Ensure the implementation of a modern system less susceptible to human error regarding the safety of personnel working on the roads during regeneration of traffic management systems. Inventory the dense traffic areas covered by the modern systems already implemented to quantify this modernization	SNCF RÉSEAU	SNCF Réseau has committed to three actions: • Define the concept of a "dense zone" for personnel safety. • Work, in parallel, on the criteria for characterizing a modern system for the safety of personnel working on the tracks in order to create an inventory. • Link modern systems to areas meeting the definition of a "dense zone" in order to inventory those already covered by said modern systems as well as those scheduled for regeneration. The target date for these actions is June 30, 2024. Actions in progress	O
		R4	To consider reasonably feasible means of enabling a train's horn to be triggered automatically when a driver applies the emergency brake of the moving train	SNCF Voyageurs	In February 2023, SNCF Voyageurs committed to studying the feasibility of such a change to its vehicle fleet. Actions underway	O

Railway transport: Recommendations issued in 2022

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
11/2022	Derailment of a freight train, August 26, 2021 in Saint-Hilaire-au-temple (51)	R1	Make ARMEN and DEFRAIL data on the state of wear and tear of the rails more reliable in order to identify and locate the oldest and most used rails	SNCF Réseau	To address this recommendation, SNCF Réseau has committed to three actions: • Make the necessary changes to its tracking tool (ARMEN) to define the year of manufacture of reuse rails as a standard when this is unknown. The standard date is calculated by subtracting 30 years from the year the rail was laid; • Conduct a communication campaign on the quality of data entry in DEFRAIL with data entry operators; • Deploy a new tool for identifying and locating the most critical rails. In 2023, SNCF Réseau published two memos concerning, on the one hand, "understanding and assessing the criticality of rail assets on the national rail network" and, on the other hand, the new ARMEN provisions on rail reuse. The deployment date of the new identification and location tool has not yet been specified. Ongoing actions	O
		R2	Review the requirements for rail cutting and renewal with a view to ensuring the earliest possible removal of the oldest and most stressed rails or their good working order	SNCF Réseau	SNCF Réseau is committed to adapting the maintenance requirements for older rails according to the following principles: • strengthening the visual rail inspection cycle on lines 7 to 9 AV at $V < 140$ km/h; all main lines of the rail network are now subject to annual visual rail inspections. • changing the requirements regarding rail sectioning; • banning the installation of reused rail manufactured before 1980. The target date is July 1, 2024. Actions underway.	O

Railway transport: Recommendations issued in 2022

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
11/2022	Derailment of a freight train, August 26, 2021 in Saint-Hilaire-au-temple (51)	R3	Complete in the reference documents the strengthening of analyses and methods for monitoring the actual condition of rails in order to address the risks linked to the age of old rails, particularly vertical cracking defects. Include in the general maintenance organization the provisions ensuring that these new measures are taken into account in a reliable and auditable manner.	SNCF Réseau	SNCF Réseau is committed to developing a rail rating tool to assess rail criticality. The requirements for rail monitoring will change: • The visual rail inspection cycle has been extended from three years to one year on lines 7 to 9 AV at V<140 km/h. All main lines on the network are now subject to annual visual inspections. • The rail inspection speed of heavy-duty ultrasonic rail inspection (ELUS) vehicles has already been adapted to the actual condition of the rail system. • The US inspection cycles for lines 7 to 9 AV will be adapted to the rail's deterioration. The completion of this action is linked to the deployment of the tool referred to in recommendation R1. No target date has been set at this stage. Actions in progress	O

Railway transport: Recommendations issued in 2022

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
11/2022	Derailment of a freight train, August 26, 2021 in Saint-Hilaire-au-temple (51)	R4	Study the feasibility of improving detection quality by strengthening the methods and resources used on heavy ultrasonic rail inspection equipment in order to improve the safe detection rate of rail defects, particularly longitudinal vertical cracking defects in the rail head, using, where appropriate, new available techniques and useful cross-referencing with the national rail network description databases. Pending conclusive results, prescribe that the 113/213 sensors be more systematically operational, that the inspection speed be adapted to the quality of the rail-sensor coupling and that the trigger thresholds be re-instructed, in light of the other actions implemented to minimize the risk of non-recognition	SNCF Réseau	Since 2022, SNCF Réseau has been exploring opportunities to strengthen the resources deployed on heavy monitoring equipment and those offered by technological developments to improve their performance. In the meantime, and since October 2022, SNCF Réseau has modified the briefing procedures on board these vehicles by incorporating the systematic implementation of 113/213 sensors and the adaptation of the monitoring speed by the engine manager based on the rail-sensor coupling and detection performance. SNCF Réseau has published a summary note describing the strengthening of the methods and resources implemented on ELUS in response to this recommendation. Actions closed	C

Railway transport: Recommendations issued in 2022

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
11/2022	Derailment of a freight train, August 26, 2021 in Saint-Hilaire-au-temple (51)	R5	To analyze from the point of view of human and organizational factors the task of carrying out rail tours aimed at detecting defects in order to draw useful lessons from the point of view of the organization of tours, the training of operators and the provision of appropriate practical support.	SNCF Réseau	To address this recommendation, SNCF Réseau has committed to updating the standards governing the organization of rail monitoring tours. In particular, the operational TSAE "Ensuring the monitoring of critical components of the railway infrastructure that impact traffic safety" is planned to be amended to incorporate professional knowledge related to the future missions of agents responsible for visual rail monitoring or accompanying heavy inspection equipment. Training materials will be developed to improve the skills of operators in charge of these tours. In August 2023, SNCF Réseau submitted the content of the relevant operational TSAE to the EPSF, supplemented by a new scope of skills "Visual Rail Tour Agent" (MT01474 of 04/09/2023), thus completing the action. Action closed	C
		R6	Assess the relevance of further studying the scenario of a collision on a clear obstacle that a structure may present, as part of the program of activities of the experts associated with the revision of this UIC leaflet. Depending on the result of this assessment, integrate into the current revision work or into a subsequent revision, the objective of improving leaflet 777-2	UIC	The UIC has committed to consulting its members to decide on and fund the implementation of the assessment recommended by the BEA-TT. No target date at this stage. Actions are underway.	O

Railway transport: Recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
02/2023	Freight train derailment on 09/17/2020 in Corbonod (01)	R1	Establish a state of the art of axle cap assembly operations in the workshop, with a view to improving the operating method, control and traceability, and guaranteeing lasting pre-stressing of the cap screws	AFWP UIP	As of 31/12/2023, the responses from the UIP and AFWP to the recommendation made by the BEA-TT were not yet available.	O
		R2	Ensure the completeness of feedback on the use of "SNCF" model brake plates for wagons, by integrating the events collected by the AFWP. In the event of an observed risk, decide on the actions to cover this risk.	SNCF Voyageurs	As of 31/12/2023, SNCF Voyageurs' response to the recommendation made by the BEA-TT was not yet available.	O
		R3	Survey AFWP members on feedback on "SNCF" type brake plates. If risks are confirmed and after examining the elements provided by SNCF Voyageurs, decide on a request for a correction to the VPI reference document concerning this brake plate.	AFWP	As of 31/12/2023, the AFWP's response to the recommendation made by the BEA-TT was not yet available.	O
12/2023	Dump truck falls onto railway tracks from a road bridge June 2, 2022 in Saint-Chamond (42)	R1	Equip the structure on Boulevard de Fonsala in Saint-Chamond with a facility aimed at reducing the risk of a vehicle falling onto the tracks: for example, a retaining device on either side of the structure, over 50 m if possible.	Saint-Étienne Métropoli s	As of 31/12/2023, Saint-Étienne Métropole's response to the recommendation made by the BEA-TT was not yet available.	O

Railway transport: Recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
12/2023	Dump truck falls onto railway tracks from a road bridge June 2, 2022 in Saint-Chamond (42))	R2	Entrust Cerema with the task of working, with road and rail management partners, on a method for calculating ID (danger index) specific to existing road bridges (all project owners), as an extension of the initial guidelines proposed by the BEA-TT in this report.	DGITM	As of 31/12/2023, the DGITM's response to the recommendation made by the BEA-TT was not yet available	O
		R3	As part of the protection of the national rail network, and using the method that will be proposed by Cerema, obtain for each department a list of structures prioritized with regard to the risk of vehicles falling onto the railways. For the structures most at risk (around fifteen per department on average), act in favor of carrying out a safety review involving road and rail stakeholders to define measures aimed at limiting the risk.	DGITM	As of 31/12/2023, the DGITM's response to the recommendation made by the BEA-TT was not yet available	O
		R4	In this approach, and following the example of what certain interdepartmental road directorates (DIR) have already undertaken, continue and generalize to the entire non-concessionary national road network the progressive upgrading of the retention devices of the crossing structures of the national rail network tracks.	DGITM	As of 31/12/2023, the DGITM's response to the recommendation made by the BEA-TT was not yet available	O
12/2023	Dump truck falls onto railway tracks from a road bridge June 2, 2022 in Saint-Chamond (42))	R5	Act in favor of the existence, at the departmental level, of a partnership mechanism for steering the recommended actions. Without prejudice to organizational responsibilities, the BEA-TT suggests that this could involve expanding the powers of the departmental level crossing commissions.	DGITM	As of 31/12/2023, the DGITM's response to the recommendation made by the BEA-TT was not yet available	O

Appendix 2: Table from the Public Railway Safety Establishment (EPSF) showing the monitoring of the implementation of recommendations issued by the BEA-TT in the field of level crossings

This document presents the progress as of December 31, 2023, in the implementation of actions following the recommendations issued by the BEA-TT to stakeholders in the rail sector.

The updated status of actions for the 2023 fiscal year is shown in bold.

Level crossing: recommendations issued in 2006

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code
12/2006	Collision between a regional train and a heavy goods vehicle at a level crossing in Saint-Laurent-Blangy (62) on 06/09/2005	R1	Continue the study of solutions (on-site elevation change or new route) to remove this PN, in order to reach a decision and completion as soon as possible.	SNCF Réseau Conseil général 62	The technical solution for installing obstacle detection is an ongoing avenue of work. Several steps are underway, including a reliability review of the obstacle detection function given the specific situation of this level crossing and a study of the use of flashlights. Monitoring of the actions implemented by SNCF Réseau anticipates the implementation of the obstacle detection solution by the end of 2024/early 2025 at the earliest. Despite requests from the Conseil Général 62 by the DGITM in February 2023 and March 2024, no additional information on the progress of the implementation of this action could be obtained. Action in progress	O

Level crossing: recommendations issued in 2010

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code ¹
09/2010	Collision between a coach and a regional express train at level 4 in Nevers (58) on 03/02/2009	R1	Evaluate and study the traffic light regulation system of PN No. 4 (as well as PN No. 5) to seek simple optimization measures (duration of traffic light cycles, possible coordination of upstream and downstream traffic lights, activation time of the upstream traffic light after detection, effectiveness of the detection loop, etc.) in order to reduce the risk of encroachment onto the railway line by a vehicle stopped at the end of the queue downstream of the level crossing.	Commune de Nevers	Despite requests from the Municipality of Nevers by the DGITM in February 2023 and March 2024, no information on the progress of the implementation of this action could be obtained. Action in progress	O

Level crossing: recommendations issued in 2019

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code
05/2019	Collision between a TER train and a school bus in Millas (66) on 12/14/2017	R1	Establish, in coordination with SNCF Réseau and the road safety delegation (DSR), a technical reference framework setting out the performance and a procedure for assessing the conformity of level crossing equipment, as provided for by road regulations relating to the qualification of road equipment, as well as rules for commissioning and installation based on their characteristics and environmental constraints.	Direction Générale des Infrastructures, des Transports et de la Mer - DGITM	The DGITM (Directorate for Road Safety and Traffic Management) has committed to establishing a working group, including SNCF Réseau and the Road Safety Delegation (DSR), to review the status of the three equipment categories (flashing red lights, barriers, and bells). Numerous bilateral discussions between the DGITM and the relevant departments followed the first meeting of this working group. Work began in 2021 and aims to identify existing standards, define the standards to be implemented, and define the desired performance thresholds. This work will then lead to the development of a decree including performance thresholds and certificates of conformity for these three equipment categories, in accordance with Articles R. 119-4 and R. 119-7 of the French Highway Code. A detailed inventory of the practices and regulations implemented was carried out for these three equipment categories, including at the European level for barriers. Clarifications regarding the number of lights and their location have been provided in the regulations. Each of these equipment families is still subject to future action in conjunction with the stakeholders concerned regarding the possibility of defining new standards. Action in progress	O

Level crossing: recommendations issued in 2019

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code
05/2019	Collision between a TER train and a school bus in Millas (66) on 12/14/2017	R3	Study the options for widening existing intersections on either side of the PN25 to facilitate turnings depending on the type of heavy vehicle. Failing this, take police measures to prohibit left turns towards the PN for these categories of vehicles.	Departmental Council of the Pyrenees-Orientales	The Department has conducted turnaround studies for the intersections located on either side of Highway 25, for heavy vehicles traveling left-turning toward the level crossing. The directional island on the RD46 will be modified to shift the RD46's exit onto the RD612 to the south, thus creating a wider turnaround that allows heavy vehicles to position themselves perpendicular to the lowered half-barrier of the level crossing a few meters upstream. In August 2023, the EPSF received proof of completion of the modifications recommended by the Highway 25 safety assessment. Actions closed	C
		R5	Study the feasibility of installing a front camera at the head of the train, in order to have a recording of events on the infrastructure, usable in the event of an accident, and for a time that can be limited to a few dozen minutes. Study the feasibility of installing video camera equipment at least on certain level crossings, allowing the recording of events during the passage of trains with the aim of improving safety.	SNCF Voyageurs	Consideration of installing front-facing cameras at the head of trains was already underway as part of the response to the technical investigation into the derailment of a TGV train in Eckwersheim on November 14, 2015. Two systems from different suppliers have been tested since the end of 2018. In March 2024, SNCF Voyageurs informed EPSF of the start of testing the system on certain TER trains in the Hauts-de-France region. The provisional deployment schedule is planned until 2025. Ongoing actions	O

Level crossing: recommendations issued in 2019

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code [ⓘ]
07/2019	Collision between a regional train and a car at PN8 in Bonneville-sur-Touques (14) on 11/02/2017	R1	Install, near level crossing no. 8, located on the Chemin de la Libération in Bonneville-sur-Touques, a device prohibiting access to the level crossing to persons other than those entitled to it.	City of Bonneville sur Touques	As of December 31, 2020, the initially considered solution to address this recommendation, which consisted of removing level crossing No. 8 and transferring it to level crossing No. 7, was abandoned in favor of automating both level crossings. No date has been set for the approval and scheduling process for this work. In 2023, the EPSF was informed of the intention to prohibit access to the level crossing to persons other than those entitled to it by installing a sign. Action still ongoing as of December 31, 2023 Note: Following the request by the DGITM in March 2024, proof of installation of the signs by the municipality was provided in April 2024. The action will appear as completed in the 2024 action tracking document.	O

Level crossing: recommendations issued in 2020

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code
05/2020	Collision between a regional express train (TER) and a light vehicle on level crossing No. 302 in Saint-Etienne (42) on 05/07/2019	R1	Study improving the readability of PN No. 302 from the northern approach, particularly by acting on vertical signage and vegetation.	Saint-Etienne Métropole	Actions still underway as of December 31, 2023 Note: Following requests from the Departmental Directorate of Transport (DGITM) in February 2023 and March 2024, details of the actions planned in response to the recommendations were obtained. This information was forwarded by Saint-Etienne Métropole to the EPSF in a letter received in April 2024. The actions will appear as completed in the 2024 action tracking document.	O
		R2	Study the possibilities of redesigning lane allocations in the north-south direction, or even modifying the flow of traffic entering National Highway 302, for example by creating a right-turn lane. Examine the feasibility of assigning a right-turn signal for users traveling on the boulevard and approaching National Highway 302 from the north. This signal would remain red when the National Highway 302 is closed.	Saint-Etienne Métropole		O
		R3	Study the removal of advertising elements present on road rights-of-way which could contribute to distracting road users approaching PN No. 302. Remove interference between directional signage and warning or police signage by retaining only the elements most essential to safety.	Saint-Etienne Métropole		O

Level crossing: recommendations issued in 2021

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code
03/2021	Collision between a train and a light vehicle on level crossing No. 8 in Roissy-en-Brie (77) on 09/15/2019	R2	In coordination with the Seine-et-Marne (77) Departmental Council Improve the visibility of the position signaling triggered when the level crossing is activated.	SNCF RESEAU	SNCF Réseau plans to add an R24 signal at level crossing No. 8, oriented along Avenue Mozart. This addition is scheduled for 2022. In September 2023, the EPSF received the evidence to close this action. Action closed	C
		R3	Physically prevent parking on the roads leading to the level crossing within 30 meters before arriving at this level crossing, in order to improve the visibility of the level crossing flashing lights.	City of Roissy-en-Brie	In a letter dated June 2022, Roissy-en-Brie City Hall informed the BEA-TT of the upcoming ban on parking on the roads leading to the level crossing. Despite requests to Roissy-en-Brie City Hall from the DGITM in February 2023 and March 2024, no information on the progress of implementing this measure could be obtained. Ongoing actions	O
		R4	Have large advertising panels located in the immediate vicinity of the PN on the RD 21 and causing visual distractions that are detrimental to the visibility and readability of the PN removed.	City of Roissy-en-Brie	Action still ongoing as of 12/31/2023 Note: Following requests from Roissy-en-Brie City Hall by the DGITM (Directorate for the Management of Public Works and Transport) in February and March 2024, the City Hall wrote to the EPSF (French Energy and Forestry Service) to remind the public of the location of the advertising displays on private plots. Letters to the owners and the company concerned, explaining that the displays do not comply with the new local advertising regulations adopted in 2022, should lead to the removal of the displays by the end of June 2024.	O

Level crossing: recommendations issued in 2021

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code
11/2021	Collision between a regional train and a light vehicle in Bourg-en-Bresse (01) on 10/09/2020	R1	Finalize, in accordance with the conclusions of the diagnosis carried out on October 18, 2018, the study of the possibility of installing a central island bordered on the Bourg en Bresse side of PN n° 7, in order to discourage users coming from the city center from crossing the PN in a chicane.	City of Bourg-en-Bresse Ain Departmental Council	This recommendation was taken into account by the Ain Department after agreement with the city of Bourg-en-Bresse on the technical and financial details. The creation of the central bordered island on the RD 979/Avenue Amédée Mercier on the Bourg-en-Bresse side was included in the 2022 work schedule for the city of Bourg-en-Bresse, with funding from the Department. Despite the DGITM's request to the Ain Departmental Council in March 2024, no information on the progress of the implementation of this initiative could be obtained. Ongoing actions	O

Level crossing: recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code
01/2023	Pedestrian struck by train on a pedestrian crossing on November 8, 2021 in Héricy (77)	R1	Taking into account the existing safe level crossings nearby, permanently remove pedestrian level crossing no. 27a.	City of Héricy	Despite the DGITM's request to the Ain Departmental Council in March 2024, no information on the progress of the implementation of this action could be obtained. Action in progress	O
		R2	As part of the so-called "pedestrian" think tank led by the EPSF, pay particular attention to category 3 level crossings by identifying specific problems and associated solutions, with a view to a possible modification of the decree of March 18, 1991, as amended, relating to the classification, regulation and equipment of level crossings.	DGITM EPSF	The EPSF is committed to overseeing and facilitating this focus group, which began its work in January 2023. The DGITM (French Directorate for Transport and Communications), along with the Assembly of French Departments (ADF), the Land Transport Accident Investigation Bureau (BEA-TT) through the participation of an investigator from your department, the Center for Studies and Expertise on Risks, the Environment, Mobility, and Development (CEREMA), the Road Safety Delegation (DSR), the Technical Service for Ski Lifts and Guided Transport (STRMTG), SNCF Réseau, and the International Union of Railways (UIC), will participate as a stakeholder in these discussions. In 2023, the focus group drafted action sheets outlining proposed measures to control the risk of pedestrian collisions at level crossings. These fact sheets are scheduled for publication in 2024. Action in progress	O

Level crossing: recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
03/2023	Collision between a regional express train (TER) and a light vehicle on January 15, 2021 on level crossing no. 44 in Péronnas (01)	R1	Regulate and signal in warning and position the rules of priority between road users crossing LC No. 44. Study, in association with SNCF Réseau: 1) the increase in the width of the road at LC No. 44; 2) the increase in the radii of the last approach road bends on this LC, in order to reduce the angle of crossing the road to improve visibility on the railway.	City of Péronnas	The city of Péronnas is committed to studying security improvements with associated and partner departments: SNCF Réseau, the DDT (Departmental Directorate of Transport), and the Ain Departmental Council. Implementation of all measures is planned for no later than September 30, 2023. Despite the DGITM's request to the Ain Departmental Council in March 2024, no information has been received regarding the completion of the work, scheduled for September 30 at the latest. Ongoing actions	O
		R2	In the direction of approach to LC No. 44 from the west, clear visibility of the level crossing equipment by proceeding or having carried out the felling of the vegetation currently present near the last bend and then ensuring regular maintenance of the shoulders.	City of Péronnas	The town of Péronnas is committed to felling and trimming the trees and bushes. In 2023, the trees and bushes were trimmed, allowing this project to be completed. Project closed	C
		R3	In the direction of approach to LC No. 44 from the east, taking into account the work carried out since the accident and the LC development projects, modify where necessary the orientation of the right-hand flashing red light so that it can be seen right up to it.	SNCF Réseau	SNCF Réseau is committed to carrying out the work to modify the orientation of the right-hand flashing red light in the direction of approach to LC No. 44 from the east within two months of the completion of the speed restriction work on this infrastructure, subject to the municipality of Péronnas completing the work. No target date at this stage. Actions underway.	O

Level crossing: recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
03/2023	Collision between a regional express train (TER) and a light vehicle on January 15, 2021 on level crossing no. 44 in Péronnas (01)	R4	Raise awareness among drivers of the priority that must be given, when conditions permit, to initializing the ground-to-train radio and, more generally, to carrying out actions that require them to take their eyes off the track and the overhead line, outside of geographical areas with level crossings, or any other known risk factor. When designing or reconditioning equipment, take into account the objective of reducing the duration of actions during which the driver is no longer able to observe the track and the overhead line.	All railway companies, 51 EF SNCF Réseau	As of December 31, 2023, SNCF Réseau and 14 railway companies have responded to the BEA-TT, specifying awareness-raising actions for drivers. Actions underway	○
08/2023	Collision between a freight train and a oversize convoy on June 16, 2021 on level crossing No. 17 in Rumigny (08)	R3	Make available data relating to the longitudinal profiles of road infrastructure in the vicinity of and at the level crossings, so that road transport operators of passengers and goods can more easily assess the crossing capacity of their vehicles over level crossings. In each department, provide this updated data annually to the departmental level crossing safety commission, in addition to the list of level crossings that are difficult to cross.	All of railway infrastructures managers	As of December 31, 2023, three infrastructure managers have responded to the BEA-TT. Actions in progress	○
		R4	Bring to the international level the full benefit of a shared definition of the minimum performance expected for the attachment of certain portable equipment, such as the short-circuit bar and fire extinguishers, present inside trains and for some of them inside driver's cabs. Pending harmonized international regulations, organize at the national level an exchange between railway equipment manufacturers and railway companies with the aim of developing good practices and short-term technological solutions.	EPSF	The EPSF will propose that this topic be included in the European Commission's next work mandate for the European Union Agency for Railways, the terms of which should be prepared in the first half of 2024. The EPSF will inform railway equipment manufacturers and railway companies of the contents of the investigation report and the resulting recommendations at a feedback meeting to be held in 2024. The target date is June 30, 2024. Actions in progress	○

Level crossing: recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code
08/2023	Collision between a freight train and a oversize convoy on June 16, 2021 on level crossing No. 17 in Rumigny (08)	R5	Ask departmental prefects, during the departmental committee meetings provided for in measure 10 of the action plan to improve level crossing safety of May 3, 2019, to emphasize the following points to all stakeholders: • share the changes made, including new topographical surveys and longitudinal and cross-sectional profiles of the infrastructure around and at level crossings following work; • study, before the road reopens following the work, the new conditions for crossing level crossings by road users, particularly exceptional convoys and school buses, which may use vehicles with lower crossing capacities than light vehicles; • take advantage of the diagnostic updates and the annual update of the list of difficult-to-cross level crossings to discuss possible changes to the layout of the site or traffic patterns; ensure the availability of data relating to the longitudinal profiles of infrastructure near and at the level of national crossings, so that road transport professionals for passengers and goods can more easily study the crossing of national crossings by their vehicles.	DGITM	The DGITM confirms that this request will be sent to the Departmental Territorial Directorates via the DREALs. Furthermore, the issue will be discussed at the next National Commission on Level Crossings. The target date is not yet known. Actions in progress	O
12/2023	Incident between a TGV and a coach, May 29, 2022 in Bizanos (64)	R1	In conjunction with SNCF Réseau, study the possibility of privatizing LC 238: - by retaining as sole users only the residents living at 16 rue de Verdun, while continuing to seek other service solutions with a view to avoiding the use of this LC by these residents; - by reorganizing the routes for cyclists crossing the railway lines via LC 239; - by ensuring that public service vehicles are able to serve the homes and infrastructure of rue de Verdun without crossing LC 238; - by installing a physical barrier to restore the status of a dead end to rue de Verdun At the same time, develop the intersection between avenue de l'Yser and rue de Verdun by installing horizontal signage to reinforce the vertical signage, or even by creating one or more islands, to improve the perception of the roads and their status.	City of Bizanos	As of 12/31/2023, the response from the city of Bizanos to the recommendation made by the BEA-TT was not yet available.	O

Appendix 3 : Table of the intergovernmental commission presenting the monitoring of the implementation of the recommendations issued in the report on the fire which occurred on board a Eurotunnel freight shuttle on 17 January 2015

No.	Label of the recommendation of BEA- TT	Entity	State of the actions followed by EPSF has end of 2023	Code :
R2	Continuous monitoring of improvements to fire detection systems Conclude the ongoing consultation with various manufacturers seeking innovative systems to more quickly and reliably detect any fire outbreak, including when it is still confined to the cabin of the vehicle in question. If necessary, establish a program for implementing the new systems thus identified. Establish a long-term technical monitoring system to identify any avenues for improvement in the speed and reliability of fire detection.	Eurotunnel	Eurotunnel finally responded to this request on 26 October 2023 and, after reviewing the additional information, the IGC considers that it does not allow for progress on this issue, with regard to the specific requirements of the recommendation or the specific requests of the IGC. The document provided by Eurotunnel is essentially the same as that which has already been reviewed on several occasions, and contains no details of any direct discussions between fire detection system manufacturers and Eurotunnel or its contractor, SETEC. In view of the inadequate responses provided over the years to requests from both the IGC and the national investigating bodies, which were based on Eurotunnel concluding activities that it itself had indicated in 2016 that it would undertake, the IGC considers that Eurotunnel has not sufficiently demonstrated that direct consultation with manufacturers has been carried out to satisfactorily close Recommendation 2.	O

Appendix 4 : Table of the Technical Service for Ski Lifts and Guided Transport (STRMTG) presenting the monitoring of the implementation of the BEA-TT recommendations in the field of guided transport (Metro and RER)

Guided transport (METRO and RER): Recommendations issued in 2019

recommendation closed: **C**
 recommendation in progress: **EC**
 No information : **NC**

Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	Response date	State of the actions	Code
Derailment of a metro train traveling on line 2 of the Paris Metro on 2/12/2016 at the Barbès-Rochechouart station in Paris (75)	R1	Submit to the French standardization commission UC9XB "Railway electrical applications - On-board electromechanical equipment", which monitors the relevant European and international work, a request intended for the IEC/TC 9 committee "Railway electrical equipment and systems" of the International Electrotechnical Commission aimed at extending to self-induced vibrations the scope and requirements of the IEC 61373 standard, adopted in France as the NF EN 61373 standard.	BNF	28/02/20	In its response, the BNF indicated that it had fully implemented this recommendation. Thus, as part of an international consultation on the scope of a revision of the IEC 61373 standard decided in November 2018, the competent French standards committee, for which the BNF provides the secretariat, requested IEC/TC 9 on June 13, 2019, to examine the possibility of including self-induced vibrations in the scope of the next edition of the international standard. This request explicitly referred to the aforementioned technical investigation report. A "MT 61373" working group has since been formed within IEC/TC 9 to prepare for the scheduled revision. It was led by a French expert, and three other experts were appointed by the same French committee to participate in the work. The T 61373 working group met for the first time on December 19, 2019. Its task now is to draft a revised standard and, in this context, examine the French proposal, among other planned developments, before the draft it has prepared is submitted for approval to the national members of IEC/TC 9. During this work, the BNF will continue to support initiatives aimed at ensuring that the aforementioned request is properly addressed. The publication of the new edition of the IEC 61373 standard was scheduled for October 2022, but this does not appear to have been completed by early 2023..	EC
	R2	As with air transport practices, consider regulatory developments aimed in particular at making mandatory: > the exchange of information between the owner, manufacturer, operator, and maintainer of passenger rolling stock, or even the infrastructure manager, when one of them identifies a safety risk arising from the rolling stock; > > the provision of a solution by the manufacturer.	DGITM	26/09/19	The DGITM provided the following responses: We share the view that information sharing is an important tool for improving safety. However, care must be taken to ensure that its implementation results in proportionate feedback, enabling us to identify elements useful for incident and accident prevention. Consultation work with representatives of all stakeholders involved in guided public transport systems will therefore need to be conducted to examine the revision of the current system and determine the nature and volume of information feedback to be implemented. Such feedback may be considered during a future revision of Decree No. 2017-440 of March 30, 2017, relating to the safety of guided public transport, in particular to take into account feedback on its application since its entry into force on April 1, 2017. At the same time, the issue of improving current information exchange procedures will be discussed during feedback meetings organized by the STRMTG. A drafting proposal has been made as part of the future update of the STPG Decree. Awaiting consultation and approval. 10/1/24: Consultation held Dec. 23, pending consultation and approval. Proposal for closure.	EC

Guided transport (METRO and RER): Recommendations issued in 2020

recommendation closed: **C**
recommendation in progress: **EC**
No information: **NC**

Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	Response date	State of the actions	Code
Derailment of a metro train on 12/21/2018 in Marseille (13)	R1	Encourage metro project leaders, and through them rolling stock manufacturers and track component suppliers, to address the risk of component loss that could cause a derailment in the preliminary hazard analysis and to include the identification of potentially affected components and appropriate design and maintenance measures. Ensure that this risk is given particular attention during the regulatory review of new metro projects. In particular, request the provision of a study of the static and dynamic interfaces between the track and the negative or ground shoes for all new rolling stock and/or new rubber-tired metro track equipment.	STRMTG	21/12/20	- Developed its quality system documentation to include a focus point for the review of safety files, in order to raise awareness among project leaders (metro) and verify that the issue of lost items under the cash register has been addressed. Meetings on review procedures initiated in April 2023. Pending integration into Quality documents, communication to offices in the form of a generic response.	C
	R3	Agree and finalize track and rolling stock maintenance procedures to satisfactorily address risks related to the interface between the track and the negative or ground contacts of the rolling stock.	RTM / Vossloh	03/12/20	A final detailed report was prepared by RTM in late 2020 and early 2021, summarizing the actions taken following the accident, particularly to address BEA-TT's R3 recommendation. A new maintenance plan was drawn up by Vossloh, reference XXI-09-002-02. The data from this plan was transposed into the RTM maintenance documents: • Metro Maintenance Plan PM201 • Operating Procedure MO202 "Tangent Track Device Inspection 0.13" and its monitoring sheet FS202 Enhanced monthly monitoring has been implemented on STM 13, ZOC 81B, and ZOC 91A tracks to monitor wear trends. Traceability has also been established to track grinding and resurfacing operations. These actions are described and monitored through documents MO229 "GRAW profilometer survey of metro track equipment" and the EN282 record "Monitoring of metro core wear".	C

Appendix 5 : Table of the Technical Service for Ski Lifts and Guided Transport (STRMTG) presenting the monitoring of the implementation of the BEA-TT recommendations in the field of guided transport (tramways and tram train)

Guided transport (tramways and train): Recommendations issued in 2020

						recommendation closed: C
						recommendation in progress: EC
						No information: NC
Title of the investigation	No.	Label of the recommendation of BEA-TT	Entity	Response date	State of the actions	Code
Collision between a tram on the T7 line and a coach on February 27, 2019 in Paray-Vieille-Poste (91)	R4	Encourage their members to provide training to drivers of public transport vehicles running on compressed natural gas on the specific risks associated with this type of engine, and on the behavior to adopt in the event of an incident or accident on the road.	UTP & GART	16/07/2020	The UTP indicated that it had taken note of the BEA-TT recommendation and wanted to raise awareness among its members.	EC
Pedestrian struck by tram Quai des Chartrons in Bordeaux (33) on 02/22/2019	R2	Establish, in coordination with the General Directorate of Transport and Maritime Infrastructure (DGITM) and the profession, an instruction standardizing the fixed horizontal and/or vertical signage of pedestrian crossings on tramway sites, informing users of the danger and notifying them that they do not have priority.	DSR	23/12/2020	Working group launched in December 2020 (10 meetings held, next meeting on April 21, 2023). Study on pedestrian crossing signaling at tram platforms launched by STRMTG/CEREMA (CCH validated by DSR by email on March 11, 2020). Experiments and observations underway in four urban areas. The results of the experiments were presented to the DSR at the end of 2023. An additional test will be launched on the vertical signaling section. The next working group meeting is scheduled for April 3, 2024.	EC

Guided transport (tramways and train): Recommendations issued in 2020

recommendation closed: C
recommendation in progress: EC
No information: NC

Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	Response date	State of the actions	Code
Collision by overtaking between two trams on February 11, 2019 in Issy-les-Moulineaux (92)	R1	Make improvements to operating instructions related to the following topics: - Confirm nighttime re-entries to the SMR via the East access during the critical end-of-rush-hour period. - Align the 200-meter instruction between trams with the visibility available in the Jacques-Henri Lartigue and Les Moulineaux interstations. The analysis could usefully be extended to the entire RATP tram network. - Specify the actions to be taken by dispatchers in the event of a lack of readback, and consider potential failures, including those of the RST and the HMI..	RATP	12/05/21	RATP indicated the following in its response: - The new organization has been approved with the new schedule implemented as of October 1, 2020 on T2. - RATP is studying the adequacy of speeds in relation to visibility distance and static masks, and is verifying the relevance of speed indication signs. The definition and implementation of potential corrective actions is planned for the end of 2021. The analysis will be extended to the other lines of the RATP tramway network by the end of 2021. - A regulatory update was carried out in November 2020 to clarify the rules for reading messages related to safety and traffic management. In the event of a potential failure, including that of the RST or the HMI, any anomaly must be transmitted to the dispatcher using other means of communication available to the driver.	EC
	R4	Implement actions to assess and then improve the reliability of the ground-train radio, and ensure that of the HMI, given that these are the means of rapid alert transmission by the PCL to T2 drivers.	RATP	12/05/21	RATP indicated the following in its response: The reliability of the ground-to-train radio system is monitored as part of equipment maintenance. A quarterly report verifies the level of reports and removals, and triggers actions in the event of a malfunction. The reliability of the HMI is also monitored as part of equipment maintenance. No downtime has been observed with this equipment. The On-board Radio System (ASS) project, which will soon be deployed on the T2 line equipment, will improve communication between the PCL and the train via the in-cab screen. Developments to the on-board Operational Assistance System (ASS) to improve communication between the PCL and drivers: Deployment in the short term on the T2 line, and as part of the new ASS on the T1 line in 2026.	EC

Guided transport (tramways and train): Recommendations issued in 2020

recommendation closed: C
recommendation in progress: EC
No information: NC

Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	Response date	State of the actions	Code
Collision by overtaking two trams on 2/12/2019 in Montpellier (34)	R1	Improve initial and ongoing training and regular monitoring of Montpellier tram drivers on the following topics: - Drivers' knowledge and practice of the safety brake - Proper use of magnetic brake pads - The risks of excessive speed - - The need to receive and take into account PCC messages in anticipation of obstacles that may arise for any tram driver.	TAM	01/07/22	TAM indicated that it plans the following actions in its letter announcing the implementation of the recommendation: Issuance of a safety memo to tram drivers, reminding them of the rules for using different types of braking (September 2022). Provision of a "safety quarter-hour" for drivers on braking and the use of brake pads (second half of 2022). Integrating the topic into a specific module during accreditation and knowledge updating (annual), with support provided in AMI 2022 (upcoming sessions). Specifically integrating feedback from the December 2019 catch-up exam into the teaching content. Seen in the audit of March 16, 2023, the report of which was finalized in April 2023: "The feedback regarding accidents, and in particular the recovery of the two trains in December 2019, is now integrated into initial and ongoing training (emergency brake, use of brake pads, compliance with signaling, confirmation of messages received from PCC agents). See REACTRAM 2022 document. A service memo has been drafted for tram drivers and is posted at the start of service locations; this memo reiterates the rules for using the different types of braking (sent to the STRMTG post-audit by email on March 27, 2023).	C
	R7	As part of a new market for the acquisition of tramway rolling stock, define the level of safety associated with the anti-skid function and define the braking performance objectives in degraded grip, drawing inspiration from current best practice.	Alstom	30/09/22	Process underway, meeting scheduled between Alstom and STRMTG on 04/27/2023. The methodology presented at the meeting between Alstom and STRMTG on 04/27/2023 has been incorporated into the Nantes project. Alstom plans to respond to the BEA-TT in this regard.	EC

Appendix 6 : Table of the Technical Service for Ski Lifts and Guided Transport (STRMTG) presenting the monitoring of the implementation of the BEA-TT recommendations in the field of guided transport (secondary, tourist and rack railways)

Guided transport (secondary, tourist and rack railways): Recommendations issued in 2022

						<i>recommendation closed:</i> C
						<i>recommendation in progress:</i> EC
						<i>No information:</i> NC
Title of the investigation	No.	Label of the recommendation of BEA-TT	Entity	Response date	State of the actions	Code
Train derailment on 01/25/2021 in Fontpédrouse (66) on the line connecting Villefranche-Vernet-les-Bains to Latour-de-Carol	R1	In driver training, emphasize the specific risks of this line (steep slopes, lubrication issues, weather conditions, etc.) and include this in the educational response. Strengthen driving reflexes adapted to these risks, particularly driving gestures in the event of a brake jam.	SNCF Voyageurs	14/03/23	SNCF Voyageurs provided the following responses: The educational response has been adapted and highlights the various risks on this line. Training provided to drivers operating on this line has already begun with these new elements. Driver training is completed during support sessions conducted by the management team. However, this verification could only be done through questioning in almost all cases, as there have been very few situations exposing the driver to the risk of a train jam since the new training was implemented..	EC
	R2	On the Z150s, consider lowering the automatic emergency braking threshold (currently 80 km/h) by adapting it to the line's maximum authorized speeds. Request a speed limit threshold for rolling stock that will replace the Z150s on the Yellow Train that triggers emergency braking at the line's maximum authorized speeds.	SNCF Voyageurs	14/03/23	SNCF Voyageurs provided the following response: Technically, lowering the speed limit on the Z150 equipment is feasible. The feasibility study was therefore forwarded to a qualified company. The company provided an initial response, which was rejected, and the process for this service is still ongoing. We [BEA-TT] remain at your disposal if you would like to consult the documents. Furthermore, the specifications for the future equipment have been amended to reflect the recommendation on lowering the speed limit.	EC

Guided transport (secondary, tourist and rack railways): Recommendations issued in 2022

recommendation closed: C
recommendation in progress: EC
No information: NC

Title of the investigation	No.	Label of the recommendation of BEA-TT	Entity	Response date	State of the actions	Code
Train derailment on 01/25/2021 in Fontpédrouse (66) on the line connecting Villefranche-Vernet-les-Bains to Latour-de-Carol	R3	Continue the improvement of the rail lubrication system using the Z100s, by completing the installation of the flange lubricators.	SNCF Voyageurs	14/03/23	SNCF Voyageurs provided the following answers: Initially, a study was initiated with a view to modifying the current lubrication system (GRR type) into a GRB system coupled with the third rail system. Various tests on the Z104 demonstrated that this solution was unreliable, and consequently, the Equipment Engineering Center (CIM) proposed two possible alternatives. - Solution 1: Lubricating the wheel-rail contact with the stick-type system and lubricating the third rail with the current modified system (removing the GRR part). - Solution 2: Implementation of a complete GRB system that would operate independently of the third rail lubrication system (current modified system). The technical and economic study conducted by the CIM revealed that solution no. 2 would be the most appropriate for this type of equipment. The file is currently being finalized so that the proposed amendment (MO) can be presented to the DGTER and the BU TER Occitanie by July. The outcome of the decision will be forwarded to the Passenger Security Department, along with the schedule of any amendments, if applicable.	EC
	R4	Improve the quality of implementation of existing systems for monitoring rail lubrication conditions on the line between Villefranche-Vernet-les-Bains and Latour-de-Carol and adapt them if necessary. - Identify which monitoring rounds should check rail lubrication conditions. - Improve the detection of excess lubrication during rounds. - Improve the traceability of round monitoring to analyze the evolution of rolling stock lubrication. - Decide on the application of four-week monitoring, in light of the standard frequency set by the maintenance guidelines for 1-meter gauge tracks.	SNCF Réseau	16/03/23	SNCF Réseau has provided the following responses: The rewriting of the MT02070 standard "Monitoring of Rails Laid on Main Tracks" will redefine and update the lubrication qualification criteria; the concept of "acceptable" will be removed as it is prone to confusion between "excessive lubrication" and "insufficient lubrication." The method for assessing the presence of grease on the bearing fillet using the handkerchief method will be clarified. The application of IN03818 "Maintenance of 1-meter gauge tracks" stipulates in its Article 5.2.8 a frequency of four weeks for monitoring lubrication control points. On the line connecting Villefranche - Vernet-les-Bains to Latour-de-Carol, the maintenance references of the Infrapôle Languedoc INFP LR MT00181 and INFP LR MT0006 based on these two national references will be modified accordingly.	EC

Guided transport (secondary, tourist and rack railways): Recommendations issued in 2022

						<i>recommendation closed:</i> C
						<i>recommendation in progress:</i> EC
						<i>No information:</i> NC
Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	Response date	State of the actions	Code
Train derailment on 01/25/2021 in Fontpédrouse (66) on the line connecting Villefranche-Vernet-les-Bains to Latour-de-Carol	R5	On the line connecting Villefranche – Vernet-les-Bains to Latour-de-Carol, conduct a study on the transposition of existing rail cleaning rules on the National Rail Network, whether in preventive or corrective maintenance in order to improve cleaning.	SNCF Réseau	16/03/23	SNCF Réseau provided the following responses: SNCF Réseau is initiating a feasibility study aimed at implementing a mechanized grease cleaning system adaptable to metric gauge.	EC
	R6	On the line between Villefranche-Vernet-les-Bains and Latour-de-Carol, improve the process for reporting and handling jamming events, including: - Systematize the reporting of information by drivers to line managers in the event of jamming or slippage, who in turn forward this information to the infrastructure and rolling stock maintainers. - Ensure that the definition of "significant" jamming events is correctly understood by drivers and line managers and improve their handling. Specify what actions are expected of maintainers once informed. - Strengthen communication between the various operating, track maintenance, and rolling stock maintenance entities. - - Ensure that these new measures are implemented in a reliable and auditable manner.	SNCF Réseau et SNCF Voyageurs	16/03/23	SNCF Réseau has provided the following responses: The weekly teleconference between the operating, track maintenance, and rolling stock maintenance entities for the line connecting Villefranche-Vernet-les-Bains to Latour-de-Carol will systematically include a lubrication and major wheel slippage component in its agenda. A decision report will be systematically issued following these teleconferences to document the actions decided upon. This will strengthen communication between these entities in a reliable and auditable manner, and maintainer measures will be specified where appropriate. A joint safety day will be held for the various entities involved on the line to review, among other things, the concepts of rail lubrication and major wheel slippage. For SNCF Réseau, a support approach for the new lubrication ratings included in the future version of MT02070 will be provided to Infrapôle. SNCF Voyageurs, for its part, provided the following responses: The concept of significant jamming is integrated into the educational response, in line with recommendation number 1. Several avenues of reflection are underway to address these three points in a concise format that allows for greater traceability. They are based on a benchmark conducted with various units. For example, a form called "DEDA" for poor grip could assist drivers and be forwarded to the line manager. The decision regarding the procedures to be implemented will be finalized by July 2023.	EC

Guided transport (secondary, tourist and rack railways): Recommendations issued in 2022

						recommendation closed:	C
						recommendation in progress:	EC
						No information:	NC
Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	Response date	State of the actions	Code	
Two vehicles derailed and collided with a steam locomotive on the Coni'fer tourist train on June 4, 2022 in La Cluse-et-Mijoux (25)	R1	In the Operational Safety Regulations, endorse the immobilization procedure. Carry out and track the training of all agents whose safety functions include uncoupling. Verify and certify the knowledge acquired by the trained agents.	Association CFTPV du Coni'fer		A new Operational Safety Regulation (OSR) was approved by prefectural decree on May 16, 2023, and includes a shutdown procedure. The implementation of this OSR, with a focus on staff training, was verified during an operational inspection in 2023 by the STRMTG.	C	
	R2	Extend the training already provided by UNECTO trainers to all agents with a security function. They should also undergo comprehensive training by external trainers, for example from another tourist railway network with recognized expertise.	Association CFTPV du Coni'fer		UNETO organized training sessions at Conifer in 2023.	C	
	R3	For each tourist railway network with a gradient or slope, ensure that the vehicle immobilization procedure is formalized. Where applicable, in the presence of an automatic continuous brake, it must clearly specify the need to generate sufficient vacuum in the general pipe, before applying the vehicle immobilization brakes.	STRMTG	1/09/23	A recommendation was sent on October 16, 2023, to all tourist railway operators, requesting the formalization of a grounding procedure. The operators' response is expected by March 1, 2024. Update was provided to the offices at the network meeting on April 11, 2024: operations are being finalized, and reminders from the remaining operators are underway.	C	
	R4	In the Operating Safety Regulations, ratify the changes to the roles of train conductor, escort agent, and shunting agent. If necessary, specify the roles of the controller and driver. Then conduct appropriate training for these roles and document the agents' participation and the content presented. Follow this training with a verification of the acquisition of knowledge and professional skills.	Association CFTPV du Coni'fer		A new Operational Safety Regulation (OSR) was approved by prefectural decree on May 16, 2023, and includes a shutdown procedure. The implementation of this OSR, with a focus on staff training, was verified during an operational inspection in 2023 by the STRMTG.	C	

Guided transport (secondary, tourist and rack railways): Recommendations issued in 2022

recommendation closed: C
recommendation in progress: EC
No information: NC

Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	Response date	State of the actions	Code
Two vehicles derailed and collided with a steam locomotive on the Conifer tourist train on June 4, 2022 in La Cluse-et-Mijoux (25)	R5	Improve safety management among Conifer operating personnel: ➤ Conduct a comprehensive analysis of an accident when it occurs, before resuming operations. ➤ Improve communication with association personnel regarding the accident, the analysis performed, and the corrections to be made. ➤ Ensure the most comprehensive technical documentation possible is provided when purchasing or lending a new vehicle (construction plans, calculation notes, previous use of the equipment, maintenance history). ➤ Make the RSE, the RT CFT, and all technical documentation relating to the system, particularly rolling stock, accessible to personnel (in digital and paper formats). ➤ Any personnel authorized to perform a safety function must certify that they have read the authorization decision, the applicable rules, and the technical documentation. ➤ Conduct in-depth refresher training for staff to improve knowledge retention (e.g., the complete brake test procedure, the maximum permissible proportion of unbraked vehicles consistent with regulations, the presence of emergency brake levers, etc.). Trace the implementation and participants of all safety-related training. Ensure that participants have understood important concepts. ➤ Regularly monitor the proper and correct application of safety procedures (e.g., pushback). ➤ Prohibit gravity maneuvers and ensure they are no longer performed. ➤ ➤ Distinguish the role of operations manager from that of safety contact by assigning them to two different people.	Association CFTPV du Conifer		In its response published on the BEA-TT website, the operator indicated that it has implemented several measures to address Recommendation R5. A follow-up meeting was held on January 30, 2024, between the operator and the STRMTG, to verify that the action plan is being implemented as announced.	EC
	R6	In the Technical Reference for Tourist Railways, encourage a distinction between the role of operations manager and that of safety officer by assigning it as much as possible to two different people, thus distributing the issues and establishing different responsibilities.	STRMTG	1/09/23	Corresponding provisions have been incorporated into the draft revision of the Technical Reference Framework for Tourist Railways developed by the STRMTG. A final review of the draft is currently underway with the industry. Validation of the new version of the reference framework is scheduled for June 2024.	EC

Guided transport (secondary, tourist and rack railways): Recommendations issued in 2022

recommendation closed: C
recommendation in progress: EC
No information: NC

Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	Response date	State of the actions	Code
Two vehicles derailed and collided with a steam locomotive on the Coni'fer tourist train on June 4, 2022 in La Cluse-et-Mijoux (25)	R7	Make the entry into service of a new vehicle on a tourist railway network conditional on the transmission of the most comprehensive technical documentation possible (original or established on site), compliance with the RT CFT, in particular the verification of braking performance and a training certificate for agents authorized to perform safety functions on this rolling stock.	STRMTG	1/09/23	Corresponding provisions have been incorporated into the draft revision of the Technical Reference Framework for Tourist Railways developed by the STRMTG. A final review of the draft is currently underway with the industry. Validation of the new version of the reference framework is scheduled for June 2024.	EC
	R8	For the 2023 commercial season, ensure prefectural approval of the updated CSR and carry out an operational inspection visit as soon as possible, providing fully satisfactory results. Otherwise, consider proposing to the Doubs prefect to request a safety assessment from the CFTPV operator of Coni'fer as provided for in Article 86 of Decree No. 2017-440 of March 30, 2017 relating to the safety of guided public transport.	STRMTG	1/9/23	The new Conifer Harvesting Safety Regulations were approved on 16/05/2023 by the Prefect of Doubs. Subsequently, the STRMTG carried out an inspection visit on 16/06/23.	C

Appendix 7 : Table of the Technical Service for Ski Lifts and Guided Transport (STRMTG) presenting the monitoring of the implementation of the BEA-TT recommendations in the field of ski lifts

Ski lifts: Recommendations issued in 2018

						<i>recommendation closed::</i>	C
						<i>recommendation in progress:</i>	EC
						<i>No information:</i>	NC
Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	Response date	State of the actions	Code	
	R2	Supplement the rules of technical guides RM1 and RM2 on dynamic tests, for installations which are sensitive to the effects of cable oscillations, with a double obligation to evaluate the most penalizing dynamic load cases, and to conduct tests with these load cases.	STRMTG	30/11/18	The principles of the response to the recommendation were defined during the professional meeting of 11/13/2018 and were given in the STRMTG response to the BEA-TT dated 11/30/2018. These principles were introduced in the new versions of the RM1 and RM2 guides dated 07/12/2023.	C	
					The principles for responding to the recommendation were defined at the industry meeting on 11/13/2018 and were provided in the STRMTG's response to the BEA-TT dated 11/30/2018. For the "minimum list of scenarios" section, a list was developed by the STRMTG based on previously validated integrated recovery files and feedback from cases involving cable car downtime. It is currently being communicated on a case-by-case basis to professionals involved in cable car projects with integrated recovery. It was decided in early 2023 to incorporate the topic of integrated recovery into the European standard EN1909 (evacuation/recovery). The STRMTG is leading the European working group, which began work on developing the new evacuation/recovery standard at the end of 2023. Several meetings are planned between the end of 2023 and the end of 2024. The revised standard will not be published before 2025 at the earliest. The STRMTG has already proposed incorporating a minimum list of risks to be considered into the standard. Regarding the final provisions, the DGITM (Directorate General for the Management of Risks and Risks) has been contacted by the Ministry of the Interior (DGSCGC). Two meetings have already taken place between our departments, and the DGITM and the STRMTG are currently preparing draft texts to create the legal framework within which these final plans will be incorporated. These drafts will then be submitted for consultation with the DGSCGC (Directorate General for the Management of Risks and Risks) on the one hand, and professionals, primarily operators, on the other.		

Immobilization and late evacuation of the "Panorama Mont Blanc" cable car on September 8, 2016 in Chamonix	R4	Establish the minimum list of risks to be taken into account in safety studies for integrated recovery cable cars, and make it available to design offices and operators. Require, in these safety studies, the consideration of provisions	STRMTG	30/11/18		EC
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Ski lifts: Recommendations issued in 2018

recommendation closed:: **C**
recommendation in progress: **EC**
No information: **NC**

Title of the investigation	No.	Label of the recommendation of BEA-TT	Entity	Response date	State of the actions	Code
Immobilization and late evacuation of the "Panorama Mont Blanc" cable car on September 8, 2016 in Chamonix	R5	Implement a plan to sustainably strengthen safety management for the Panoramic Mont-Blanc operation by: - ensuring the completeness of safety documentation and the proper information of personnel and external contacts who must apply it; - ensuring the traceability and monitoring of operational defects, as well as the implementation of corrective actions; - ensuring comprehensive traceability of incidents and accidents to consolidate feedback; - ensuring a plan to control service provider interventions during operating periods.	CMB	07/12/18	The CMB has implemented a safety management system in accordance with Article R342-12 of the Tourism Code. It has chosen to have this system audited by a third party to ensure a continuous improvement process. However, and without waiting for the results of these audits, it has initiated a specific analysis process for the Panoramic Mont-Blanc gondola lift, specifically aimed at strengthening the following for this device: - technical and safety documentation (instructions, procedures). - traceability of events and interventions, as well as feedback. - control of service provider interventions. The CMB has indicated its wish to limit such interventions as much as possible during operating periods..	EC

Ski lifts: Recommendations issued in 2019

recommendation closed:: **C**
recommendation in progress: **EC**
No information: **NC**

Title of the investigation	No.	Label of the recommendation of BEA- TT	Entity	Response date	State of the actions	Code
Costebelle cable car cabin collapsed March 25, 2018 in Pra Loup (04)	R2	For new or reconditioned safety automatons, introduce into the regulations the obligation of data recording and easy extraction over a minimum period of one year in order to allow feedback and analysis of the operation of the device following an incident.	STRMTG	09/09/19	The principles for responding to the recommendation were defined during a meeting with the industry on 06/09/2019 and were outlined in the STRMTG's response to the BEA-TT dated 09/09/2019. The concrete measures defined and incorporated into the new versions of the RM1 and RM2 guides dated 12/07/2023..	C

Appendix 8 : Table showing the monitoring of the implementation of recommendations issued by the BEA-TT in the field of road transport

Road transport: Recommendations issued in 2015

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code :
09/2015	A motorcyclist fell while riding between two lines of vehicles on April 8, 2014, on the A6 motorway in Savigny-sur-Orge (91)	R2	Promote within the European Union and the United Nations Economic Commission for Europe (UNECE) the fitting of goods transport vehicles and their trailers with sufficient side protection to prevent vulnerable road users who have fallen to the ground from slipping under their wheels under all circumstances.	DGEC	A study was conducted to propose an evolution of Regulation No. 73 with a view to defining new rules for the installation and resistance of side protections with adapted deformation parameters. Proposals have been made and discussions are underway with all stakeholders. The issue of compliance verification during roadside inspections appears to be a blocking element. The subject is still ongoing.	In progress

Road transport: Recommendations issued in 2021

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code :
09/2021	Collision between a mixer truck and a light vehicle occurred on August 13, 2019 on the RD13 in Bazoches-sur-Guyonne (78)	R1	As part of the revision of Regulation No. 13 on vehicle braking, propose to make it compulsory to equip mixer trucks with more than 3 axles with an electronic stability control system including the anti-rollover function and the trajectory control function.	DGEC	UNECE Regulation No. 13 stipulates, for the categories covered, that the vehicle stability control function includes the anti-rollover function and the trajectory control function. Concrete mixer trucks could be identified in the vehicle approval regulations by the "concrete mixer" bodywork. Regarding the recommendation, the DGEC proposed at the GRVA meeting in Geneva in January 2022 to reexamine the exemptions from Regulation 13 with a view to making this provision mandatory for the vehicles in question. A proposal was made by France (ESC obligation for 4-axle trucks whose rear axle group has two driven axles and whose other axle groups are entirely non-driven, including off-road vehicles) and adopted at the GRVA of January 2023. The amendment to Regulation 13 came into force with an obligation from 1 September 2026 for new approvals and from 1 September 2028 for all new trucks concerned.	completed

Road transport: Recommendations issued in 2022

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code :
03/2022	Flixbus coach crashed on November 4, 2019 on the A1 motorway in Estrées-Deniécourt (80)	R2	To encourage drivers to respect the 70 km/h speed limit at the entrance to the curve of exit ramp No. 136, strengthen and supplement the signage around the curve to highlight its dangerous nature. Study and implement, if necessary, the addition of vertical position signs at the "earliest exit point" of the exit ramp to remind drivers that they are traveling on an exit ramp.	SANEF	Addition of two A1a "right turn" signs: in progress Study of adapting the signaling sequence: completed Following the study, the entire speed limit signaling sequence has been shifted approximately twenty meters upstream. Completed	completed
08/2022	Pedestrian hit by heavy goods vehicle May 4, 2021 in Clichy (92)	R1	To initiate a study on the performance of vulnerable user detection systems intended to equip heavy vehicles, covered by UNECE regulations No. 151 and 159, with a view in particular to defining a protocol for assessing the proportion of false alarms and then applying this protocol to a panel of marketed systems	DGEC DSR	In response to this joint recommendation, the DSR and the DGEC plan to commission a study from UTAC as part of the upcoming 2023-2024 UTAC agreement. Funding for this study has been included in the budget of the 2023/2024 study agreement with UTAC. The study is currently being finalized (tests conducted). Results are expected in July 2024.	In progress
		R2	Jointly study a technical solution to move the Rue de Neuilly exit onto Boulevard Jean-Jaurès and the pedestrian crossing further downstream on the boulevard further away, by relocating one or the other of these elements, and to do so, create a curved sidewalk in the southern corner of the intersection. In the absence of a satisfactory technical solution: - Jointly study a modification to the traffic light operating diagram at the intersection to separate, in time, the movements of vehicles exiting from Rue de Neuilly and pedestrian crossings at the crossing located downstream on the boulevard; - Restore the damaged warning strips in the southern corner of the intersection; -- Remove the portion of the pedestrian crossing extending from the center of the intersection onto the Rue de Neuilly extension.	Conseil départemental 92	The solution implemented was to remove the pedestrian crossing where the accident occurred and widen the pedestrian crossing located upstream of the intersection. In addition, the principle of a special pedestrian crossing was also considered and studied in consultation with the municipality of Clichy-la-Garenne, which also eliminated traffic on the opposite Rue de Villeneuve, also facilitating the process.	completed

Road transport: Recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code :
04/2023	Collision between a coach and a heavy goods vehicle on May 27, 2021 on the A62 motorway in Mas-d'Agenais (47)	R1	Introduce into UNECE Regulation R131 minimum performance requirements for the AEBS system under conditions that approximate real-life configurations as closely as possible, in both urban and interurban areas. Propose regulations requiring manufacturers to inform users of the operating limitations of installed systems.	DGEC	Starting with the next WP29 rapporteur group responsible for this regulation, my services will propose, in conjunction with the technical services with expertise in this sector and notified to the UNECE for Regulation R131, working on evolving the test conditions. In light of technological advances and tests conducted in other bodies, in order to ensure better representation of conditions encountered in real-life situations, particular attention will be paid to the concept of offset between the vehicle and the target to be detected. This issue has been proposed and is currently under review by UN bodies.	In progress
				DGCCRF	https://www.bea-tt.developpement-durable.gouv.fr/IMG/pdf/dgccrf_mas-dagenais.pdf	completed
		R2	Continue and strengthen actions to inform motorway users about the so-called "safety corridor" rule.	DSR	Waiting response	In progress
				ASFA	https://www.bea-tt.developpement-durable.gouv.fr/IMG/pdf/asfa_mas-dagenais.pdf	completed
		R3	Establish an agreement with navigation service providers to ensure that road safety-related events originating from operators are reported and alerted in real time by private navigation service providers. These alerts must be notified to the driver separately from alerts issued by other road users. A second visual and audible alert on the navigation interface must be sent to the driver when approaching the area of the event.	DGITM	Waiting response	In progress
				ASFA	https://www.bea-tt.developpement-durable.gouv.fr/IMG/pdf/asfa_mas-dagenais.pdf	completed
		R4	Allow drivers and navigation tool users to issue real-time alerts for the following events: - Temporary slippery road; - Animals, people, obstacles, or debris on the road; - Unsafe accident zone; - Short-term roadworks; - Reduced visibility; - Wrong-way driver; - - Unmanaged road obstruction.	Google	https://www.bea-tt.developpement-durable.gouv.fr/IMG/pdf/google_mas-dagenais.pdf	completed
				Coyote	https://www.bea-tt.developpement-durable.gouv.fr/IMG/pdf/coyote_mas-dagenais.pdf	completed

Road transport: Recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code :
04/2023	Collision between a coach and a heavy goods vehicle on May 27, 2021 on the A62 motorway at Mas-d'Agenais (47)	R4	Allow drivers and navigation tool users to issue real-time alerts for the following events: - Temporary slippery road; - Animals, people, obstacles, or debris on the road; - Unsafe accident zone; - Short-term roadworks; - Reduced visibility; - Wrong-way driver; - - Unmanaged road obstruction.	Google	https://www.bea-tt.developpement-durable.gouv.fr/IMG/pdf/google_mas-dagenais.pdf	completed
				Coyote	https://www.bea-tt.developpement-durable.gouv.fr/IMG/pdf/coyote_mas-dagenais.pdf	completed
07/2023	Collision between a car and a salt spreader on December 12, 2021 on the A20 motorway in Nespouls (19)	R1	- - Conduct an analysis to identify the reasons why DIR operations staff do not wear seat belts, including by involving experts in psychology and organizational and human factors. - - Based on the findings of this analysis, then initiate actions to raise awareness among operations staff of the need to wear seat belts.	DRH	https://www.bea-tt.developpement-durable.gouv.fr/IMG/pdf/nespouls_drh.pdf	completed

Road transport: Recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code
12/2023	Accident involving a minibus July 12, 2022, rue de Vaugirard in Paris	R1	Adjust electric passenger vehicles so that the majority of regenerative braking is controlled by pressing the brake pedal. Disable the acceleration feature called "Acceleration Booster."	Autocars Dominique	This is fully in line with recommendation R1. The instructions have already been given orally to drivers and dispatchers. These verbal instructions will be supplemented by a specific sheet that will specify, with a visual, the correct operating procedure.	completed
		R2	Plan and deliver specific modules on driving electric vehicles and the risks inherent in Category A or moderate regenerative braking with the accelerator pedal in existing training courses for driving public transport vehicles (driving license, FIMO, FCO). Generally speaking, it is important to ensure that drivers are trained in braking systems both theoretically and practically through actual braking tests applied to the type of vehicles they will potentially be driving.	AFTRAL	AFTRAL proposes expanding its training materials to include a more specific and detailed section on regenerative braking. This will allow trainers to educate drivers on the use of this device, particularly as part of defensive driving, which helps optimize the range of electric vehicles. Indeed, driver anticipation allows for optimal use of regenerative braking, just like the retarder, to reduce the use of the service brake system without eliminating it. In the event of a very sharp slowdown or even a complete stop of the vehicle, the service brake remains the device to use. Drivers are not always, if ever, familiar with the type of vehicles they will be driving in a company. These theoretical contributions will allow future drivers to be familiar with driving this type of vehicle before taking charge of their assigned company vehicle. A specific offer that can be implemented outside of regulated and in-house training could also be developed in the second half of 2024.	In progress

Road transport: Recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code :
12/2023	Collision between a truck and a minibus on September 2, 2021 on the A75 motorway in Saint-Poncy (15)	R1	Establish a national instruction specific to the use of minibuses (or even personal vehicles) to remind the various organizers (collective reception of minors – ACM, associations in particular) using them to transport a group of people of the associated responsibilities and the safety and prevention rules to be followed when preparing and carrying out these trips. Implement, for the aforementioned organizers and their drivers, a wide-ranging awareness campaign on the risks of drowsiness and lack of attention when driving, including the risks during motorway travel and related in particular to lack of sleep and the use of cruise control.	DJEPVA	https://www.bea-tt.developpement-durable.gouv.fr/IMG/pdf/saint-poncy_djepva.pdf	In progress
		R2	Supplement the Highway Code to make explicit the obligation to use hazard lights when the driver is forced to travel at a reduced speed due to a ramp configuration, with a threshold characterizing a slow speed on the motorway, as practiced for example in Spain.	DSR	Waiting response	In progress

Road transport: Recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code
12/2023	Collision between a truck and a minibus on September 2, 2021 on the A75 motorway in Saint-Poncy (15)	R3	Establish awareness among heavy vehicle drivers of the need to use hazard lights, particularly on motorways, when speed is significantly reduced due to a ramp configuration.	AFTRAL	Learner awareness will be raised across all our heavyweight training programs: - Initially, information will be provided to educational managers and teaching assistants. - Secondly, educational managers and coordinators will be informed during monthly remote meetings and will ensure the implementation of this awareness campaign with the teaching teams responsible for regularly raising awareness among all learners starting in April/May 2024.	completed
				Promotrans	The training programs for heavy goods vehicles and passenger transport vehicles (professional qualifications, licenses, FIMO, FCO) include recommendations related to road safety, signage, and the dangers associated with driving on ramps. During training (professional qualifications, licenses, FIMO, FCO), learners are instructed to use hazard lights when driving at reduced speeds. The training programs combine driving in vehicles and on simulators, which allows learners to better understand this type of situation and raise their awareness of the use of hazard lights. In light of this recommendation, three immediate actions have been decided: - communication to all site managers with the distribution of revised educational materials to reinforce road safety awareness, - information to all educational managers via remote workshops, - an update of educational materials with distribution to all Promotrans Group trainers via the educational platform.	completed

Road transport: Recommendations issued in 2023

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code :
12/2023	Collision between a truck and a minibus on September 2, 2021 on the A75 motorway in Saint-Poncy (15)	R4	Update and supplement the doctrinal elements on steep road sections, by continuing the process of revising SETRA note no. 21, so that these sections are monitored, taking into account accident and incident data, and better reporting of the risk of collision with slow-moving vehicles. The discussions could be conducted in the same way as the guide on the development of steep slopes and allow for the emergence of intermediate solutions to address this risk in the absence of VSVL.	DGITM	https://www.bea-tt.developpement-durable.gouv.fr/IMG/pdf/saint-poncy_dgitm.pdf	In progress
		R5	Complete the signage relating to the risk of collision with slow-moving vehicles so that it covers the entire Massiac ramp and, depending on the results of accident monitoring over time, consider other preventive measures, such as lowering the speed limit and analyzing the opportunity to implement a VSVL. Implement this signage on other sections of the A75 where it is justified.	DIRMC	https://www.bea-tt.developpement-durable.gouv.fr/IMG/pdf/saint-poncy_dirmc.pdf	completed

Appendix 9 : Table showing the monitoring of the implementation of recommendations issued by the BEA-TT in the field of waterways

Waterways: Recommendations issued in 2020

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code ¹
01/2020	Collision on the motorway bridge in Givors (69) by the passenger boat BIJOU DU RHÔNE on April 6, 2018	R1	Study and install channel marking signs, visible day and night, upstream and downstream of the Givors motorway bridge in accordance with the CEREMA guide "Signaling for inland navigation".	CNR	In collaboration with VNF and with the support of navigators, particularly within the framework of the Rhône-Saône basin safety subcommittees, feasibility studies have been carried out to improve the visibility of the channel markings both day and night. The project will be finalized in the first half of 2024.	completed

Waterways: Recommendations issued in 2021

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code :
12/2021	Sinking of the PAMPERO, a dangerous goods transport vessel, on the Rhône River, when a gate at the Sablons lock (Isère) broke on February 18, 2020	R1	Strengthen the quality of maintenance and the level of monitoring of lock gates, by applying the standard maintenance plan to each structure and ensuring its proper implementation, by improving the consideration of follow-up to interventions and work reports, and in order to better consider the gates as a functional unit, with all associated equipment, control and command systems and protection elements of the installations.	CNR	Following the feedback from the Sablons accident, the Maintenance Technical Reference Document was updated in October 2022. Regarding protective elements, the RT EXP GENE 11 Technical Reference Document "Testing Safety Barriers and Strategic Equipment for Hydraulic and Navigation Safety" was updated to include mechanical overload and excessively long execution times, with operational implementation beginning in 2021. Internal monitoring of the proper implementation of lock maintenance has been strengthened. A working group focused on the performance, monitoring, and follow-up of routine maintenance operations was formed and reported its findings in May 2023. Thus, the internal control system is based on three levels: - Level 1 of internal control is the responsibility of the implementing entity. It is managed by local management; - Level 2 of control consists of verifying key points. It is carried out by the coordinating entity of the relevant department; - Level 3 of control consists of audits carried out by the audit/risk/internal control department. Regarding the follow-up to specialized maintenance interventions and reports, it was decided that: - The drafting of work requests is the responsibility of the department responsible for carrying out the maintenance operation, which improves the expression of needs; - The complete report is submitted to the operator, who retains an overall view of routine maintenance and work requests within their scope.	completed
		R4	Implement a sensor system to enable direct measurements of the position of the downstream gate of the Sablons lock at the end of the operation. Study the feasibility and install, if necessary, such a system on the other lateral displacement lock gates.	CNR	In November 2021, the operational Sablons downstream gate was instrumented to enable direct measurements of the gate's position. This same instrumentation was replicated on the new downstream gate installed during the March 2022 navigation shutdown. The feedback is conclusive; the instrumentation installed at Sablons will be duplicated on the sliding side gates of the other locks by 2027.	completed

Waterways: Recommendations issued in 2021

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code 
01/2021	BEA-TT addendum to the joint BEAmer-BEA-TT technical investigation report on the collision of two bridges by the river-sea vessel ARAMIS on September 28, 2019, on the Rhône diversion canal at Donzère-Mondragon (26)	R2	Using the River Information System (RIS), provide navigators with real-time information on clearances under bridges, starting in the short term with bridges for which the data is already available or can easily be obtained, then including all limiting bridges according to criteria to be specified by the operator. Study, for bridges for which the clearance can often be close to the minimum of 6.30 m, the installation of a C2 sign stating that "the clearance above the water level is limited; indicated limit: 6.30 m" as provided for in the 1993 version of the Waterway Signage Guide, for bridges constituting critical points of the section in relation to the air drafts.	CNR	Real-time clearance data available to the CNR will be made available as a priority. This has been in effect since July 2022 for the RN7 and SNCF bridges on the Donzère-Mondragon feeder canal where the Aramis vessel accident occurred. For bridges for which real-time clearance data is not available, this requires the installation of measuring stations (this is an improvement that will be included in the "waterway safety" actions of the Rhône Plan). The corresponding feasibility study has been completed, and detailed studies will begin in 2024. Regarding the installation of C2 traffic signs for bridges that frequently have a clearance close to 6.30 m for the Bas-Rhône waterway, considering that a clearance limit is frequently reached 100 days/year, an initial assessment identified approximately ten bridges for which the clearance is between 6.30 m and 7 m for more than 100 days/year. By the end of April 2024, 87% of the identified bridges had been equipped with C2 signs. Studies are underway for the remaining bridges..	In progress

Waterways: Recommendations issued in 2022

Date of the report	Title of the investigation	No.	Label of the recommendation of the BEA-TT	Entity	State of the actions	Code
12/2022	Collision of two bridges by the ship ANDRE MICHEL1 on October 2, 2021 on the Rhône diversion canal	R1	Bring to the European framework the approach aimed at ensuring that the provisions applicable to vessels operating on the Rhine (art 25.01 ES-TRIN) are extended, for the most relevant, to vessels operating in inland waters and, moreover, are supplemented so as to include certain of the specific rules for height-adjustable wheelhouses which apply to boats.	DGITM	The analysis was conducted with a view to working towards the integration of such a provision into the French Transport Code. It will also be proposed that France submit a request to amend the chapter relating to seagoing vessels in the work program of the European Committee for the Development of Navigation Standards for the 2024-2028 period.	In progress
		R2	Study the possibilities of improving navigation safety in the area of the two Donzère bridges, during poor visibility conditions, by means of signaling and beacons (alignment of lights or other devices to mark the direction of the channel, spars topped with radar reflectors and lights, bridge lighting, reflective materials).	CNR	By the end of 2024, CNR will study the improvements that can be made to signage and marking, in consultation with waterway users, within the framework of the safety sub-committees led by VNF.	In progress
		R3	Carry out, in conjunction with Voies Navigables de France and the departmental territorial directorate of the Rhône department (both responsible for supporting prefects in matters of navigation policing), a trajectory study, in order to ensure that the reversal of the direction of navigation in the area of the two Donzère bridges remains relevant in view of the current and the strong wind on this section.	CNR	The history of the current navigation pattern has been reconstructed (search for the contextual elements that led to it). Simulations under different navigation conditions using the Promofluvia simulator are to be planned. The findings will make it possible to assess the relevance of maintaining the change in navigation direction. They should also help determine whether improvements to the buoyage/signage can be made.	In progress



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