STATE COMMISSION ON RAILWAY ACCIDENT INVESTIGATION
Ministry of the Interior and Administration

REPORT No. PKBWK 05/2025

on the investigation of a serious railway accident that occurred on 1 July 2024 at 09:19 hrs on the Ożarów Mazowiecki - Błonie route, track no. 2, category B level crossing at km 17.211 of railway line no. 3 Warszawa Zachodnia - Kunowice, area of infrastructure operator PKP PLK S.A. Railway Line Plant in Warsaw

WARSAW, 25 June 2025

https://www.gov.pl/web/mswia/panstwowa-komisja-badania-wypadkow-kolejowych

Pursuant to Article 28f (3) of the Act of 28 March 2003 on rail transport, the Commission's investigation determines neither guilt nor liability.

This Report has been prepared under the provisions of *Commission Implementing Regulation (EU) 2020/572 of 24 April 2020 on the reporting structure to be followed for railway accident and incident investigation reports (OJEU L*

STATE COMMISSION ON RAILWAY ACCIDENT INVESTIGATION
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I. SUMMARY

Type of occurrence: Serious accident.

Description: An occurrence at a level crossing *(as defined in accordance with the Road Traffic Act*, hereinafter referred to as "the crossing") of Category B at km 17.211 of railway line no. 3, Ożarów Mazowiecki - Błonie route, in which passenger train ROJ 91448 of railway carrier "Koleje Mazowieckie - KM" sp. z o.o. travelling from Sochaczew to Warszawa Wschodnia (hereinafter referred to as "KM") ran into a lorry consisting of a road tractor and a semi-trailer (hereinafter referred to as "the lorry") stationary on the crossing. The lorry entered the crossing with the crossing barriers opened and automatic level crossing signalling devices (SSP) switched off. The vehicle was forced to stop in the crossing zone as the road vehicle ahead of it stopped unexpectedly, creating a traffic jam. While the road vehicle concerned remained at the crossing, the oncoming train ROJ 91448 triggered the automatic level crossing system, activating the road traffic lights and closing the barrier, which came down and rested on the semi-trailer of the lorry. The vehicle concerned was unable to leave the crossing zone because of the cars on the road ahead of it. The driver of a passenger car travelling ahead of the lorry pulled over to the side of the road to clear the exit from the crossing. However, this clearance thus created was insufficient for the lorry drive away from the crossing completely. The lorry driver attempted to pull over to the side of the road following the passenger car, but due to insufficient space between the lorry and the traffic light, the driver was unable to leave the crossing zone and the train travelling on track no. 2 ran into the rear section of the semi-trailer.

Date of the occurrence: 1 July 2024, 09:19 hrs.

Location of the occurrence: Railway line no. 3 Warszawa Zachodnia - Kunowice, track no. 2 of the Ożarów Mazowiecki - Błonie route, Cat. B level crossing, km 17.211, crossing identification number 003 017 211, geographical location 52°12'29.5"N 20°46'09.3"E.

Consequences of the occurrence: As a result of the serious accident, the driver of passenger train ROJ 91448 died on the spot. Furthermore, the train driver's cab was completely destroyed and the first section of the ER75-001 rail vehicle was damaged. The semi-trailer of the lorry was also destroyed, together with the cargo it was carrying (construction materials).

Causal factors:
(means any action, omission, event or condition, or a combination thereof that if corrected, eliminated, or avoided would have prevented the occurrence, in all likelihood)

1. The lorry entering and remaining on the Cat. B level crossing on tracks 1 and 2 as the vehicles ahead of it stopped unexpectedly, which prevented the lorry from exiting the crossing and led to a passenger train travelling on track 2 colliding with the semi-trailer of the lorry.
2. The lorry entering the crossing even though there was no room on the other side of the crossing to continue driving (Article 28(3)(2) of the Road Traffic Act).

Contributing factors:
(means any action, omission, event or

condition that affects an occurrence by increasing its likelihood, accelerating the effect in time or increasing the severity of the consequences, but the elimination of which would not have prevented the occurrence)

1. Failure of the lorry driver to take special care when approaching and traversing the crossing.
2. The road vehicles ahead of the lorry stopping and creating a traffic jam voivodeship road DW718, preventing the lorry from leaving the crossing zone at the time of the occurrence.
3. Improper organisation of vehicle traffic in the area of the crossing causing road traffic jams at the crossing and in its vicinity, in particular too short a traffic lights cycle at the junction of voivodeship road no. DW718 and national road no. DK92 located approximately 330 m from the crossing.
4. Ineffective checks at the crossing, failing to reveal recurring traffic jams at the crossing and the risks caused by the improper traffic organisation.
5. Very high traffic volumes on voivodeship road DW718, which is a single level crossing, generated by the nearby exit from the A2 motorway.

Systemic factors:
(means any causal or contributing factor of an organisational, managerial, societal or regulatory nature that is likely to affect similar and related occurrences in the future, including, in particular the regulatory framework conditions, the design and application of the safety management system, skills of the staff, procedures and maintenance)

1. Despite the preventive measures taken by the railway infrastructure manager and the voivodeship road manager in connection with previous railway occurrences at the crossing concerned (accidents, incidents), the safety at the crossing was not ensured (see Section II. 10 of the Report).
2. Failure to implement the provisions of Agreement No. 25/MZDW/2018 signed on 22 May 2018 between the Municipality of Ożarów Mazowiecki, the Mazovian Voivodeship and PKP PLK S.A. on the construction of collision-free junctions, including a multi-level junction, to replace the level crossing at km 17.211 of railway line no. 3.

Recommendations and their addressees:

1. Recommendations issued during the investigation that require taking immediate actions and have impact on improving safety:

A. addressed to the Mazovian Voivodeship Roads Authority in Warsaw:

1. Complete the signage on voivodeship road DW 718 by adding P-4 lines along the entire section from the level crossing at km. 17.211 of railway line No. 3 to national road DK92.
2. Extend the cycle of traffic lights for traffic to/from DW 718 at the junction with DK92 to improve the traffic flow to the level crossing, in cooperation with the General Directorate of National Roads and Motorways as the manager of DK92.
3. Relocate the signs indicating the beginning (D-42) and end (D-43) of the built-up area on DW718 to the left side of the crossing, i.e. in the direction of Pruszków, so that the speed limit on approach to the crossing is 50 km/h.
4. Complete the P-14 lines on both sides of the crossing.
5. Introduce no-left turn into the roads parallel to the tracks (horizontal and vertical signage) and introduce right-turn only from the four roads reaching DW718 parallel to the railway tracks within the crossing area.
6. Separate the traffic lanes by installing traffic separators within the crossing area to prevent, among other things, turning after the crossing and bypassing closed barriers.
7. Position B-20 "Stop" signs at the inlets of the four internal roads parallel to the tracks to DW718.

8. Check, complete or make legible the signage from the internal roads parallel to the railway line within the crossing area informing of the crossing (refers to the situation of turning right into the crossing) by adding F6a signs - currently, the signs are missing on one of the aforementioned roads, whereas on the other two roads they are rotated and not legible to road users.

B. addressed to the General Directorate for National Roads and Motorways:

1. Extend the cycle of traffic lights for traffic from/to DW 718 at the junction of national road DK92 with voivodeship road DW718 to improve the traffic flow between the level crossing and DK92, in cooperation with the Mazovian Road Authority in Warsaw as the manager of DW718.

C. addressed to PKP Polskie Linie Kolejowe S.A.:

1. Having analysed the circumstances of the occurrence at the crossing concerned, it the Commission and the Commission's Investigation Team explicitly state that the accident occurred due to a permanent obstruction in the area of the crossing which poses a constant risk to the safety of the traffic of trains, road vehicles and pedestrians due to poor organisation of the traffic of road vehicles and pedestrians within the area. Given the fact that such circumstances are not provided for in the implementing regulations of the Construction Law, the rule of the railway infrastructure manager concerning the existing safety risk from § 84 of Ir-1 "Instruction on operating railway traffic" Ir-1 other instructions of the manager must be applied.
   Consequently, there should be a 20 km/h speed limit for the head of the train on all tracks in both directions for the length equal to the length of the crossing and, where there is an obstacle, the train crew must stop the train in front of it. The speed limit must be put in place immediately until the recommendations have been implemented.
2. Carry out the emergency procedure to calculate the traffic ratio on the crossing, in cooperation with the voivodeship road manager, on the basis of Point 8 of Annex 1 to the Regulation (requested by the State Commission on Railway Accident Investigation).
3. Relocate the crossing light pole from the right side of the crossing so that it does not obscure the barrier for crossing users travelling from the direction of national road 92.

D. addressed to the Mazovian Voivodeship Roads Authority, Ożarów Mazowiecki City Council and railway infrastructure manager PKP Polskie Linie Kolejowe S.A.

1. The Mazovian Voivodeship Roads Authority in Warsaw, the manager of DW718, and the railway infrastructure manager PKP Polskie Linie Kolejowe S.A. and the Ożarów Mazowiecki City Council shall speed up the work on building a viaduct over railway line no. 1 to eventually replace the crossing in the course of Ceramiczna Street in Ołtarzew,
2. Since it is impossible to ensure a safe left turn at the exit from the railway crossing into Południowa Street, the Ożarów Mazowiecki City Council shall take urgent measures to enable safe access for long road vehicles, in particular lorries and agricultural tractors with trailers, to properties located along Brzegowa Street in Ołtarzew, including, inter alia, urgently pave the current dirt road on the section from the property at 2 Brzegowa Street to the turn of Brzegowa Street running through parcels no. 437/4 and 437/5 and along parcel no. 436/4, while making the turn angle less sharp (437/4). In the course of the investigation, the City Council of Ożarów Mazowiecki had the aforementioned dirt road paved.

2. Recommendations arising from the investigation:

1. The entities in charge of management of railway infrastructure shall - on the basis of reports from railway carriers, level crossing users and other reports on road traffic organisation concerning traffic jams at level crossings - carry out emergency inspections of these level crossings together with road managers, and shall take immediate measures to improve the safety of railway and road traffic at these crossings.
2. Infrastructure manager PKP Polskie Linie Kolejowe S.A. Railway Line Plant in Warsaw shall include in the Technical Regulations of the Traffic Control equipped with the UZK device for the level crossing at km 17.211 of railway line no. 3, the obligation for the signaller to use the "Alarm" signal by means of

the RADIOSTOP system in the event of a defect in the SSP Cat. I when a train is approaching the crossing concerned. The above shall apply until either of the solutions included in Recommendation no. 7 of this Report is implemented.

3. Railway infrastructure manager PKP Polskie Linie Kolejowe S.A. shall take measures to implement systems to detect the presence of road vehicles between closed barriers on level crossings which will alert train drivers and signallers to the danger, including at the crossing at km 17.211 of railway line no. 3.
4. The voivodeship road manager Mazovian Voivodeship Provincial Roads Authority in Warsaw shall, in cooperation with railway infrastructure manager PKP Polskie Linie Kolejowe S.A. and the City and Municipality Council of Ożarów Mazowiecki, continue actions to implement the provisions of Agreement No. 25/MZDW/2018 signed on 22 May 2018, including to build a viaduct over railway line no. 3 to ultimately replace the level crossing at km 17.211 of this line.
5. Operators of powered rail vehicles with front-view monitoring shall ensure that the said equipment ensures continuous video and audio recording capability, particularly in the event of railway occurrences. Consideration should be given to relocating the monitoring recorder to a secure place within the rail vehicles to ensure continuity of recording in the event of railway occurrences.
6. Railway infrastructure manager PKP Polskie Linie Kolejowe S.A. shall clarify its internal regulations as regards the procedure to be followed by signallers in the event that a defect of Cat. I SSP is signalled by the UZK equipment when a train is approaching (in particular Section 18 of Ie-119 and Section 25(6)(1) of Ir-7).
7. Until Recommendation no. 3 of this Report is implemented, the voivodeship road manager Mazovian Voivodeship Roads Authority in Warsaw shall, in cooperation with the manager of access roads - the City and Municipality Council of Ożarów Mazowiecki, consider (on the basis of the agreement with PKP S.A.) either of the following solutions to improve safety at the crossing:
    a. conversion of the junctions of the voivodeship road with roads parallel to the railway line, so that the continuity of the access road is ensured and there are no junctions of these roads with the voivodeship road on either side of the crossing and on each side of the voivodeship road over the distance of 30 m from the crossing barrier devices, or
    b. application of the design solution referred to in Section 21(2) of the Regulation of the Minister of Infrastructure of 20 October 2015 on the technical conditions to be met by crossings of railway lines and sidings with roads, and on their positioning (design solutions within the crossing to ensure efficient exit of road vehicles from the crossing (Journal of Laws, item 1744, as amended), which provides that: *"The design solutions applied within a level crossing should ensure that road vehicles can exit the level crossing smoothly and join the traffic flow adjacent to the level crossing, in particular by making the operation of the crossing systems dependent on (linked to) the road traffic control systems."*
8. Authorised railway infrastructure managers, users of railway sidings, operators of narrow gauge railways and infrastructure managers that are exempt the obligation to obtain a safety authorisation and authorised to operate under a safety certificate (hereinafter referred to as "railway managers") shall - in the event of receiving notification from a road manager of the intention to carry out traffic volume measurements at a level crossing - request feedback from the road manager concerning the traffic characteristics within the crossing, including in particular the likelihood of road traffic jams. Where the formation of traffic jams within a level crossing is identified, the railway managers shall analyse the resulting risks and implement appropriate safety measures.

Photograph 1 - View of the lorry which stopped in the crossing zone behind the cars stationary on the other side of the crossing (source: PKP PLK S.A.)

Photograph 2- View of the lorry semi-trailer on the crossing at approximately 0.5 s before the occurrence (source: PKP PLK S.A.)

Photograph 3 - View of KM's passenger train colliding with the lorry semi-trailer (source: PKP PLK S.A.)

II. THE INVESTIGATION AND ITS CONTEXT

1. Decision to establish an investigation

The Chairman of the State Commission on Rail Accident Investigation (hereinafter referred to as "PKBWK" or "the Commission") Mr Tadeusz Ryś issued Decision no. PKBWK.590.4.2024 of 3 July 2024 on establishing an investigation into the causal factors and circumstances of a serious accident at a Category B level crossing at km 17.211 of railway line no. 3. Considering the provisions of Article 28e(4) of the Act of 28 March 2003 on rail transport (consolidated text: Journal of Laws of 2024, item 697, as amended), hereinafter referred to as the "Rail Transport Act", the occurrence was reported within the prescribed deadline to the European Union Railway Agency and registered in its database under number PL-10574.

2. Motivation for the decision to establish an investigation

Taking into account the nature and circumstances of the occurrence, the Chairman of PKBWK decided that an investigation should be conducted by the Commission's Investigation Team pursuant to Article 28e(3)(2) of the Rail Transport Act due to the fact that the accident formed a series of accidents and incidents. The occurrence was initially classified as an accident. In the course of the investigation, the Investigation Team checked, among other things, the functioning of the safety management system (SMS) of the infrastructure manager, i.e. PKP Polskie Linie Kolejowe S.A., and considered that the occurrence met the definition of a serious railway accident as referred to in Article 4(46) of the Rail Transport Act.
The Investigation Team identified systemic factors with an obvious impact on safety management which showed improper performance of the SMS, as described in Chapter IV Point 4.2 of this Report, and therefore the Investigation Team reclassified the occurrence from accident to serious accident.

3. Scope and limits of the investigation including a justification thereof, as well as an explanation of any delay that is considered a risk or other impact to the conduct of the investigation or its conclusions

The investigation into the causal factors and circumstances of the occurrence was conducted under Article 28h(1) of the Rail Transport Act and, in accordance with the provisions of Article 28f(3), does not determine guilt or liability.
There were no limits during the investigation that would have a negative impact on its course.

4. An aggregated description of the technical capabilities and the functions in the team of investigators.

The Chairman of the Commission nominated an Investigation Team from among the standing members of the Commission with qualifications and competencies suitable for the investigation concerned.

5. A description of the communication and consultation process established with persons or entities involved in the occurrence during the investigation and in relation to the information provided

Under Article 28h(2)(5) of the Rail Transport Act, the PKBWK Chairman obliged specific persons from the railway commission to cooperate with the Investigation Team (letter no. PKBWK. 590.4.1.2024 of 3 July 2024).

On 8 July 2024, the chairman of the railway commission formally submitted the documentation gathered by the railway commission to the head of the Commission's Investigation Team.

6. A description of the level of cooperation offered by the entities involved

The Investigation Team assesses the cooperation with PKP Polskie Linie Kolejowe S.A. as unsatisfactory in terms of the manner of implementation of the recommendations issued by the Chairman of PKBWK in the course of the investigation.
It is emphasised that in the course of the investigation there were several Cat. C64 incidents at the crossing (a road vehicle remaining in the crossing zone after the barriers were closed) and other dangerous situations were recorded by carriers that forced the traction teams to implement emergency braking of their trains, which shows that the risk of further occurrences is very high. In this situation, the Chairman of the Commission upheld the recommendation for ihe Infrastructure manager to limit the speed for the train head to 20 km/h at the crossing concerned. Despite this, the infrastructure manager failed to comply with the recommendation and introduced a speed limit for trains of 100 km/h.
Cooperation with the other entities did not raise any concerns with the Investigation Team.

7. A description of the investigation methods and techniques as well as analysis methods applied to establish the facts and findings referred to in the report

In the course of the investigation into the causal factors and circumstances of the occurrence, the Investigation Team took into account the provisions of national regulations, internal regulations and technical documentation of the infrastructure manager, i.e. PKP PLK S.A., and the railway carrier, i.e. "Koleje Mazowieckie - KM" sp. z o.o. Furthermore, the Investigation Team relied on their own knowledge and experience.
The documentation prepared by the Investigation Team and the documentation gathered by the railway commission were also used.
Within the investigation, the Investigation Team carried out inter alia the following activities:

- an inspection of the site and consequences of the occurrence, including, but not limited to, an inspection of the level crossing, the railway line and the voivodeship road,
- measurements at the crossing (warning times, sound intensity of gongs, location of traffic signs),
- an analysis of driver behaviour at the crossing,
- an analysis of the visibility of the crossing from the cab of a rail vehicle,
- an analysis of the visibility of the crossing from a road vehicle,
- producing photographic and video documentation,
- an analysis of the documentation submitted by the railway carrier, the railway infrastructure manager, the road manager and the owner of the road vehicle,
- inspecting the crossing concerned,
- interviews with the personnel involved in the occurrence,
- an analysis of CCTV footage from the level crossing and the rail vehicle,
- an analysis of the data from the event recorder of rail vehicle ER75-001 and ER75-010,
- a visual inspection of railway vehicle ER75-001 after the occurrence,
- verification of the progress in implementing the recommendations issued by the Chairman of PKBWK in the course of the investigation.

Below is a list of selected legal acts, rules and internal instructions used during the investigation:

European Union rules:

1) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ EU L 119 of 4 May 2016, p. 1, as amended).
2) Commission Implementing Regulation (EU) 2020/572 of 24 April 2020 on the reporting structure to be followed for railway accident and incident investigation reports (OJ EU L 132 of 27 April 2020).
3) Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway safety (OJ EU L 138 of 26 May 2016, p. 102, as amended).

National rules:

1) Act of 28 March 2003 on rail transport (consolidated text: Journal of Laws of 2024, item 697, as amended).
2) Act of 7 July 1994 on the Construction Law (consolidated text: Journal of Laws of 2024, Item 725, as amended).
3) Act of 20 June 1997 on the Road Traffic Law (consolidated text: Journal of Laws of 2024, item 1251, as amended).
4) Act of 10 May 2018 on the protection of personal data (consolidated text: Journal of Laws of 2019, item 1781).
5) Act of 21 March 1985 on public roads (consolidated text: Journal of Laws of 2024, item 320, as amended).
6) Regulation of the Minister of Infrastructure and Development of 20 October 2015 on the technical conditions to be met by crossings of railway lines and sidings with roads, and on their positioning (Journal of Laws, item 1744, as amended).
7) Regulation of the Minister of Infrastructure of 11 January 2021 on personnel employed on positions related directly to the operation and safety of rail traffic and to driving of specific types of rail vehicles (Journal of Laws of 2024, item 780, as amended).
8) Regulation of the Ministers of Infrastructure and of the Interior and Administration of 31 July 2002 on road signs and signals (consolidated text: Journal of Laws of 2019, item 2310, as amended).
9) Regulation of the Minister of Infrastructure of 24 June 2022 on the technical and construction rules applicable to public roads (Journal of Laws, item 1518).
10) Regulation of the Minister of Transport and Maritime Economy of 10 September 1998 on the technical conditions to be met by railway structures and on their positioning (Journal of Laws No. 151, item 987, as amended).

Internal instructions of the infrastructure manager PKP PLK S.A. (selected)

1) Ir-1 Instruction on operating railway traffic.
2) Ir-5 (R-12) Instruction for using railway radio communication devices.
3) Ir – 7 Instruction on the maintenance of level crossings and passages.
4) Ir-8 Instruction on the handling of serious accidents, accidents and incidents in railway transport.
5) Ie-1 Instruction on signalling operations.
6) Ie-4 (WTB-E10) Technical guidelines on the construction of rail traffic control devices.
7) Ie-5 (E-11) Instruction on the rules of operating and conducting works on rail traffic control devices.
8) Ie-7 (E-14) Instruction on technical diagnostics and periodic inspections of rail traffic control devices.
9) Ie-12 (E-24) Instruction on the maintenance, inspection and overhaul of rail traffic control devices.

10) Ie-111 Requirements for CCTV systems used at Cat.B level crossings Cat.
11) Id-1 Technical conditions on the maintenance of the surface of railway lines.
12) Ik-2 Instruction on inspections concerning the safety of railway traffic.

Internal instructions of railway carrier "Koleje Mazowieckie - KM" sp. z o. o. (selected)

1) KMt-1 Instruction for drivers of traction vehicles.
2) KMh-21 Instruction for conductor teams.
3) KMh-22 Instruction for a train manager, conductor and controller.
4) KMt-4 Instruction on the maintenance of rail vehicles.
5) KMr-12 Instruction on train formation.
6) KMw-56 Instruction on the operation and maintenance of brakes in rail vehicles.

8. A description of the difficulties and specific challenges encountered during the investigation

The members of the Investigation Team encountered difficulties on the part of the infrastructure manager, i.e. PKP Polskie Linie Kolejowe S.A., as regards implementation of the recommendations issued in the course of the investigation which are described in detail in Section V.2 of this Report.
An additional difficulty was that it was not possible to replay the front-view and interior view monitoring recordings of rail vehicle ER75-001 because the recorder was damaged as a result of the occurrence.
However, these difficulties did not have a significant impact on the course, timeliness or conclusions of the investigation.

9. Any interaction with the judicial authorities

The PKBWK Investigation Team requested:

- by letter PKBWK. 590.4.11.2024 of 24 July 2024 addressed to the District Public Prosecutor's Office in Pruszków,
- by letters PKBWK. 590.4.04.2024 of 12 July 2024 and PKBWK.590.4.23.2024 of 12 September 2024 addressed to the County Police Headquarters for the West Warsaw County in Stare Babice

access to documents relating to the investigation.
The aforementioned documentation was made available to the Investigation Team by the above authorities. Furthermore, on 11 August 2024, the County Police Headquarters for the West Warsaw County requested PKBWK (by letter D-2366/24) to make available selected data concerning the investigation. The Commission provided the data as requested in the said letter.

10.Any other information relevant in the context of the investigation

The measures taken after the previous incidents at this crossing were aimed at improving traffic safety at the crossing, but did not address the key cause of the poor traffic organisation in the area of the crossing, generated by the location of road junctions on the roads parallel to the railway line and situated right next to the barrier devices, which constitutes non-compliance with the provisions of the Regulation of the Minister of Infrastructure of 20 October 2015 on the technical conditions to be met by crossings of railway lines and sidings with roads, and on their positioning (design solutions within the crossing to ensure efficient exit of road vehicles from the crossing (Journal of Laws, item 1744, as amended).

III. DESCRIPTION OF THE OCCURRENCE

1. The occurrence and background information

1.1. Description of the type of occurrence

A serious accident at Cat. B level crossing.
The accident involved passenger train ROJ 91448 operated on the Sochaczew - Warszawa Wschodnia route by carrier "Koleje Mazowieckie - KM" sp. z o. o., and a lorry consisting of a DAF road tractor with a KOEGEL semi-trailer. In the occurrence, the rear of the lorry semi-trailer was hit by the passenger train running on track no. 2.
The lorry was stationary on the crossing, unable to continue due to the road traffic jam in front of it. The PKBWK Investigation Team commenced the investigation into the railway accident pursuant to Article 28e(3)(2) of the Rail Transport Act. In the course of the investigation, the Investigation Team checked the functioning of the safety management system (SMS) of the infrastructure manager, i.e. PKP Polskie Linie Kolejowe S.A., as a result of which it considered that the occurrence met the definition of a serious railway accident as referred to in Article 4(46) of the Rail Transport Act, which provides:
"serious accident - any accident caused by a collision, derailment or any other occurrences with an obvious impact on safety regulation or safety management resulting in:
a) the death of at least one person or serious injuries to five or more persons, or
b) extensive damage to a rail vehicle, railway infrastructure or the environment that can be immediately estimated by the accident investigation commission to be at least €2 million."
The Investigation Team identified systemic factors with an obvious impact on safety management which showed improper performance of the SMS, as described in Chapter IV Point 4.2 of this Report, and therefore the Investigation Team reclassified the occurrence from accident to serious accident.

1.2 The date, exact time and location of the occurrence

The occurrence took place on 1 July 2024 at 09:19 hrs, track no. 2 of the Ożarów Mazowiecki - Błonie route, Cat. B level crossing, km 17.211, the area of infrastructure manager PKP PLK S.A. Railway Line Plant in Warsaw. Geographical location of the crossing: 52°12'29.5"N 20°46'09.3"E.

1.3. The description of the occurrence site, including weather and geographical conditions at the moment of the occurrence and if any works were carried out at or in the vicinity of the site

Photograph 4– A general view of the occurrence site (source: PKBWK)

The Category B crossing, identification number 003 017 211, where the serious accident occurred is located on Class G voivodeship road no. 718 Borzęcin - Pruszków, road kilometre 6.080, Ceramiczna Street, in the vicinity of the town of Ołtarzew, Municipality of Ożarów Mazowiecki. The road is made of an asphalt surface with a dirt shoulder. The width of the roadway on the crossing is 9.0 m. As at the day of the occurrence, the permitted speed of road vehicles on the road in the area of the crossing was 90 km/h, the angle of intersection of the road with the railway tracks was 90º. The area of the intersection of the railway line and the road is located outside a built-up area in the vicinity of the town of Ołtarzew in the Warsaw West County, Mazowieckie Voivodeship. Along voivodeship road DW718, on both sides of the crossing, there are road signs A-9, G-1a, G-1b, G-1c, G-2, and boards informing on the height of the suspension of the catenary line.

In front of the crossing, there are automatic crossing system signals with sound signalling on both sides of the access road, and two entry barriers horns on both sides of voivodeship road DW718.

The occurrence took place in daylight, with slightly cloudy sky, no precipitation, air temperature +20 ºC. No works on the rail or road infrastructure were being carried out in the area of the level crossing at the time of the occurrence.

Photograph 5- View of the crossing from the lorry's direction of travel (source: PKBWK)

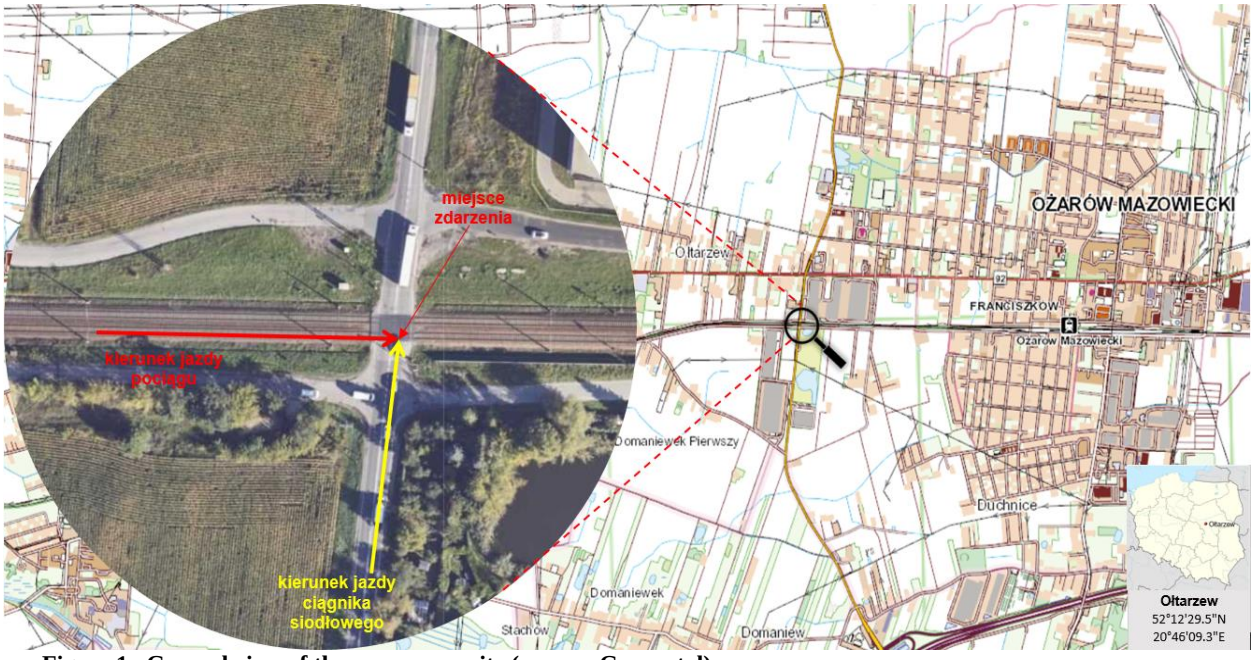

Figure 1– General view of the occurrence site (source: Geoportal)

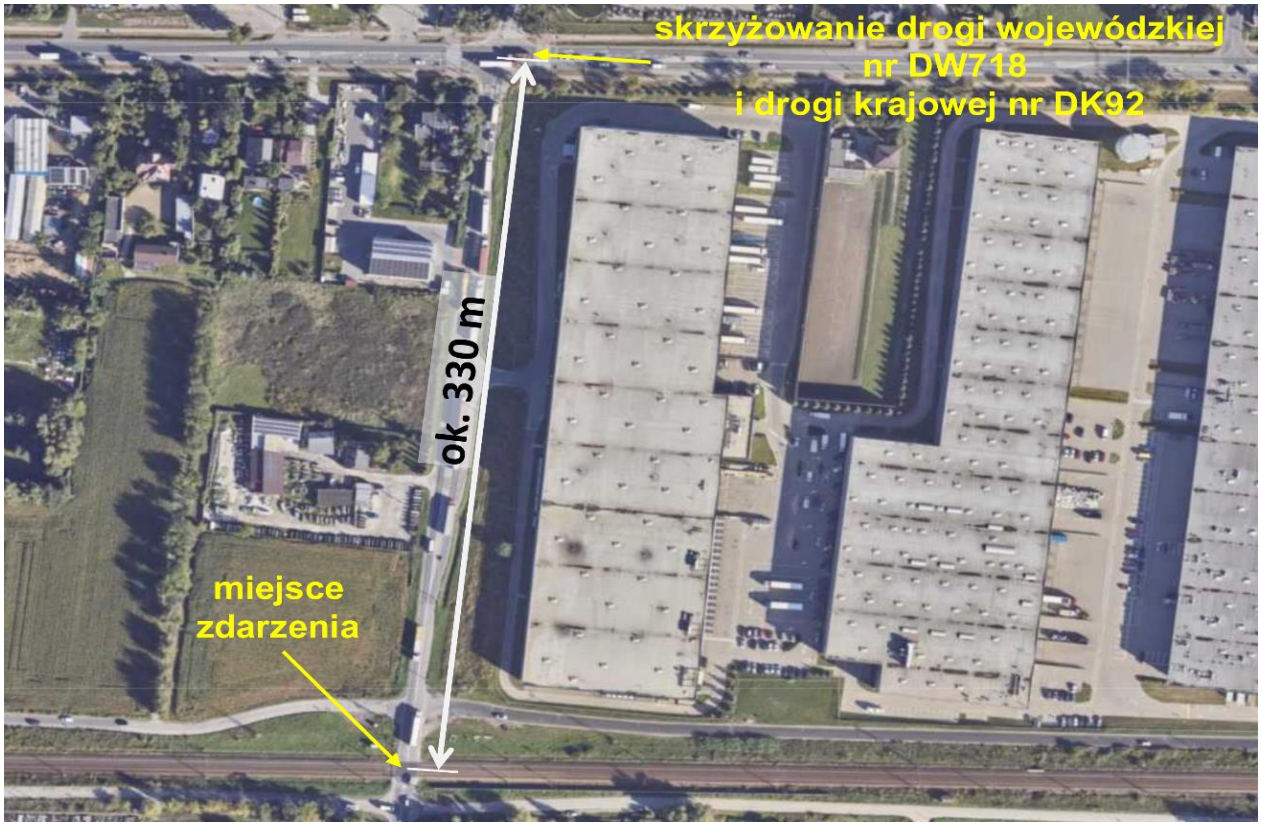

Figure 2 - Location of the crossing relative to the junction of DW718 and DK92 (source: Geoportal)

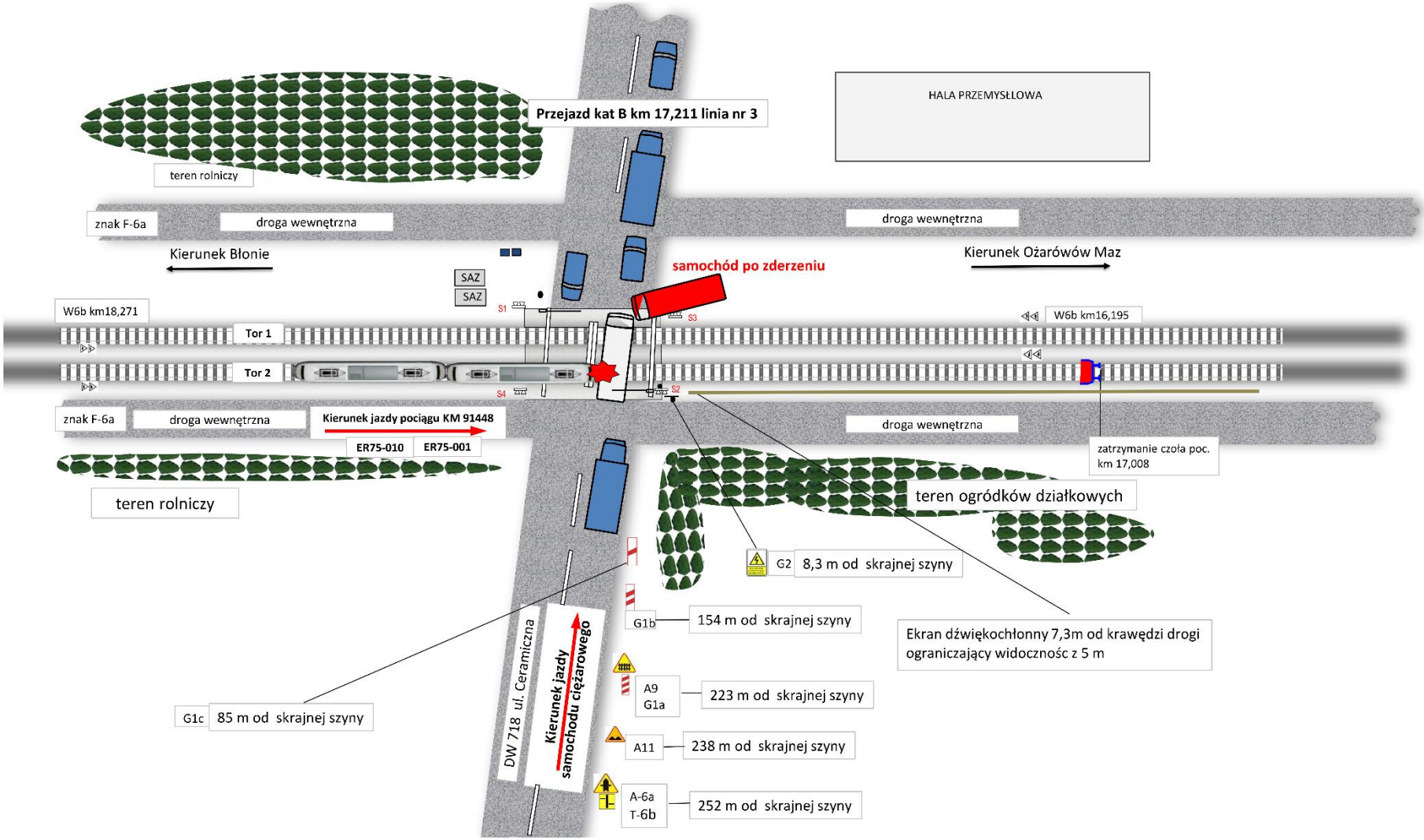

Figure 3 - Sketch drawing of the serious accident

1.4. Deaths, injuries and material damage

a) passengers, employees or contractors, level crossing users, trespassers, other persons at a platform, other persons not at a platform

As a result of the serious accident, the driver of passenger train ROJ 91448 travelling from Sochaczew to Warsaw East, an employee of carrier "Koleje Mazowieckie - KM" sp. z o.o., died on the scene of the occurrence being resuscitation undertaken by medical services. Other persons, including the other members of the train crew, passengers on the train and the driver of the lorry, did not sustain any injuries.

b) cargo, luggage and other property

The KOEGEL S24 semi-trailer was completely destroyed together with its cargo of construction materials. The DAF road tractor unit was not damaged.

c) rolling stock, infrastructure and the environment

Train 91448 was not derailed. The collision resulted in very significant damage to rail vehicle ER75-001, namely:
- completely destroyed front cabin of the A section, including skin and windscreen,
- destroyed automatic coupling,
- destroyed front information display,
- destroyed two front bumpers,
- damaged side body of the vehicle,
- damaged bogies of the A section,
- damaged recorders,
- damage to the A section body frame.

Damage to the infrastructure:
- damaged barrier rods from the N1 and N2 drives,
- the N1 barrier drive - in closed position,
- the N2 barrier drive - in intermediate position - at the start of lowering of the barrier rods that blocked the right-hand roadway lanes, the semi-trailer of the road vehicle was at the N2 barrier drive; as a result of the impact of the barrier bar on the semi-trailer, the barrier was broken.

There were no losses to the environment.

Photograph 6 - View of the damaged front wall of railway vehicle ER75-001 (source: KM)

1.5. The description of other consequences, including the impact of the occurrence in the regular operations of the actors involved

As a result of the occurrence, tracks no. 1 and 2 of the Ożarów Mazowiecki - Błonie route of railway line no. 3 were closed from 09:26 hrs to:
15:35 hrs - track no. 1,
16:28 hrs - track no. 2.

The level crossing was made passable and cleared for road traffic at 16:28 hrs on 1 July 2024 after the clear-up activities had been finished by the Fire Service and Police.

Train delays

			Pierw.	Wtórne	RAZEM			Pierw.	Wtórne	RAZEM			Pierw.	Wtórne	RAZEM			
Opóźnienia	Poc. pas.	ilość	44	99	143	Poc. tow.	ilość	1	1	2	Poc. poz.	ilość	2	3	5	Op. wł.	ilość	0
		min.	1 342	1 200	2542		min.	45	45	90		min.	430	95	525		min.	0

Other consequences of the occurrence:

- restrictions in train traffic: tracks no. 1 and 2 from Ożarów Mazowiecki to Błonie were closed from 09:26 hrs on 1 July 2024
- from 09:45 hrs onwards, ticket sharing between carriers KM and PKP Intercity S.A. was introduced on the section Warszawa Wschodnia-Skierniewice-Łowicz Główny,
- 18 trains of carrier PKP Intercity S.A. were diverted via Skierniewice,
- routes of 19 trains of carrier "Koleje Mazowieckie - KM" sp. z o. o. were shortened, and 14 trains of "Koleje Mazowieckie - KM" sp. z o. o. were cancelled on their entire routes; the carrier substituted the cancelled trains with 5 buses,

– replacement bus service was launched.

1.6. The identification of the persons, their functions, and entities involved, including possible interfaces to contractors and/or other relevant parties

The following persons were directly involved in the occurrence:
- the driver of passenger train ROJ 91448,
- the manager of passenger train ROJ 91448,
- the signaller of the dependent box in Ożarów Mazowiecki,
- the lorry driver.

1.7. The description and identifiers of train(s) and their composition including the rolling stock involved and their registration numbers

Passenger train ROJ 91448 operated by KM on the Sochaczew - Warszawa Wschodnia route was run in the double traction mode, i.e. by two electric traction units with numbers:
- the first, leading vehicle ER75-001, vehicle identification number PL-KMKOL 94 51 2140 000-2, year of manufacture: 2007,
- the second vehicle ER75-010, vehicle identification number PL-KMKOL 94 51 2140 006-9, year of manufacture: 2008.

Rail vehicle ER75-001 had "Notice of return of a rail vehicle to operation no. 58/KM/2022" issued on 19 August 2022, valid until 19 May 2025 and for the mileage of 1,200,000 km. At the time of the occurrence, the mileage was not exceeded.
Rail vehicle ER75-010 had "Notice of return of a rail vehicle to operation no. 64/KM/2022" issued on 19 August 22.01.2025, valid until 22 January 2025 and for the mileage of 1,200,000 km. At the time of the occurrence, the mileage was not exceeded.

Details of train ROJ 91448:
- train length…… 150 m;
- total mass of the train…… 276 t,
- percentage of braked mass required ……. 145%,
- percentage of actual braked mass ……. 163%,
- required braked mass…… 400 t,
- actual braked mass…… 450 t,
- scheduled speed..... 160 km/h.

1.8. A description of the relevant parts of the infrastructure and signalling system – track type, switch, interlocking, signal, train protection systems

Track:

rail type……..	–	60E1, contactless track,
sleepers…….	–	prestressed concrete, type PS83,
attachment type……	–	type SB,
ballast type……	–	crushed stone,
maximum permitted train speed en route…	–	160 km/h
track condition	–	good,

Level crossing:

- Category B level crossing,
- unique level crossing ID number (yellow sticker): 003 017 211,
- axis of the crossing - km 17.211 of railway line no. 3,
- road-railway track crossing angle – 90°,
- crossing surface made of VELOSTRAIL panels,
- road surface on the approaches - bitumen,
- access road gradeline:
  - right side 2.32 % towards the crossing over the distance of 20 m,
  - left side (direction of the lorry entering the crossing) 1.99 % towards the crossing over the distance of 20 m,
- traffic ratio on the level crossing – 1 502 634; the latest measurement was taken on 16-17 September 2020,
- length of the crossing - 17.75 m,
- width of the road crown on the level crossing – 11.0 m,
- width of the roadway on the level crossing –9.0 m,
- width of the roadway on the approaches – 9.0 m,
- maximum speed of road vehicles on the level crossing – 90 km/h,
- the level crossing is illuminated – 4 lighting columns,
- visibility of the level crossing from the road – right side approximately 200 m, left side approximately 150 m, with the required visibility of 120 m,
- visibility of the train head from the road as determined by the Investigation Team after the occurrence:

Track	Measurement of visibility conditions from the road (distance measured from the outermost rail) in m											
	5m				10m				20m			
	track side				track side				track side			
	right		left		right		left		right		left	
	to the right	to the left	to the right	to the left	to the right	to the left	to the right	to the left	to the right	to the left	to the right	to the left
1 July 2024 Track no. 1	800	800	700	350	300	800	200	300	200	200	200	100
1 July 2024 Track no. 2	800	800	500	350	600	800	200	300	200	200	200	100

In the table, the visibility of the train head corresponding to the occurrence situation, i.e. the direction of the lorry and train travel, is marked in yellow.

The condition of the crossing equipment as recorded in Log E1758 by the railway commission at the occurrence site on the day of the occurrence:
- signals in the warning mode,
- road traffic lights S1, S2, S3, S4 and S5 in working order,
- barrier rods of the N1 and N2 drives - broken,
- N1 barrier drive in closed position,
- N2 barrier drive in intermediate position,
- sensor no. XII - damaged.

The panel of the EZG-1 diagnostic device indicates 4 faults:
- wrong position of the drive A ->N1 B->N1,

- broken rod of the barrier drive,
- no power supply to the sensors,
- occupied zone in track no. 2.

The remote control device UZK type ERP-6 installed in the signal box of Ożarów Mazowiecki station, during the occurrence - functioning properly.

1.9. Any other information relevant for the purpose of the description of the occurrence and background information

Approximately 330 metres north of the crossing there is a junction of national road DK92 with voivodeship road DW718 which runs in the direction of the crossing. Traffic at the intersection of these roads is controlled by means of traffic lights. Due to the fact that the traffic light cycle is very short for the traffic from DW718 and the traffic volume on this road is very high, traffic jams form on this road beginning at the junction and ending before the crossing on its southern side.

2. The factual description of the events

2.1. The proximate chain of events leading up to the occurrence, including actions taken by persons involved, the functioning of rolling stock and technical installations, the functioning of the operating system.

On 1 July 2024, as scheduled in the plan for that day, the lorry driver departed his base in Włoszczowice (Świętokrzyskie Voivodeship) with cargo at 06:07 hrs to transport construction materials (including gypsum boards and paints) to a company located in the vicinity of the town of Błonie (Mazowieckie Voivodeship). The travel from Wloszowice to the site of the occurrence was uneventful. After exiting the A2 motorway, the lorry was travelling on voivodeship road no. DW718, heading towards Ożarów Mazowiecki. Going away from the A2 motorway in the town of Ołtarzew, the lorry approached a group of cars stationary in front of the Cat. B level crossing at km 17.211 of railway line no. 3, whose road traffic signals and barriers prohibited entry onto the crossing while a train was passing on track no. 1. The lorry stopped behind the line of vehicles waiting for the train to pass.

After the train passed on track no. 1 and the barriers opened, the column of cars moved off and the lorry reached the level crossing at km 17.211 of railway line no. 3 with a low speed.

At 09:18:55 hrs, the lorry started to enter the crossing, passing the S2 traffic signal and the half-barrier, and 2 seconds later stopped in the crossing zone within the gauge of track no. 2 of railway line no. 3. Because the road vehicles in front of the lorry had stopped, the lorry driver had a limited line of sight, including by a another lorry that was in front of him. The driver's view of the road situation and traffic jam was obstructed by a lorry behind the crossing.

When the lorry came to a stop in the crossing zone, at 09:19:02 hrs, passenger train ROJ 91448 approaching on track no. 2 from the Płochocin passenger stop passed over the sensor of the automatic crossing system, which initiated the red signal on the road traffic signals at the crossing. The lorry driver could no longer see the traffic signal that prohibited entry onto the crossing because he was past the S2 traffic signal in the crossing zone. Next, at 09:19:06 hrs, the half-gates barriers began to close and at 09:19:07 hrs the head of passenger train ROJ 91448 passed the crossing warning disc located at km 18.550 (i.e. 1,339 m from the axis of the crossing) which was showing the Osp2 signal (two white lights) indicating that the signalling equipment at the crossing was operational and the train could proceed through the crossing at maximum speed. At 09:19:10 hrs, the closing half-barrier rested on the semi-trailer of a lorry in the crossing zone. The barrier was not broken. Seeing that the semi-barrier on the other side of the crossing had closed and train ROJ 91448 was approaching the crossing, the lorry driver attempted to drive the vehicle off the crossing and drove the vehicle forward approximately 0.5m, causing the semi-barrier to bend slightly without any damage. At that time, the passenger car in front of him pulled over to the side of the road and the other preceding vehicles moved off, allowing the lorry to move further across the crossing by approximately 1.5m to avoid collision with train

ROJ 91448. The forward move of the lorry caused the half-barrier rod to break and a messages about two faults to be displayed on the ESD-8 device in the command box at Ożarów Mazowiecki station, i.e. the N1/N3 drive connection at 09:19:19 hrs and the discontinuity of the barrier at 09:19:24 hrs. At that time, passenger train ROJ 91448 travelling on plain track no. 2 had already passed the crossing warning disc for the crossing. Although the vehicle moved forward, its semi-trailer was still in the crossing zone.

Having detected the aforementioned faults displayed on the ESD-8 device, at 09:19:26 hrs and 09:19:36 hrs, signaller of Ożarów Mazowiecki station informed the driver of passenger train ROJ 91448 twice about a broken barrier at the crossing at km 17.211 and about the need to reduce the speed to 20 km/h. When informed of the speed limit, the driver of passenger train ROJ 91448 at 09:19:33 implemented service braking at 140 km/h at 09:19:33 hrs when the head of the train was approximately 411 metres from the axis of the crossing, i.e. 12 seconds before the collision with the lorry. At that point, the lorry on the crossing was not yet visible to the train driver because of the right-hand curve of the railway line in front of the crossing (looking in the direction of the train travel) and the presence of trees that obstructed the crossing. The crossing became visible only from the distance of 350 m, but the lorry was difficult to recognise from that distance because the colour of the semi-trailer (grey) :blended" with the surrounding and the colour of the hall situated to the left of the crossing (looking from the direction of travel of passenger train ROJ 91448).

At 09:19:38 hrs, when the head of the train was 211m from the crossing, at the speed of 132km/h, the train driver implemented the emergency braking, but at 09:19:44 hrs, at the speed of 94km/h, the train collided with the left rear part of the semi-trailer standing on both tracks of the crossing. The train driver did not manage to leave the cab of the rail vehicle before train ROJ 91448 collided with the lorry. As a result of the collision between the train and the lorry loaded with construction materials, and due to the high impact dynamics, the train driver's cab was crushed, as a result of which the train driver's body broke through the glass door and came to rest on the floor of the first passenger compartment in the immediate vicinity of the cab entrance. After the collision with the lorry, the head of the passenger train stopped at 09:20:02 hrs approximately 203 metres from the axis of the crossing. As a result of the occurrence, the train driver died of his injuries, despite receiving medical aid, while the other members of the train crew, passengers on the train and the lorry driver did not sustain any injuries. The road vehicle's semi-trailer and its cargo were completely destroyed, with the construction materials scattered in the vicinity of the crossing on both tracks. Passenger train ROJ 91448 did not derail. The road tractor unit was not damaged.

2.2. The chain of events from the occurrence until the end of the actions of the rescue services, including measures taken to protect and safeguard the site of the occurrence, the efforts of the rescue and emergency services.

A witness to the occurrence notified the emergency number operator (112) of the collision between a the passenger train and the lorry at the crossing at 09:24 hrs.

In addition, the manager of the passenger train reported the occurrence to the signaller at Ożarów Mazowiecki station by radio. At 09:26 hrs, the station's signaller notified the plant dispatcher, the emergency number operator (112) and the Head of the Section.

The following responders arrived at the accident site: Fire Service - at 09:31 hrs, Ambulance Service - at 09:39 hrs, Police - at 09:40 hrs. The Medical Air Rescue was also dispatched. A prosecutor from the Pruszków District Prosecutor's Office arrived at the site of the serious accident at 11:25 hrs.

The Police and Prosecutor finished their operational activities at 13:30 hrs. The passengers were collected by replacement transport (2 buses).

The train traffic was completely interrupted from 09:26 hrs to 15:35 hrs.

As a result of the incident, the train driver was seriously injured and died while being resuscitated by medical services.

After cleaning up the remains debris of the scattered cargo from the lorry, the level crossing was made passable and cleared for road traffic at 16:28 hrs on 1 July 2024.

Immediately after the occurrence, the signaller at Ożarów Mazowiecki station closed tracks no. 1 and 2 of the Ożarów Mazowiecki - Błonie route of railway line no. 3 from 09:26 hrs to:

- 15:35 hrs - track no. 1,

- 16:28 hrs - track no. 2.

From 09:45 hrs onwards, ticket sharing between carriers KM and PKP Intercity S.A. was introduced on the section Warszawa Wschodnia-Skierniewice-Łowicz Główny. 18 trains of PKP Intercity S.A. were diverted via Skierniewice.

Routes of 19 KM trains were shortened, and 14 KM trains were cancelled on their entire routes. The carrier substituted the cancelled trains with 5 buses.

The railway commission cleared passenger train ROJ 91448 to go and end its run at Błonie station at 13:30 hrs.

At 14:00 hrs, the "UNIROLLER" was dispatched from Warszawa Wschodnia station to escort the damaged train on the way to Błonie. On 2 July 2024, the train departed left Błonie station at 00:35 hrs and arrived at Sochaczew station at 01:58 hrs, where it was shunted to the KM siding.

IV. ANALYSIS OF THE OCCURRENCE

1. Roles and duties

1.1.Railway undertaking(s) or infrastructure manager(s)

Infrastructure manager PKP Polskie Linie Kolejowe S.A. Railway Line Plant in Warsaw

The infrastructure manager is responsible for inter alia appropriate maintenance of the railway line, including level crossings. The responsibilities of the infrastructure manager are laid down in inter alia Article 62 of the Act of 7 July 1994 on the Construction Law. The said provision requires the infrastructure managers to conduct annual and five-year reviews of construction works (including level crossings and traffic protection devices installed thereon). §31 of Internal instruction Id-1 of the infrastructure manager imposes an obligation to conduct diagnostic examinations of level crossings (including as regards railway and road surface, visibility conditions, lighting). Furthermore, Instruction Ie-7 (E-14) sets forth the scope, timing and methods of examination of rail traffic control devices (including traffic protection devices on level crossings). The timing of reviews of construction works set forth in the applicable instructions are compliant with Article 62 of the Act of 7 July 1994 on the Construction Law.

PKP PLK S.A. submitted the following reports on the latest diagnostic checks carried out as part of construction facility maintenance for the level crossing at km 17.211 of railway line no. 3 as regards traffic control devices on the level crossing and in the civil engineering part:

- Report no. 11/2024 of 20 January 2024 on an inspection of the technical condition in accordance with applicable provisions of the Construction Law. After examining the devices, the diagnostician did not identify any irregularities and assessed their technical condition as good; the devices are fit for further operation.
- Report no. IZATA.5441.66.2024.e on a diagnostic examination (check) of rail traffic control devices carried out on 2 January 2024 at the level crossing concerned. The diagnostic examination did not result in any recommendations. The diagnostician cleared the devices for further operation and concluded that they ensure safety of train traffic.

Railway carrier "Koleje Mazowieckie - KM" sp. z o. o.

The rail vehicles designated to carry out the transport task by the railway carrier had a rail vehicle type operation approval certificate and documents confirming their return to operation following maintenance. The train crew designated to operate passenger train ROJ 91448 held all ratings and qualifications required by law. The train was run based on a timetable. The technical condition of the rail vehicles involved provided for their safe operation. The responsibilities of railway carriers concerning safe operation of a rail vehicle are laid down specifically in the infrastructure manager's Instruction Ir-1 on operating railway traffic, Instruction Ie-1(E-1) – Instruction on signalling operations, and the railway carrier's internal instruction KMt-1 - Instruction for drivers of traction vehicles.
Based on an analysis of the material gathered in the case, the Investigation Team did not find any irregularities in the conduct of the train crew during operation of the train or after the serious accident.

Voivodeship road manager - Mazovian Voivodeship Roads Authority in Warsaw

In accordance with Article 20 of the Act of 21 March 1985 on public roads (consolidated text in Journal of Laws of 2023, item 645), the responsibilities *of the road manager include, but are not limited to, maintenance the parts of the road, road equipment, earthworks, road engineering objects, road signs, road signals and road traffic safety devices, except for the part of the roadway referred to in Article 20f(2)* and *performance of traffic engineering tasks*. In the course of the investigation, the Investigation Team found irregularities in the organisation of road traffic within the crossing which caused, inter alia, road traffic jams on and in the vicinity of the crossing, as a result of which the Team addressed to this entity, among other entities, the recommendations provided in Section V.2 of this Report.

1.2. The entities in charge of maintenance, the maintenance workshops, or any other maintenance suppliers

Not applicable.

1.3. Manufacturers of rolling stock or other suppliers of rail products

Based on the investigation material gathered, the Investigation Team did not identify any factors related to manufacturers of rolling stock and suppliers of rail products that could have impact on the occurrence.

1.4. National safety authorities or the European Union Agency for Railways

The President of the Office of Rail Transport (UTK) supervises railway traffic safety. Based on the investigation material gathered in the case, the Investigation team did not identify any factors related to the national safety authority that would have impact on the occurrence.

1.5. Notified bodies, designated bodies or risk assessment bodies

Based on the investigation material gathered, the Investigation Team did not identify any factors related to notified bodies and risk assessment bodies that could have impact on the occurrence.

1.6. Certification bodies of entities in charge of maintenance mentioned under Point 1.2

Based on the evidence material gathered in the case, the Investigation Team did not identify any factors related to the certification body of the railway carrier that would have impact on the occurrence.

1.7. Any other person or entity relevant to the occurrence, documented or not in one of the relevant safety management systems or referred to in a register or relevant legal framework

Not applicable.

2. Rolling stock and technical installations

Recording of the driving data recorder of the powered rail vehicle

Powered rail vehicle ER75 - 001 of "Koleje Mazowieckie - KM" sp. z o. o. was equipped by the manufacturer with an electronic event data recording system:

- tachograph type: Deuta-Werke (Redbox),
- speed measurement range: 160 km/h
- parameters recorded by the tachograph: distance, speed, time, driving from cab A or cab B, activation automatic train stop, cancelling of vigilance devices, braking, activation of driving controller, use of siren.

The Investigation Team analysed selected driving parameters recorded by the device immediately prior to the occurrence.

The charts below show inter alia the following driving parameters of train ROJ 91448:

- distance,
- time,
- speed,
- active cabin A,
- use of the vigilance device button (active vigilance button/automatic train stop),
- pressure in the brake cylinders,
- electric/non-electric drive.

Figure 4

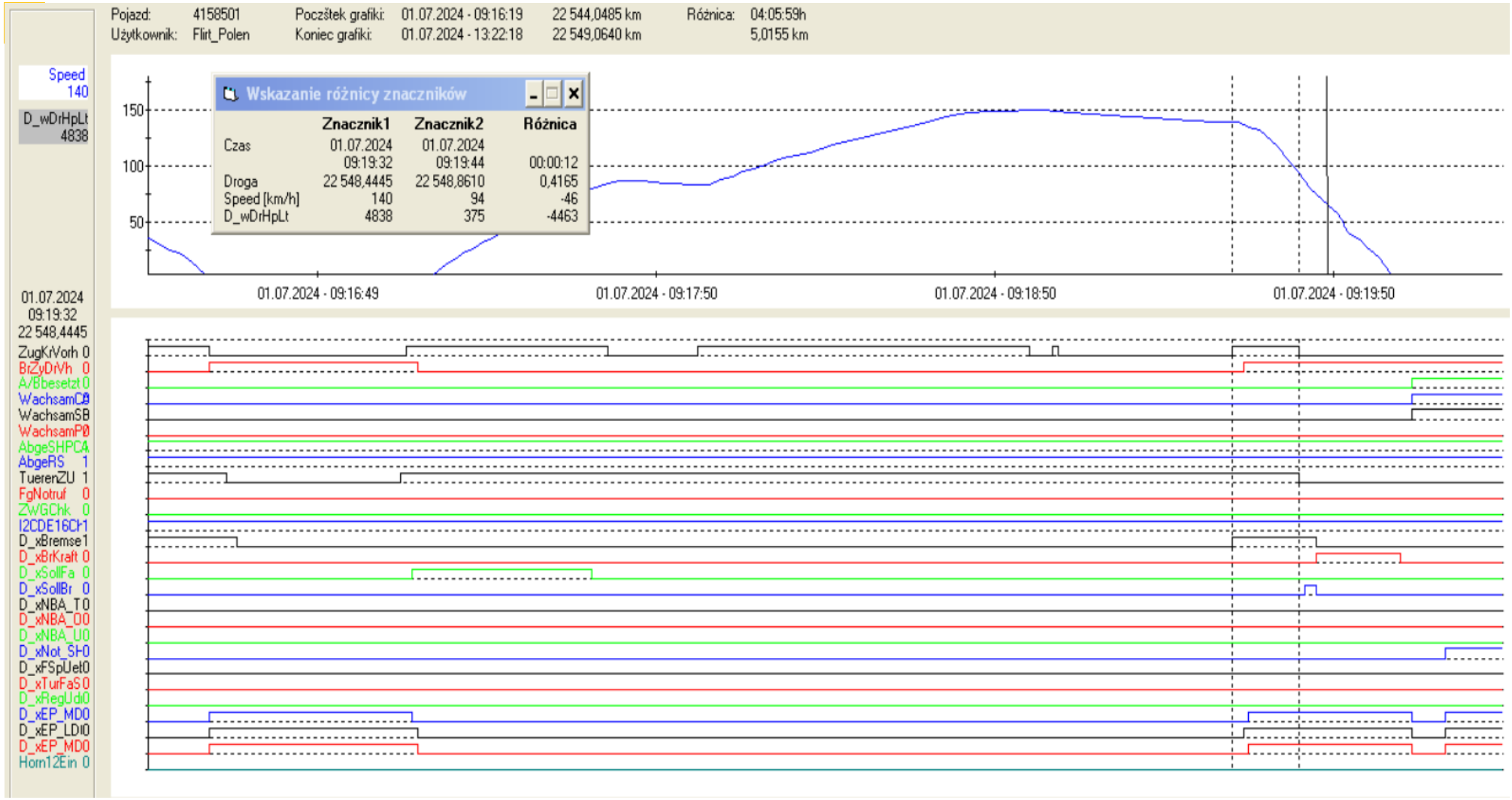

Figure 4 - Diagram of the train parameters from the Plochocin passenger stop

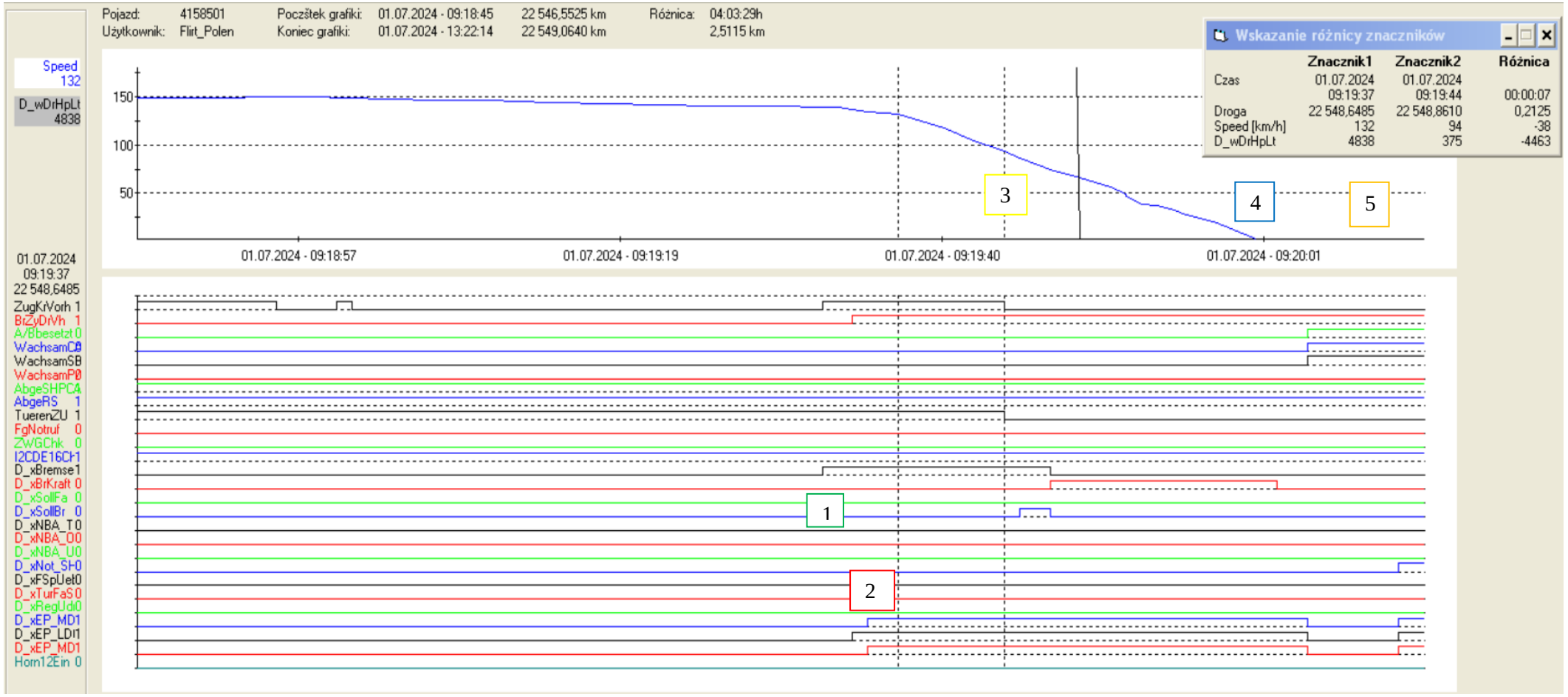

Figure 5 -Diagram of the train parameters - the last phase prior to the occurrence

ER75 010 Cab B - file 51047021.158
09:17:06 hrs - traction initiated, departure from the Płochocin passenger stop and speed up to 85 km/h over a distance of approximately 459 metres,
09:17:43 hrs - traction deactivated, coasting with a decrease in speed to 84 km/h over a distance of approximately 381 metres,
09:17:58 hrs - traction activated and an increase in speed to 150 km/h over a distance of approximately 2,067 metres,
09:18:57 hrs - traction deactivated, coasting without a decrease in speed over a distance of approximately 18 metres,
09:18:58 hrs - traction activated without an increase in speed over a distance of approximately 9 metres,
09:18:58 hrs - traction deactivated and coasting without a decrease in speed over a distance of approximately 148 metres, **09:19:02 hrs -** traction activated without changes in speed over a distance of approximately 31 metres,
09:19:02 hrs - traction deactivated, coasting with a decrease in speed to 140 km/h over a distance of approximately 1,222 metres,

1 **09:19:33 hrs -** start of braking at 140 km/h approximately 411 metres from the axis of the crossing,

2 **09:19:38 hrs -** maximum braking force achieved (emergency braking) at 132 km/h over a distance of approximately 418 metres before stopping, 211 metres from the axis of the crossing,

3 **09:19:45 hrs -** the moment of collision with the lorry at the crossing at approximately 94 km/h,

4 **09:20:02 hrs -** the train comes to a stop behind the occurrence site approximately 207 metres from the axis of the crossing,

5 **09:20:03 hrs -** stop en route and no records until 11:15:05 hrs.

The vigilance button was used 5 times on the section described.

Train radio recording:

Conversation 1 - start at 09:19:26 hrs, duration 12 sec.

DR: 91448 to Ożarów
M: 91448 copy
DR: TOP to the crossing 17,211 in orange. You will make 20 km/h
M: Oh, oh, oh, oh, oh, oh.

Conversation 2 - start at 09:19:36 hrs, duration 8 sec.

DR: Broken barrier 17,211. You will make 20 km/h.
M: Accident...(the conversation is broken in the fourth second, then another conversation is overlaid).

Acronyms used:
DR- signaller of Ożarów Mazowiecki station
M - driver of passenger train ROJ 91448.

Automatic crossing system at the Cat. B crossing equipped with:

- ERS-9 apparatus cabinet.
- automatic crossing signalling devices (SSP) - Bombardier SPA-4 with six EOC-1 sensors,
- four EHZ-77 road signals,
- one EHZ-78 road signal installed above the road on a boom,
- two sound signal loudspeakers on traffic signals no. S1 and S2,
- barrier rods equipped with: flashing lights, continuity control, reflective film, fuse and locking devices,
- two EEG-1 drives with two 4.5 m ESD-8 half-barriers,
- CCTV crossing monitoring devices with the recorders in the command box at Ożarów Mazowiecki station,
- two EHZ-5 crossing warning discs with automatic braking device system (SHP),
- one remote control device (UZK) ERP-6 in the signal box at Ożarów Mazowiecki station.

The crossing dependent by means of new computerised station equipment EBI Lock 950 at Ożarów Mazowiecki station.
For train runs from Błonie station in the direction of Ożarów Mazowiecki station, the crossing devices are activated with the use of the existing EOC wheel sensors No. III or XI. The crossing is secured by existing Top 172 and 173N signals. For train runs in the direction of Błonie station, the function of crossing warning discs is performed by the H, J, K, L and M exit signals of Ożarów Mazowiecki station:
a) for non-stop runs on tracks 1, 2, 3, 4 and 7, activation of the crossing after occupation of sections Jt1, Jt2, Jt3a, Jt4 and Jt7 respectively. The minimum warning times for runs at maximum speed (resulting from the en-route speed) on the activation sections are, among others:
• on track no. 1: ~57s (for Vmax = 160 km/h),
- on track no. 2: ~55s (for Vmax = 160 km/h),
• on track no. 3: ~81s (for Vmax = 80km/h up to km ~15,879 and then Vmax = 160 km/h),
• on track no. 4: ~83s (for Vmax = 80km/h up to km ~15,879 and then Vmax = 160 km/h),
• on track no. 7: ~80s (for Vmax= 60km/h up to km ~15,611 and then Vmax= 160 km/h);
the permissive light on signals H, J, K, L or M displayed without any time delay,
b) for runs with a stop from signals H, J, K, L or M, activation of the devices is carried out when the section preceding the exit signal is occupied and when the train run is set from the corresponding signal; the permissive light on signals H, J, K, L or M are displayed without any time delay,
c) for exits from the station on a replacement signal or written order, the run is activated with the use of the existing EOC sensors No. I or XIII. Running speed of trains leaving Ożarów Mazowiecki station on a replacement signal or written order is limited by regulations to 20 km/h until the train reaches the crossing zone,
d) the traffic control devices at the crossing are activated after passing the existing EOC sensors No. II or XII.

In order to analyse the functioning of the automatic crossing system devices at the level crossing, records were secured including the event history and trackside sensor defect history as recorded in the remote control device (UZK) ERP-6 installed in the command box Oż at the Ożarów Mazowiecki station.
Based on a computer log analysis, the following was found:
- the devices at the level crossing operated correctly prior to the occurrence,
- entry of train ROJ 91448 to the switch-on zone took place at 09:19:02 hrs, after which warning was activated on channels A and B,
- at 09:19:19 hrs, the system detected a fault ("failure of drive N1/N3"), caused by the fall of the barrier rod on the lorry,
- at 9:19:24 hrs, the system detected a fault ("failure of the rod continuity"), caused by the N2 barrier rod being broken by the lorry,
- at 9:24:45 hrs, the system detected a fault caused by the presence of the train in the zone between the switching off and departure sensors after more than 300 seconds ("failure track2 occupied zone"),
- at 9:24:46 hrs, the system detected a fault in the switching off sensor ("failure sensor XII"),

- no defects of the automatic crossing system devices were recorded during the passage of the train.
According to the entries in the Inspection Logs of the signalling equipment from the Ożarów signal box and the SSP container as of 1 July 2024, no other faults had been recorded by the time of the occurrence other than those described above and resulting from the barrier rod falling on the lorry and the subsequent breaking of the barrier. The said data shows that on 1 July 2024, the automatic crossing system devices (SSP) operated faultlessly.

3. Human factors

3.1. Human and individual characteristics

The driver of the road vehicle had several decades of experience as a lorry driver. Prior to the occurrence, he had not been involved in any accidents during his long work experience. He held a valid medical certificate stating that he had no contraindications to work in his position, and had the required licence to drive a lorry. As it transpires from documents and interviews with the lorry driver, the road vehicle was driven on the day of the occurrence as per schedule on a designated route with cargo. At the time of the occurrence, the driver was sober and was not under the influence of psychoactive substances.
The Road Traffic Act of 20 June 1997, also known as the "Road Traffic Code", is the primary regulation applicable to users of public roads.
Specific rules concerning level crossings and applicable to road vehicle drivers are contained in Article 28 of the Road Traffic Act. They provide that:

> *"1. When approaching and driving through a level crossing, the driver of a vehicle is obliged to take special caution. Before entering the track, he is obliged to make sure whether or not a rail vehicle is approaching and take appropriate precautions, in particular where air transparency is reduced due to fog or other causes.*
> *3. The driver of the vehicle is prohibited from:*
> *2) entering a level crossing if there is no room on the other side of the crossing to continue the ride."*

As it transpires from the analysis of the CCTV recordings of the crossing, the driver of the road tractor entered onto the crossing with the barriers raised, when the prohibitive red light was not shown on the SSP signal. On entering the crossing zone, the lorry driver realised that there was no room on the other side of the crossing to continue. As a result of the traffic jam ahead of the lorry, the driver was forced to stop the vehicle on the crossing. When the lorry was on the crossing, the signal was activated and the barrier closed on the lorry's semi-trailer. The lorry driver attempted to exit the crossing, however, the road vehicles in front of him prevented this and the oncoming train hit the lorry's semi-trailer.
The investigation confirmed that the behaviour of the train driver was correct, as he implemented the emergency braking of the train wit simultaneous signal "Attention" after receiving information about the broken barrier and noticing an obstacle on the crossing. The train driver was authorised to operate ER75 series traction vehicles and had completed other training courses related to his job. He also had a valid medical certificate stating that he had no contraindications to work in his position and was familiar with sections of railway line no. 3. A test of the train driver's blood (taken post-mortem) did not reveal the presence of alcohol or psychoactive substances. The train crew's working hours and rest periods were in line with applicable standards. Due to the dynamic course of events and the short time between receiving information about the damage to the barrier prior to the time of the occurrence, the train driver did not have time to leave the cab of the rail vehicle before the collision with the lorry's semi-trailer. As a result of the collision and the destruction of the train driver's cab, the train driver sustained serious injuries and died at the scene of the accident despite rescue efforts. It should be added that the train driver, when passing the crossing warning disc (ToP), had the Osp2 signal displayed informing him that the road traffic and acoustic signals were in working order and that the barrier devices had continuity. However, the crossing disc does not indicate the presence of road vehicles or other obstacles in the crossing zone.
The Investigation Team found as the causal factor the lorry entering and remaining on the Cat. B level crossing on tracks 1 and 2 as the vehicles ahead of it stopped unexpectedly, as a result of which the passenger train travelling on track no. 2 collided with the semi-trailer of the lorry.

3.2. Job factors

The Investigation Team does not raise any reservations concerning the jobs of the train driver or the lorry driver.

3.3. Organisational factors and assignments

As it transpires from the evidence material collected by the Investigation Team, the railway and road carriers had ensured that their personnel involved in the occurrence had the legally required rest time. The said workers held all ratings and authorisations required by the applicable law and instructions for actions performed on the job concerned. The employer provided them with all necessary instructions and regulations ensuring safe performance of their jobs. The Investigation Team does not raise any objections concerning the organisational assignments.
According to the Technical Regulations of Ożarów Mazowiecki Station (RTS), the remote control (UZK) for the SSP devices at the level crossing at km 17.211 of railway line no. 3 is located at the local signal box "Oż" in Ożarów Mazowiecki. The applicable internal regulations of the infrastructure manager, including RTS Ożarów Mazowiecki, "Instruction for the operation of remote control equipment ERP-6 for the SSP SPA-4" or "Ir-7 Instruction on the maintenance of level crossings and passages" do not require the signaller to notify the train driver of faults of Cat. I level crossing system, nor to immediately use the ALARM signal by means of the RADIOSTOP system.

3.4. Environmental factors

The Category B level crossing with two entrance half-barriers is located in a non-built-up area near the town of Ołtarzew in the vicinity of Ożarów Mazowiecki. The crossing encompasses tracks no. 1 and 2 of the Ożarów Mazowiecki - Błonie route and intersects voivodeship road DW718 at the angle of 90°.
Approximately 330 metres north of the crossing there is a junction of national road DK92 with voivodeship road DW718 which runs in the direction of the crossing. Traffic at the intersection of these roads is controlled by means of traffic lights. Due to the fact that the traffic light cycle was very short for the traffic from DW718 on the day of the occurrence and the traffic volume on this road was very high, traffic jams formed on the voivodeship road over a distance of approximately 500m beginning before the crossing at km 17,211 of railway line no. 3 and ending at the junction with national road DK92 behind the crossing. After the occurrence, the traffic light cycle was extended for DW718 in accordance with the PKBWK recommendation.
This situation made it difficult to traverse the crossing and required vehicle drivers to assess whether there was room behind the crossing for a road vehicle to continue the ride, and it posed a risk to road and rail traffic, as evidenced by occurrences that took place at the crossing before and after the serious accident of 1 July 2024.
In addition, the visibility of the crossing from the train driver's cab was limited due to the curve of the railway line and did not exceed 350 m, and the "blending" of the light colour of the road vehicle's semi-trailer with the surrounding prevented the driver from quickly identifying the danger and leaving the cab before the occurrence.

3.5. Any other factors relevant for the purpose of the investigation

None identified.

4. Feedback and control mechanisms, including risk and safety management as well as monitoring processes

The relevant regulatory framework conditions:

4.1. The processes, the methods, the content and the results of risk assessment and monitoring activities, performed by any of the involved actors: railway undertakings, infrastructure managers, entities in charge of maintenance, maintenance workshops, other maintenance

providers, manufacturers and any other actors, and the independent assessment reports referred in Article 6 of Implementing Regulation (EU) No 402/2013

Infrastructure manager PKP PLK S.A. keeps the so-called *Hazard Record* as part of its Safety Management System (SMS). The record is updated on an on-going basis and contains the following elements: hazard name, hazard number, hazard source, outcomes, risk control measures, hazard source manager, and risk acceptance rules.
As part of the investigation, the Investigation Team analysed *the Hazard Register* which is one of the most important elements of SMS.

The following hazards are associated with the occurrence concerned:

a) hazards included in Point 5 of *the Record: "Level crossings"*:
5.1.2. Inappropriate organisation of traffic on the access road to the crossing
5.5.5 Inappropriate recommendations after diagnostic tests
5.6.2 Inappropriate execution of checks
5.11.29 Failure to take actions to reduce the speed of trains in the area of the level crossing.

b) hazards included in Point 12 of *the Record: "Organisation"*:
12.5.1 Failure to execute / appropriately execute the required assessment of the significance of the change
12.5.2 Failure to execute the required technical and operational risk assessment.

The Investigation Team does not raise any comments concerning the Hazard Record.

Procedure SMS/MMS-PW-01 "Maintenance of a railway line in technical and organisational serviceability" of PKP PLK S.A.
The purpose of the procedure is to define the rules and processes of maintenance of railway lines in technical and organisational serviceability to ensure safe operation of railway traffic by PKP Polskie Linie Kolejowe S.A. Documents related to this procedure are, in particular: the Construction Law, the Rail Transport Act, national regulations, Book and procedures of the Safety Management System of PKP Polskie Linie Kolejowe S.A., Organisational Regulations of PKP Polskie Linie Kolejowe S.A., internal regulations of the Company concerning railway traffic ("Ir"), internal regulations of the Company concerning railways ("Id"). The maintenance of level crossings, including the Category B crossing concerned, is described as a supporting process in procedure SMS/MMS-PW-01: "Maintenance of a railway line in technical and organisational serviceability" of the Safety Management System. According to Section 16 of SMS/MMS-PW-01, the sources for assessing the risk of a failure or accident shall be the parallel processes of level crossing diagnostics and surveillance, the results of level crossing inspections carried out in accordance with internal regulations, as well as information from outside. SMS/MMS-PW-01 includes a requirement to carry out diagnostic tests of the crossing at least once a year, including visibility condition checks, in accordance with the requirements of Instruction Id-1 and applicable Regulation of the Minister of Infrastructure and Development of 20 October 2015 on the technical conditions to be met by crossings of railway lines and sidings with roads, and on their positioning (Journal of Laws, item 1744, as amended). The diagnostic process is organised by the competent Director of the Railway Line Plant in cooperation with heads of diagnostic teams. Diagnostic team members analyse, evaluate and interpret the results of diagnostic tests, and formulate conclusions. The process of technical surveillance of level crossings, including their inspections (conducted by employees of the Operations Section and field commissions with the participation of a representative of the road manager) is organised separately by the Deputy Director of the Railway Line Plant for technical matters. Designated staff from the Railway Line Plant also carry out checks at level crossings. If a hazard is identified as a result of activities contemplated in the subprocess of diagnostic and surveillance of level crossings, SMS/MMS-PW-01 provides that protective or corrective actions must be taken.
A diagnostic review of the civil engineering part of the crossing concerned was carried out on 7 June 2024, which resulted in a request to remove the weeds and bushes from the visibility triangle in the visibility path.
The crossing was found to be suitable for further operation and not posing any hazard to train safety.

A diagnostic review of the crossing signalling devices at the crossing concerned was carried out on 2 January 2024, which was concluded without formulating any recommendations. The crossing was cleared for further operation and found to meet the traffic safety requirements.
Furthermore, three internal checks were carried out at the crossing in 2023 on behalf of the railway Line Plant in Warsaw.
Two inspections revealed the following irregularities at the crossing:

- no entries in the metric concerning valid results of the railway crossing visibility measurements from the road for the years 2018-2022,
- damaged asphalt surface on the approach to the crossing from the side of track no. 1,
- incorrect entry in Point 7 of the metrics concerning the quantity of crossing discs.

The diagnostic reviews and internal checks carried out in relation to the crossing did not identify any road traffic jams at the crossing or its vicinity due to the high volume of traffic and the proximity of the junction of voivodeship road DW718 with national road DK92 with traffic lights affecting the formation of traffic jams.

4.2. The safety management system of the involved railway undertaking(s) and infrastructure manager(s) including the basic elements stated in Article 9(3) of Directive (EU) 2016/798 and any EU legal implementing acts

Procedure SMS/MMS-PR-02 "Technical and operational risk identification" of PKP PLK S.A.
Functioning as part of the infrastructure manager's Safety Management System (SMS) there is procedure no. SMS/MMS-PR-02 entitled "Technical and operational risk identification". The purpose of the procedure is to set out the rules for carrying out risk assessments, including the analysis and valuation of risks within the Safety Management System (SMS) or the Maintenance Management System (MMS), and the related compliance requirements. The scope of application of the procedure covers all organisational units of the Company whose activities are related to ensuring the safety of the railway system and appropriate functioning of the SMS. The provisions of Section 6(4) of this Procedure provide that where a hazard is confirmed (e.g. after receiving a report or when adverse events intensify), the SMS Coordinator shall analyse it and inform the competent employees, instructing them to take actions to eliminate or mitigate the hazard in question.

Procedure SMS/MMS-PD-05 "Corrective and preventive actions"
The purpose of the procedure is to define a uniform way of execution of corrective and preventive actions aimed at eliminating the source of non-conformity or potential non-conformity and preventing their occurrence in the Safety Management System (SMS) and/or Maintenance Management System (MMS). A preventive action involves performing activities aimed at eliminating the cause of a potential non-conformity or any other undesirable situation to the extent that its likelihood or effect is minimised. A corrective action involves performing activities aimed at eliminating identified non-conformities and their causes to such an extent that their likelihood or effect of future recurrence is minimised. Sources of information leading to initiation of preventive and corrective actions are conclusions that arise from, in particular: SMS audits and checks; operational, technical and occupational risk assessments; analyses of safety level indicators; analyses of compliance with safety and maintenance requirements for freight wagons; information from employees concerning deviations from SMS procedures; or own proposals for action. Preventive or corrective action may also be taken on the basis of conclusions arising from: SMS reviews; findings of railway system supervisors or organisations competent for railway safety; findings of supervisory bodies or organisations competent for rail vehicle maintenance; implementation of the Company's established Safety Improvement Programme; regulatory analyses; implementation of safety management objectives; and implementation of rail vehicle maintenance management objectives.

Despite the incidents at the level crossing at km 17.211 of railway line no. 3 referred to in Point 4.7 of Chapter IV of this Report, including the Cat. B19 accident that took place at the crossing on 2 November 2022, and

several Cat. C64 incidents, PKP PLK S.A. Railway Line Plant in Warsaw failed to identify the risk based on Procedure SMS/MMS-PR-02 and failed to take effective corrective and/or preventive actions with regard to the crossing, as required by Procedure SMS/MMS -PD-05. Preventive actions should have included e.g., limiting the speed of trains passing through the crossing to minimise the effects of a possible collision with a road vehicle in the crossing zone due to congestion on voivodeship road DW718, which intersect railway line no. 3, and taking measures in cooperation with the voivodeship road manager to reduce road traffic congestion at the crossing.

After the serious accident on the crossing concerned, there were also dangerous situations and incidents, including Cat. C64 and C66.
The Investigation Team considers the failure of the railway infrastructure manager and the voivodeship road manager to take effective preventive actions despite previous railway occurrences at the crossing (accidents, incidents) as a systemic factor related to the occurrence.

Procedure SMS/MMS-PR-03 "Change management"
Functioning as part of the infrastructure manager's Safety Management System (SMS) is procedure no. SMS/MMS-PR-03 "Change Management" (version 1 was issued on 22 June 2010). Its purpose is to define the process for managing changes in the railway system, beginning from the assessment of the significance of the change to the system until the implementation of the change. The procedure is applied to determine the significance of a planned change to the railway system. The procedure is applicable to all organisational units of PKP PLK S.A.
The procedure provides that in the case of a change related to the Company's technology, operation, maintenance or organisation, each proposed change is initially assessed from the point of view of its impact on the safety by the competent that organise the change. Where an impact on the railway safety is identified, the proposed change should be consulted, according to version 1, with the Chief Rail Traffic Safety Officer. If the change has an impact on the railway safety, the Chief Rail Traffic Safety Officer (at present, the Director of the Safety Office) shall appoint a change assessment team to assess the impact of the change on the safety of the railway system and determine whether the change is significant. If the change is significant change, the Chief Rail Safety Officer shall appoint a risk assessment team to carry out the risk assessment process. Next, in the case of an explicit risk assessment, the team applies the method described in SMS/MMS-PR-02 "Technical risk identification and assessment". Where an unacceptable level of risk is identified, procedure SMS/MMS-PD-05 "Corrective and preventive actions" is applied. Upon receiving information about a change that affects railway safety, the manager should take actions arising from the "Change Management" procedure, and therefore notify the change to the Chief Safety Officer. Despite such an obligation under the SMS, no such action was not taken, as a result of which no risk assessment process was initiated.
In the case of the occurrence concerned, IZ Warsaw, which is in charge of managing the infrastructure at the Cat. B crossing at km 17.211 of railway line no. 3, increased the speed of trains on the Ożarów Mazowiecki - Błonie route from 120 km/h to 160 km/h as of 10 June 2012. According to the information provided to the Investigation Team, the Railway Line Plant in Warsaw did not carry out procedure SMS/MMS-PR-03 "Change Management" (issued on 22 June 2010) in connection with the intention to increase the speed, including also at the level crossing at km 17.211. It was only from 2013 onwards that SMS/MMS-PR-03 "Change Management" was put into use in connection with speed increases within the area of IZ Warsaw. In consequence, SMS/MMS-PR-02, as an action aimed at minimising or eliminating hazards at the crossing in connection with the increase in speed, was not carried out either.
The Investigation Team considers the failure of the infrastructure manager to implement the provisions of SMS/MMS-PR-03 "Change Management" as another irregularity that had no influence on the occurrence.

Procedure SMS/MMS-PG-01 "Provision of railway infrastructure and operation of railway traffic"
The purpose of the procedure is to set out the rules for the provision of rail infrastructure and operation of rail traffic in compliance with safety requirements, with particular regard to transport of:
1) special shipments,
2) dangerous goods,
3) high-risk dangerous goods (TWR).

The procedure is obligatory for all organisational units of the Company whose scope of activities specified in the regulations includes tasks related to the provision of access to rail infrastructure and operation of rail traffic.
Documents related to this procedure include, inter alia, "Ir-7 Instruction on the maintenance of level crossings and passages", which in Paragraph 6 specifies the manner and duties of operating personnel in the event of a Cat. I fault of the SSP system (faults having a direct impact on railway traffic safety):
In the event of irregularities in the functioning of the SSP devices, flagged by UZK as Cat.I faults, critical faults or UZK damage, the signaller at whose signalling post the UZK concerned is located shall:
1) introduce a speed limit for the train head at 20 km/h across the entire width of the level crossing or passage and impose the requirement to give the sound signal Rp 1 "Attention" several times before passing through the level crossing or passage;
2) operate the UZK, if possible, in accordance with the operating instructions for the device;
3) record the damage in the SRK log book and notify the competent maintenance staff;
4) instruct a staff member designated under the Technical Regulations to mark the crossing or passage with a B-20 road sign with the "Barrier damaged" or "Traffic lights damaged" board installed below.

The failure to include in the internal regulations of PKP PLK S.A. the requirement for signallers, including the signaller at Ożarów Mazowiecki station, to immediately use of the ALARM signal by means of the RADIOSTOP system in the case of obtaining information about a Cat. I SSP fault is considered by the Investigation Team as a systemic factor related to the serious accident.

4.3. The management system of the entity/entities in charge of maintenance and maintenance workshops including the functions stated in the Article 14(3) and Annex III of Directive (EU) 2016/798 and any subsequent implementing acts

Not applicable.

4.4. The results of supervision performed by the national safety authorities in accordance with Article 17 of Directive (EU) 2016/798

Between 2018 and 2024, the President of UTK carried out 3 inspections at level crossings located on railway line no. 3 within the area of PKP PLK S.A. Railway Line Plant in Warsaw. One of the inspections, which was carried out between 14 and 30 July 2020, concerned the crossing at km 17.211 of railway line no. 3. The inspection report of 11 August 2020 showed the following irregularities concerning the crossing:

- inappropriate functioning of the monitoring system at the Cat. B crossing resulting in a lack of proper surveillance of the safety of the crossing; the CCTV receiving the signal from the cameras froze constantly,
- inappropriate signage of the crossing, i.e. lack of U-1a and U-1 guide posts on both sides of the crossing, lack of P-4 "double continuous line" horizontal marking.

The aforementioned irregularities were rectified by the infrastructure manager and the road manager after the inspection.

4.5. The authorisations, certificates and assessment reports granted by the Agency, the National Safety Authorities or other conformity assessment bodies

The Investigation Team does not raise any reservations regarding certificates held by the infrastructure manager and railway carrier.

4.6 Other systemic factors

The Investigation Team analysed the cooperation between the railway infrastructure manager, the road manager and the Municipality of Ożarów Mazowiecki. It was found that on 22 May 2018 the parties signed Agreement No. 25/MZDW/2018 on the construction of collision-free intersections of railway line no. 3 Warszawa

Zachodnia - Kunowice with voivodeship roads no. 718 and No. 701 in the area of the Municipality of Ożarów Mazowiecki. The agreement provides, among others:

- *- "The Municipality has been in talks with the Mazovian Voivodeship Roads Authority in Warsaw regarding the construction of a collision-free intersection on DW No. 718 at Ceramiczna Street",*
- *"the construction of collision-free intersections at Ceramiczna Street and Konotopska Street is of colossal importance for the safety and improvement of communication between the two sides of the city intersected by the railway line".*

The time limit for the completion of the design documentation for the investment, together with acquisition of the necessary administrative decisions, was set in the Agreement at the end of 2019, and the planned date for the commencement of the construction works was initially scheduled for 2020, with a condition that the construction works on the railway site will commence after the completion of the works carried out under Project No. OPIIŚ 5.1-16, i.e. in June 2020.

The signing of Agreement no. 25/MZDW/2018 in 2018 by the Mazowieckie Voivodeship (Mazovian Voivdeship Roads Authority in Warsaw) was conditional on the incorporation of the investment item "Construction of collision-free intersections of railway line no. 3 with voivodeship roads No. 718 and 701 in the Municipality of Ożarów Mazowiecki - road traffic safety improvement" in the Multiannual Financial Forecast of the Mazowieckie Voivodeship for the years 20224-2038. The aforementioned item is still included in the Multiannual Financial Forecast of the Mazowieckie Voivodeship for the years 2024-2038. The subject of Agreement no. 25/MZDW/2018 (in Phase I) was to prepare design documentation at the request of the Municipality of Ożarów Mazowiecki, which directly supervises the design process carried out by Biuro Projektów WPM Mosty Sp. z o.o. Budownictwo Sp.k.

The agreement was signed between the Municipality of Ożarów Mazowiecki, the Mazowieckie Voivodeship and PKP PLK S.A. In accordance with the provisions of the Agreement, the Municipality of Ożarów Mazowiecki commissioned the development of design documentation covering the construction of two viaducts (together with the necessary approaches) at the intersections of railway line no. 3 with voivodeship roads no. 701 and 718. The responsibility of the Mazowieckie Voivodeship and PKP PLK S.A. was to pay the costs of execution of the two viaducts.

Throughout more than six years of implementation of the Agreement, numerous correspondence was exchanged between the Mazovian Voivodeship Roads Authority in Warsaw, PKP PLK S.A., the Municipality of Ożarów Mazowiecki and the Contractor for the design documentation, i.e. Biuro Projektów WPM Mosty Sp. z o.o. Budownictwo Sp.k.

Correspondence on the aforementioned matter concerned both substantive and technical issues related to the design process, adopted design solutions, formal and legal issues related to the implementation of Agreement no. 25/MZDW/2018, administrative proceedings related to obtaining the necessary administrative decisions (e.g. decisions on environmental conditions, etc.). The Municipality of Ożarów conducted proceedings related to the issuance of the necessary decisions on environmental conditions for both investment projects being the subject of Agreement no. 25/MZDW/2018. The original deadline for both design documentations was set at the end of 2019. The contractor for the design documentation, Biuro Projektów WPM Mosty Sp. z o.o. Budownictwo Sp.k., applied for the required decision on environmental conditions on 19 December 2019. The decision was obtained as late as 22 November 2023. Thus, the decision in question had been pending for nearly 4 years. The above significantly affected the Contractor's ability to continue with the design process.

The Investigation Team considered the failure to implement the provisions of Agreement no. 25/MZDW/2018 signed on 22 May 2018 by the railway infrastructure manager, i.e. PKP Polskie Linie Kolejowe S.A., the road manager, i.e. the Mazovian Voivodeship Roads Authority, and the Municipality of Ożarów Mazowiecki, concerning the construction of a multi-level crossing replacing the level crossing at km 17.211 of railway line no. 3 as a systemic factor related to the serious accident. In the course of the investigation, the Commission recommended that the Mazovian Voivodeship Roads Authority in Warsaw, the manager of DW718, railway infrastructure manager PKP Polskie Linie Kolejowe S.A.and the Ożarów Mazowiecki City Council should speed up the work on building a viaduct over railway line no. 3 to eventually replace the crossing at km 17.211 of the line.

4.7 Previous occurrences of a similar character

In the course of the investigation, the Investigation Team analysed accidents and incidents that took place at the crossing at km 17.211 in similar circumstances as the occurrence concerned.
Between 2018 and 2025 (before and after the accident that took place on 1 July 2024), there were a total of 3 railway accidents at the crossing (including the occurrence concerned) caused by a rail vehicle colliding with a lorry at the crossing. Furthermore, between 2021 and 2024 there were a total of 14 Cat. C64 railway incidents involving passenger cars remaining in the danger zone of the crossing without coming into contact with passing rail vehicles.
The analysis shows that the following accidents took place at the same level crossing in similar circumstances:
1) 29 November 2018, 14:05 hrs, and
2) 2 November 2022, 09:54 hrs

re. 1) Brief description of the accident and its consequences

On 2 November 2022 at 09:54 hrs, during a run of train ROJ 91456 (operated by railway carrier "Koleje Mazowieckie - KM" sp. z o.o.) from Sochaczew to Warszawa Wschodnia on track no. 1 of the Błonie - Ożarów Mazowiecki route, on railway line no. 3 Warszawa Zachodnia - Kunowice, there was an accident on the Cat. B crossing at km 17.211 with closed barriers and operational barrier devices, traffic lights and sound signals. At 09:43 hrs, the signaller of Błonie station, on the basis of Temporary Train Traffic Operation Regulations No. IZO1 ES.602.36.2022.SD of 26 October 2022 (train traffic operated in both directions on active track no. 1), dispatched train no. 91456 to Ożarów Mazowiecki station. The rail vehicle hit the rear of a semi-trailer of a lorry stationary within the left-hand side of the gauge of active track no. 1. Having been hit by rail vehicle ER 160-07, the lorry was pushed to the left side damaging an SRK device (road traffic light type EHZ 7) and, in the rail vehicle, the windscreen, absorber, skin, reflector, and glazing of the direction panel on the left side. The head of the train stopped at km 17.100. The driver of the road vehicle travelling on voivodeship road no. 718 down Ceramiczna Street in the direction of the town of Ożarów Mazowiecki entered the level crossing from the side of track no. 2 with the half-barrier opened and the SSP system on standby (system operational - no approaching train) and stopped because of to lack of room to continue the ride so that the rear of the semi-trailer of the Volvo lorry remained in the gauge of track no. 1. Waiting for the opportunity to continue despite the light and sound signals being activated and the semi-barriers being closed by the approaching train no. 91456, the lorry driver did not react and did not leave the crossing. The driver of train no. 91456, passing the Top No. 173N crossing signal which showed the Osp2 aspect (two white vertical lights), approaching the level crossing at the W6b indicator gave the required Rp1 "Attention" signal, and next, coming out of the curve, noticed a semi-trailer standing in the gauge of active track no. 1 and immediately implemented emergency braking and gave the Rp1 "Attention" signal several times. At 09.54 hrs, the road vehicle was hit by ER160-07 (driven from Cab "A"). The rail vehicle hit the left side of the lorry's semi-trailer. As a result of the impact, the car was pushed to the left side damaging the crossing equipment (traffic light type EHZ 7). The speed of the train when it hit the road vehicle was 69 km/h, with the maximum permitted speed of 130 km/h. The head of the train stopped at km 17.100, i.e. 117 metres behind the axis of the level crossing. The train came to a stop after travelling 450 m from the moment the emergency braking was implemented. The signage of train head and rear was appropriate.
Nobody sustained any injuries as a result of the occurrence. The rail vehicle was not derailed.

re. 2) Brief description of the accident and its consequences

On 29 November 2018, TLK train no. 28101 travelling from Łuków to Szczecin was dispatched from Ożarów Mazowiecki station at 14:04 hrs. The driver of train no. 28101 passed the Top warning disc for the crossing at km 17.211 which showed the Osp2 aspect (two continuous white lights in a vertical line) and continued at the scheduled speed of 120 km/h. Approaching the said crossing, the train driver gave the signal "Attention" at the W6a indicator, and after a moment saw a lorry stationary on the crossing on track no. 1. He initiated train emergency braking immediately. Despite actions taken by the train driver, the head of traction vehicle EP07-345 hit the rear of the empty semi-trailer of a SCANIA lorry. At the time of the occurrence, the speed of the train was approximately 90 km/h, both barriers were closed and the SSP signalling for the km 17.211 crossing was in correct

working order. The driver of the road vehicle entered the crossing despite activated sound and light signals, and even though its was impossible to leave the crossing because of vehicles stationary on the road behind the crossing. As a result of the occurrence, the lorry was turned approximately 120" and the semi-trailer hit the first and second wagons of train no. 28101 causing damage to them. Parts of the tarpaulin and trailer structure remained on the traction vehicle. The head of the train stopped at km 17.580, i.e. 369 m from the axis of the level crossing. After stopping, the driver of train 28101 reported the accident to the signaller at LCS Błonie. Nobody sustained any injuries as a result of the occurrence. The rail vehicle was not derailed.

Furthermore, between 2018 and 2025 there were Category C64 and C65 railway occurrences at the Cat. B level crossing at km 17.211 on railway line no. 3 Warszawa Zachodnia - Kunowice, involving a road vehicle entering the crossing despite activated warning and half-barriers closed, i.e. incidents caused by the inappropriate behaviour of the road vehicle driver in conflict with the provisions of the Road Traffic Code.

Summary of occurrences that took place between 2018 and 2025.

2018 - 1 Cat. C66 occurrence - an incident that took place on 2018-10-19, 15:05 hrs,

2021 - 1 Cat. C64 occurrence - an incident that took place on 2021-09-30, 12:09 hrs,

2023 - 1 Cat. C66 occurrence - an incident that took place on 2023-10-18, 16:12 hrs,
- 7 Cat. C64 occurrences - incidents that took place on: 2023-04-14, 13:46 hrs; 2023-06-17, 16:09 hrs; 2023-07-12, 11:46 hrs; 2023-09-12, 10:25 hrs; 2023-09-12, 11:59 hrs; 2023-09-25, 08:15 hrs; 2023-10-18, 16:12 hrs; 2023-12-18, 08:19 hrs.

2024 - up until the day of the serious accident - there were 5 Cat. C64 incidents, and after 1 July in 2024 there were 6 Cat. C64 incidents, one Cat. C66 incident and one Cat. C45 incident.

In total, there were 15 Category C66 and C64 incidents between 2018 and 2024 (before 1 July 2024), whereas after the date of the serious accident, i.e. after 1 July 2024, there were 6 Cat. C64 incidents, one Cat. C66 incident and one Cat. C45 incident.

2025 - until 14 March 2025, there were no C64 or C66 occurrences.

Brief description of other selected occurrences at other level crossings and their consequences.

1) An occurrence on 3 February 2022 at 06:14 hrs, at a Cat. B level crossing, track no. 2, located at the Warlubie – Laskowice Pomorskie route, railway line no. 131 Chorzów Batory– Tczew, km 437.386, which involved passenger train IC 5600/1 operated by railway carrier PKP Intercity S.A., consisting of a EU07A-002 locomotive and seven wagons, and a Mercedes INTEGRO bus operated by carrier PKS Grudziądz. The occurrence consisted in a collision of the train and the rear right-hand side of the bus which was on the level crossing between the closed half-barriers and was trying to exit the level crossing. Before the bus entered the level crossing, the automatic crossing system was in the warning mode because of the freight train approaching on track no. 1 in the direction of the Warlubie station. Due to the closed barriers and activated traffic lights, the bus stopped before the crossing. After the freight train passed the level crossing, the system started lifting the barriers. Before the barriers were fully lifted and traffic lights were switched off, passenger train IC 5600/1 approaching on track no. 2 from the Warlubie station reactivated the automatic crossing system in the warning mode. The traffic lights were continuously giving signals prohibiting any entry onto the level crossing, and the barriers starter closing again right after being lifted. The bus driver, ignoring the signal that prohibited the entry (visible to him on the S1 and S3 traffic lights), entered the level crossing while the barriers were closing. The bus driver reached the barrier on the other side of the crossing and stopped the bus. As the bus remained stationary, the driver told the minder of the children to get out of the bus and lift the barrier manually. After several

unsuccessful attempts to lift the barrier, the minder noticed a train approaching from the direction of the Warlubie station. He immediately ordered the bus driver to leave the level crossing. The bus driver drove slowly to leave the level crossing while steering clear of the barrier without damaging it.
After passing the Warlubie station and coming out of the bend, the driver of train IC5600/1 noticed a bus stationary on the level crossing. The train driver initiated emergency braking and emitted the sound signal "Caution". The train hit the rear of the bus at the speed of around 90 km/h. As a result of the collision, the bus turned 90 degrees and hit the locomotive with its side, and was subsequently thrown away to the right side of track no. 2 (looking in the train driving direction) to some 100 metres from the axis of the level crossing, and the bus driver was killed. As a result of the accident, the road vehicle (the bus) was destroyed and the EU07A-002 locomotive and passenger wagons were damaged. The investigation into the accident was conducted by the State Commission on Railway Accident Investigation.

2) An occurrence on 3 April 2019 at 15:44 hrs, on a Cat. B level crossing, with a properly operating signalling with four half-barriers (two entrance and two exit barriers) at km 152.183 on track no. 1 of railway line no. 271 Wrocław Główny – Poznań Główny, during which train IC 45101 operated by carrier PKP Intercity S.A. drove into an ambulance stationary between the closed barriers. The driver of the ambulance passed a passenger car stationary before the closed entrance barrier and entered the level crossing while the exit barrier was closing. While the ambulance was driving through the level crossing, the exit barrier closed, preventing it from leaving the level crossing. The ambulance driver positioned the ambulance with its front towards the driving direction of the train. The approaching train drove into the ambulance (stationary on the level crossing). As a result of the occurrence, two persons were killed on the spot and the ambulance driver was taken to hospital. As a result of the accident, the road vehicle was destroyed and the locomotive and wagons were damaged. The investigation into the accident was conducted by the railway commission.

3) An occurrence 19 April 2016 at 07:10 hrs, on a Category B level crossing, with a correctly operating signalling on track no. 1 at km 32.612 of railway line no. 356 Poznań Wschód – Bydgoszcz, during which train no. 79628 operated by carrier Koleje Wielkopolskie Sp. z o.o. drove into a Volvo SR6 lorry with a load of construction timber stationary on the level crossing. Exiting voivodeship road no. 196 onto a municipal road leading to the level crossing, the lorry driver ignored a B-5 road sign (no entry for lorries) and entered the level crossing with lifted barrier bars while ignoring the light signals. While the lorry was driving through the level crossing, the barrier bar started dropping and the lorry driver stopped the vehicle. After a moment, the train drove into the rear of the lorry. One person was injured as a result of the occurrence. The car and the SA132 – 003 railbus were seriously damaged. The investigation into the accident was conducted by the State Commission on Railway Accident Investigation.

V. CONCLUSIONS

1. A summary of the analysis and conclusions with regard to the causes of the occurrence

An analysis showed that the rolling stock involved in the serious accident, as well as the rail infrastructure elements, including the automatic crossing system installed at the level crossing, were in working order. Job factors and organisational assignments performed by entities involved in the occurrence did not contribute to the occurrence concerned.

The Investigation Team found the following to be the causal factors of the occurrence:

- the lorry entering and remaining on the Cat. B level crossing on tracks 1 and 2 as the vehicles ahead of it stopped unexpectedly, which prevented the lorry from exiting the crossing and led to a passenger train travelling on track 2 colliding with the semi-trailer of the lorry,
- the lorry entering the crossing even though there was no room on the other side of the crossing to continue driving (Article 28(3)(2) of the Road Traffic Act).

The following was found to be the factors contributing to the occurrence:

- failure of the lorry driver to take special care when approaching and traversing the crossing.
- the road vehicles ahead of the lorry stopping and creating a traffic jam on voivodeship road DW718, preventing the lorry from leaving the crossing zone at the time of the occurrence.
- improper organisation of vehicle traffic in the area of the crossing causing road traffic jams at the crossing and in its vicinity, in particular too short a traffic lights cycle at the junction of voivodeship road no. DW718 and national road no. DK92 located approximately 330 m from the crossing.
- ineffective checks at the crossing, failing to reveal recurring traffic jams at the crossing and the risks caused by the improper traffic organisation.
- very high traffic volumes on voivodeship road DW718, which is a single level crossing, generated by the nearby exit from the A2 motorway.

The Investigation Team found the following to be the systemic factors of the serious accident:

- despite the preventive measures taken by the railway infrastructure manager and the voivodeship road manager in connection with previous railway occurrences at the crossing concerned (accidents, incidents), the safety at the crossing was not ensured (see Section II. 10 of the Report).
- Failure to implement the provisions of Agreement No. 25/MZDW/2018 signed on 22 May 2018 between the Municipality of Ożarów Mazowiecki, the Mazovian Voivodeship and PKP PLK S.A. on the construction of collision-free junctions, including a multi-level junction, to replace the level crossing at km 17.211 of railway line no. 3.

2. Measures taken since the occurrence

In connection with the investigation conducted by the Investigation Team of the State Commission on Railway Accident Investigation concerning the railway accident which took place on 1 July 2024 at the Cat. B crossing located at km 17.211 of railway line no. 3 on the Ożarów Mazowiecki - Błonie route, the Chairman of PKBWK, acting on the basis of Article 28l(1a) of the Rail Transport Act of 28 March 2003 (consolidated text: Journal of Laws of 2024, item 697) which provides: *"Where it is necessary to take immediate actions to improve safety,*

the Chairman of the Commission may issue recommendations to this effect in the course of the investigation", recommended that the following actions be taken to improve safety in rail and road transport at the crossing by the following entities:

A. addressed to the Mazovian Voivodeship Roads Authority in Warsaw:

1. Complete the signage on voivodeship road DW 718 by adding P-4 lines along the entire section from the level crossing at km.17.211 of railway line No. 3 to national road DK92.
2. Extend the cycle of traffic lights for traffic to/from DW 718 at the junction with DK92 to improve the traffic flow to the level crossing, in cooperation with the General Directorate of National Roads and Motorways as the manager of DK92.
3. Relocate the signs indicating the beginning (D-42) and end (D-43) of the built-up area on DW718 to the left side of the crossing, i.e. in the direction of Pruszków, so that the speed limit on approach to the crossing is 50 km/h.
4. Complete the P-14 lines on both sides of the crossing.
5. Introduce no-left turn into the roads parallel to the tracks (horizontal and vertical signage) and introduce right-turn only from the four roads reaching DW718 parallel to the railway tracks within the crossing area.
6. Separate the traffic lanes by installing traffic separators within the crossing area to prevent, among other things, turning after the crossing and bypassing closed barriers.
7. Position B-20 "Stop" signs at the inlets of the four internal roads parallel to the tracks to DW718.
8. Check, complete or make legible the signage from the internal roads parallel to the railway line within the crossing area informing of the crossing (refers to the situation of turning right into the crossing) by adding F6a signs - currently, the signs are missing on one of the aforementioned roads, whereas on the other two roads they are rotated and not legible to road users.

B. addressed to the General Directorate for National Roads and Motorways:

1. Extend the cycle of traffic lights for traffic from/to DW 718 at the junction of national road DK92 with voivodeship road DW718 to improve the traffic flow between the level crossing and DK92, in cooperation with the Mazovian Road Authority in Warsaw as the manager of DW718.

C. addressed to PKP Polskie Linie Kolejowe S.A.:

1. Having analysed the circumstances of the occurrence at the crossing concerned, it the Commission and the Commission's Investigation Team explicitly state that the accident occurred due to a permanent obstruction in the area of the crossing which poses a constant risk to the safety of the traffic of trains, road vehicles and pedestrians due to poor organisation of the traffic of road vehicles and pedestrians within the area. Given the fact that such circumstances are not provided for in the implementing regulations of the Construction Law, the rule of the railway infrastructure manager concerning the existing safety risk from § 84 of Ir-1 "Instruction on operating railway traffic" Ir-1 other instructions of the manager must be applied.
   Consequently, there should be a 20 km/h speed limit for the head of the train on all tracks in both directions for the length equal to the length of the crossing and, where there is an obstacle, the train crew must stop the train in front of it. The speed limit must be put in place immediately until the recommendations have been implemented.
2. Carry out the emergency procedure to calculate the traffic ratio on the crossing, in cooperation with the voivodeship road manager, on the basis of Point 8 of Annex 1 to the Regulation (requested by the State Commission on Railway Accident Investigation).
3. Relocate the crossing light pole from the right side of the crossing so that it does not obscure the barrier for crossing users travelling from the direction of national road 92.

D. addressed to the Mazovian Voivodeship Roads Authority, Ożarów Mazowiecki City Council and railway infrastructure manager PKP Polskie Linie Kolejowe S.A.

1. The Mazovian Voivodeship Roads Authority in Warsaw, the manager of DW718, and the railway infrastructure manager PKP Polskie Linie Kolejowe S.A. and the Ożarów Mazowiecki City Council shall

speed up the work on building a viaduct over railway line no. 1 to eventually replace the crossing in the course of Ceramiczna Street in Ołtarzew.

3. Since it is impossible to ensure a safe left turn at the exit from the railway crossing into Południowa Street, the Ożarów Mazowiecki City Council is requested to take urgent measures to enable safe access for long road vehicles, in particular lorries and agricultural tractors with trailers, to properties located along Brzegowa Street in Ołtarzew, including, inter alia, urgently pave the current dirt road on the section from the property at 2 Brzegowa Street to the turn of Brzegowa Street running through parcels no. 437/4 and 437/5 and along parcel no. 436/4, while making the turn angle less sharp (437/4). In the course of the investigation, the City Council of Ożarów Mazowiecki had the aforementioned dirt road paved.

At the same time, the chairman of PKBWK required that works be carried out by the managers of voivodeship and national roads in consultation with PKP PLK S.A. Railway Line Plant in Warsaw as the manager of the railway infrastructure at the crossing.

The above recommendations were based on the facts established by permanent members of the State Commission on Railway Accident Investigation and, inter alia, on the conclusions of several inspections carried out at the crossing in connection with the occurrence that took place at the crossing on 1 July 2024. One of the inspections was carried out with the participation of, inter alia, representatives of the Police, the railway infrastructure manager, the manager of voivodeship road DW718 and members of the State Commission on Railway Accident Investigation.

By letter of 24 July 2024 no. IBR1.060.26.2024.RW.4, the company PKP PLK S.A. informed the Commission (the letter was not delivered by the Company or forwarded CC the President of the Railway Transport Office, hereinafter referred to as "the President of UTK" or "the Authority") that it had taken actions pursuant to the Recommendations.
PKP PLK S.A. took alternative actions consisting of:

- the appointment on 19 July 2024 of a Technical and Operational Risk Assessment Team with the participation of representatives of the Railway Line Plant in Warsaw and the General Headquarters of the SOK (Railway Guard) to carry out a risk assessment for the deployment of a 24-hour SOK patrol at the Cat. B crossing at km 17.211 of railway line no. 3 Warszawa Zachodnia - Kunowice, as an alternative solution to the recommendations made by PKBWK, until a new traffic organisation is introduced at the crossing by the road manager,
- deployment 24-hour (continuous 24-hour presence required) patrols of the Railway Guard within the above-mentioned level crossing. SOK officers are equipped with train communication radios with a backup power source to ensure continuous communication with the signaller of Ożarów Mazowiecki station - the action commenced on 19 July 2024.

PKP PLK S.A. declared that the aforementioned solution would remain in force until the implementation of the recommendations addressed to the Mazovian Voivodeship Roads Authority in Warsaw, the General Directorate for National Roads and Motorways. At the same time, the Company formulated an objection as to the cause identified by the Commission, i.e. "continuously recurring obstruction in the crossing zone". In the Company's opinion, a wrong conclusion can be drawn on the basis of the record in question as to the occurrence of recurring and permanent obstacles to the operation of vehicle traffic at the crossing. Furthermore, the Company said that it had applied in writing to the Mazovian Voivodeship Roads Authority in Warsaw to carry out urgent measurements of the current traffic volume at the level crossing.

PKP PLK S.A. took organisational actions, executed by the Railway Line Plant, to establish local conditions for relocating the crossing lighting pole from the right-hand side of the crossing so that it does not obscure the barrier for crossing users travelling from national road 92.

By letter of 5 August 2024 no. IBR1.060.26.2024.LZ.8, addressed to PKBWK (the letter was not delivered by the Company or forwarded CC the President of UTK), PKP PLK S.A. submitted information on further actions taken in relation to the Recommendations.

On 2 August 2024 at 23:59 hrs, the speed limit of 20 km/h for the head of trains was introduced at the level crossing, due to the inappropriate organisation of road traffic at the crossing.

By letter of 29 August 2024 no. IBR1.060.26.2024.LZ.22, PKP PLK S.A. replied in connection with the above-mentioned demand from the Office of Rail Transport dated 27 August 2024, ref. no. DPN-WDZK.464.20.2024.13.KG.
The company indicated that all the Recommendations issued by PKBWK, giving rise to the cause of introducing the 20 km/h train speed limit, had been implemented by the Mazovian Voivodeship Roads Authority in Warsaw, the General Directorate for National Roads and Motorways and PKP Polskie Linie Kolejowe S.A. The Mazovian National Roads Authority changed the traffic organisation on the basis of the "Project of permanent traffic organisation. Voivodeship Road No. 718", which received a positive opinion from the State Commission on Railway Accident Investigation. The traffic lanes within the crossing had been separated by separators which also prevent drivers from turning left after the crossing and from bypassing the closed barriers.
In order to make the road section leading to the crossing more passable, the General Directorate of National Roads and Motorways had extended the traffic light cycle for traffic to/from DW718 at the junction with national road DK92.
PKP PLK explained that in connection with the implementation of the recommendations of the State Commission on Railway Accident Investigation by the Mazovian Voivodeship Roads Authority in Warsaw and the General Directorate for National Roads and Motorways, and in connection with the information of the General Directorate for National Roads and Motorways concerning the negative impact of the 20 km/h train speed limit introduced at the cat. B crossing at km 17.211 on the smoothness of traffic flow at the junction of national road no. 92 and voivodeship road no. 718, the Company's Management Board had decided to increase the train speed limit from 20 km/h to 100 km/h for the head of trains across the width of the crossing. A scheduled speed of up to 160 km/h was not introduced due to the poor quality of the lane separators installed at the crossing. The separators have poor stability and are damaged by drivers who do not observe traffic regulations within this crossing.
After e field visit carried out on 26 August 2024, the Commission, by letter of 3 September 2024, no. PKBWK.590.4.19.2024.TR, reiterated that the proposed solution of 24-hour patrolling of the crossing was insufficient and did not improve safety significantly at the crossing. At the same time, PKBWK upheld Recommendation no. 1 to limit the speed of the train head to 20 km/h due to constantly recurring traffic jams at the crossing.
By letter of 11 September 2024 no. PKBWK.590.4.22.2024, the Commission requested the President of UTK to apply the procedure laid down in Article 28l(9d) of the Rail Transport Act in connection to the Commission's recommendation to limit the speed for the train head to 20km/h at the crossing.
By letter of 18 September 2024 no. DPN-WPOA.464.1.2024.KS, the President of UTK, pursuant to Article 104 § 1, Article 108 § 1 and Article 10 § 2 of the Act of 14 June 1960 on the Code of Administrative Procedure (consolidated text: Journal of Laws of 2024, item 57), in connection with Article 28l(9d), Article 13a(1) and Article 10(1)(4) of the Rail Transport Act of 28 March 2003 (consolidated text: Journal of Laws of 2024, item 697), decided to impose on obliging the infrastructure manager PKP Polskie Linie Kolejowe S.A to implement the recommendation of the State Commission on Railway Accident Investigation issued by letter of 18 July 2024 no. PKBWK.590.4.9.2024.RL, making the decision immediately enforceable.
The infrastructure manager PKP Polskie Linie Kolejowe S.A., disagreeing with the decision issued by UTK on 18 September 2024, appealed in writing on 23 September 2024, ref. no. IBR1.0811.83.2024.5.RW, requesting that the UTK decision be repealed and the first instance proceedings be discontinued. The President of UTK, by letter of 1 October 2024, no. DPN-WPOA.464.2.2024.DK, cancelled the contested decision in its entirety and discontinued the first-instance proceedings in their entirety.

3. Additional comments

In the course of the post-occurrence inspection, the Investigation Team identified also the following other irregularities:

1. no designated pedestrian passage through the crossing,
2. no deflection of the S5 road traffic signal disc on the mast by 5-10° relative to the plane perpendicular to the road axis,
3. no full vertical deflection of the half-barriers in vertical (this irregularity was rectified),
4. inappropriate height of the disks in the road traffic signals S1, S3 and S4 (below 2.2 m),
5. damaged paint coat on the masts and lack of descriptions of the road traffic signals,
6. positioning of noise protection elements within the visibility triangle on the left of the crossing to the right,
7. lack or inappropriate signage with F6-a signs on the side roads parallel to the railway line.

VI. SAFETY RECOMMENDATIONS

1. The entities in charge of management of railway infrastructure shall - on the basis of reports from railway carriers, level crossing users and other reports on road traffic organisation concerning traffic jams at level crossings - carry out emergency inspections of these level crossings together with road managers, and shall take immediate measures to improve the safety of railway and road traffic at these crossings.
2. Infrastructure manager PKP Polskie Linie Kolejowe S.A. Railway Line Plant in Warsaw shall include in the Technical Regulations of the Traffic Control equipped with the remote control device (UZK) for the level crossing at km 17.211 of railway line no. 3, the obligation for the signaller to use the "Alarm" signal by means of the RADIOSTOP system in the event of a defect in the automatic crossing system (SSP) Cat. I when a train is approaching the crossing concerned. The above shall apply until either of the solutions included in Recommendation no. 7 of this Report is implemented.
3. Railway infrastructure manager PKP Polskie Linie Kolejowe S.A. shall take measures to implement systems to detect the presence of road vehicles between closed barriers on level crossings which will alert train drivers and signallers to the danger, including at the crossing at km 17.211 of railway line no. 3.
4. The voivodeship road manager Mazovian Voivodeship Roads Authority in Warsaw shall, in cooperation with railway infrastructure manager PKP Polskie Linie Kolejowe S.A. and the City and Municipality Council of Ożarów Mazowiecki, continue actions to implement the provisions of Agreement No. 25/MZDW/2018 signed on 22 May 2018, including to build a viaduct over railway line no. 3 to ultimately replace the level crossing at km 17.211 of this line.
5. Operators of powered rail vehicles with front-view monitoring shall ensure that the said equipment ensures continuous video and audio recording capability, particularly in the event of railway occurrences. Consideration should be given to relocating the monitoring recorder to a secure place within the rail vehicles to ensure continuity of recording in the event of railway occurrences.
6. Railway infrastructure manager PKP Polskie Linie Kolejowe S.A. shall clarify its internal regulations as regards the procedure to be followed by signallers in the event that a defect of Cat. I SSP is signalled by the UZK equipment when a train is approaching (in particular Section 18 of Ie-119 and Section 25(6)(1) of Ir-7).
7. Until Recommendation no. 4 of this Report is implemented, the voivodeship roads manager Mazovian Voivodeship Roads Authority in Warsaw shall, in cooperation with the manager of access roads - the City and Municipality Council of Ożarów Mazowiecki, consider (on the basis of the agreement with PKP S.A.) either of the following solutions to improve safety at the crossing:
    a. conversion of the junctions of the voivodeship road with roads parallel to the railway line, so that the continuity of the access road is ensured and there are no junctions of these roads with the voivodeship road on either side of the crossing and on each side of the voivodeship road over the distance of 30 m from the crossing barrier devices, or
    b. application of the design solution referred to in Section 21(2) of the Regulation of the Minister of Infrastructure of 20 October 2015 on the technical conditions to be met by crossings of railway lines and sidings with roads, and on their positioning (design solutions within the crossing to ensure efficient exit of road vehicles from the crossing (Journal of Laws, item 1744, as amended), which provides that: *"The design solutions applied within a level crossing should ensure that road vehicles can exit the level crossing smoothly and join the traffic flow adjacent to the level crossing, in particular by making the operation of the crossing systems dependent on (linked to) the road traffic control systems."*
8. Authorised railway infrastructure managers, users of railway sidings, operators of narrow gauge railways and infrastructure managers that are exempt the obligation to obtain a safety authorisation and authorised to operate under a safety certificate (hereinafter referred to as "railway managers") shall - in the event of receiving notification from a road manager of the intention to carry out traffic volume measurements at a level crossing - request feedback from the road manager concerning the traffic characteristics within the crossing, including in particular the likelihood of road traffic jams. Where the formation of traffic jams within a level crossing is identified, the railway managers shall analyse the resulting risks and implement appropriate safety measures.

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Tadeusz Ryś

List of entities and acronyms that appear in Report No. PKBWK 05/2025

Item	Symbol (acronym)	Explanation
1	*2*	*3*
1.	EUAR	European Union Agency for Railways
2.	PKBWK	State Commission on Railway Accident Investigation (Polish: Państwowa Komisja Badania Wypadków Kolejowych)
3.	UTK	Office of Rail Transport (Polish: Urząd Transportu Kolejowego)
4.	PKP PLK S.A.	Polskie Linie Kolejowe - Infrastructure Manager
(5)	IZ	Railway Line Plant
6.	"Koleje Mazowieckie - KM" sp. z o. o.	Railway carrier
7.	GDDKiA	General Directorate for National Roads and Motorways (Polish: Generalna Dyrekcja Dróg Krajowych i Autostrad) - the manager of national road no. 92
8.	MZDW	Mazovian Voivodeship Roads Authority (Polish: Mazowiecki Zarząd Dróg Wojewódzkich) The manager of voivodeship road no. 718
9.	DTR	Technical and Operational Documentation (Polish: Dokumentacja Techniczno-Ruchowa)