

Девета годишна конференция

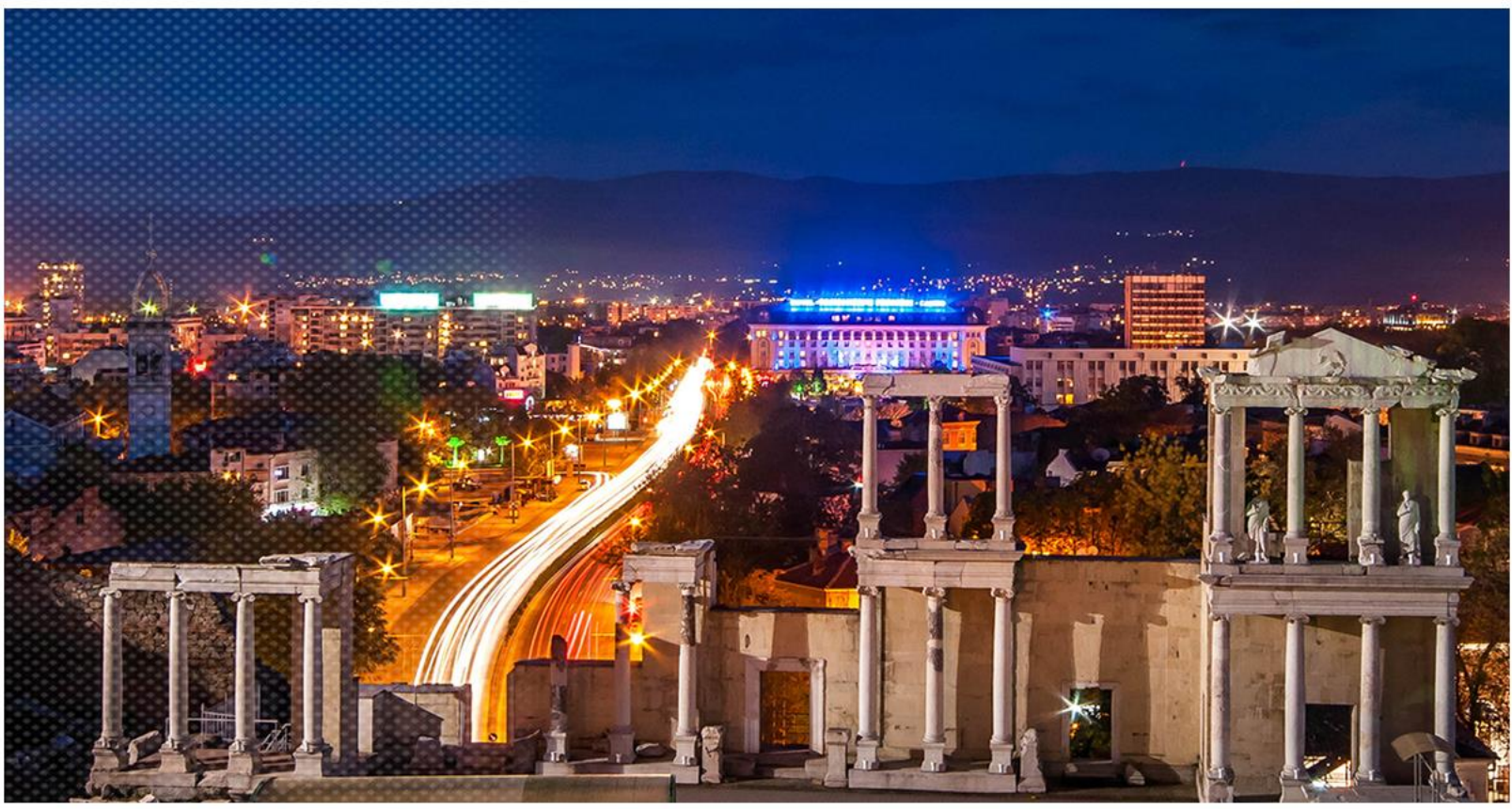
19-20 септември 2023,
Гранд хотел Пловдив, гр. Пловдив



БЪЛГАРСКА БРАНШОВА АСОЦИАЦИЯ
ПЪТНА БЕЗОПАСНОСТ

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Road safety at railway crossings



БЕЗОПАСНА ПЪТНА ИНФРАСТРУКТУРА





1. Introduction

Level crossings are a point of conflict between rail and road transport.



The construction of an integrated and interoperable railway network at the European level, as well as the improvement of the operation of this network, remain one of the most important goals set in the European transport policy for the program period 2021-2027.



The national safety authority in the Republic of Bulgaria on the part of the railway sector is the Executive Agency "Railway Administration", according to Art. 6, para. 3 of the Railway Transport Act (RA).



The agency monitors the state of safety and annually performs statistical analyses on general safety indicators



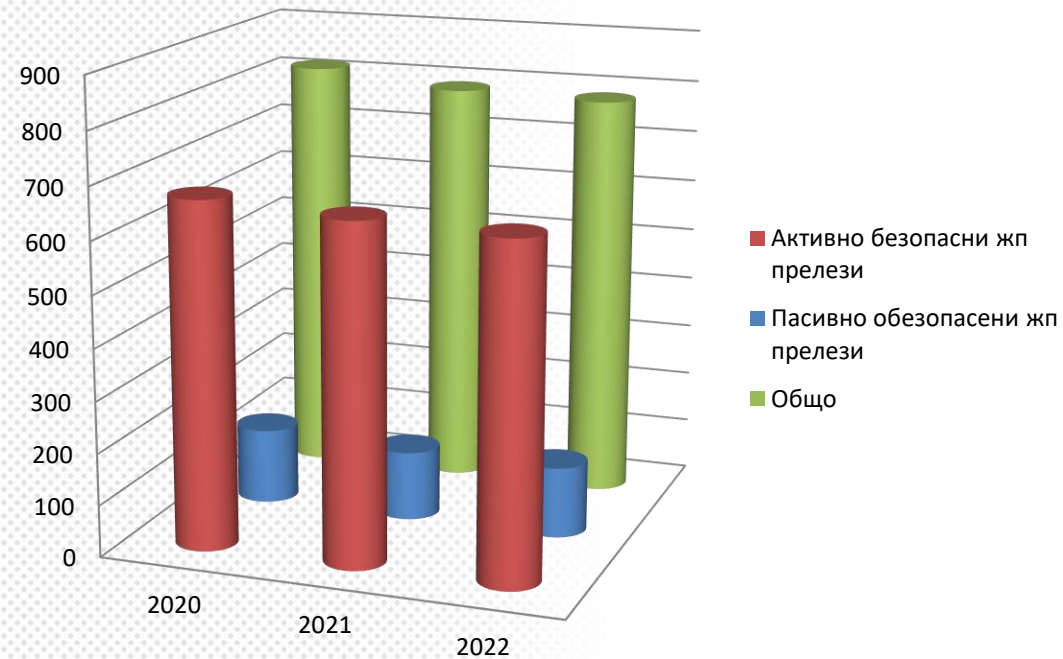
2. *Railway crossing statistics*

There were a large number of crossings on the territory of the country - 780 crossings (now 754):

- with manual barriers – 140;
- with electric barriers – 127;
- with automatic locking – 108;
- 275 have automatic crossing signaling.



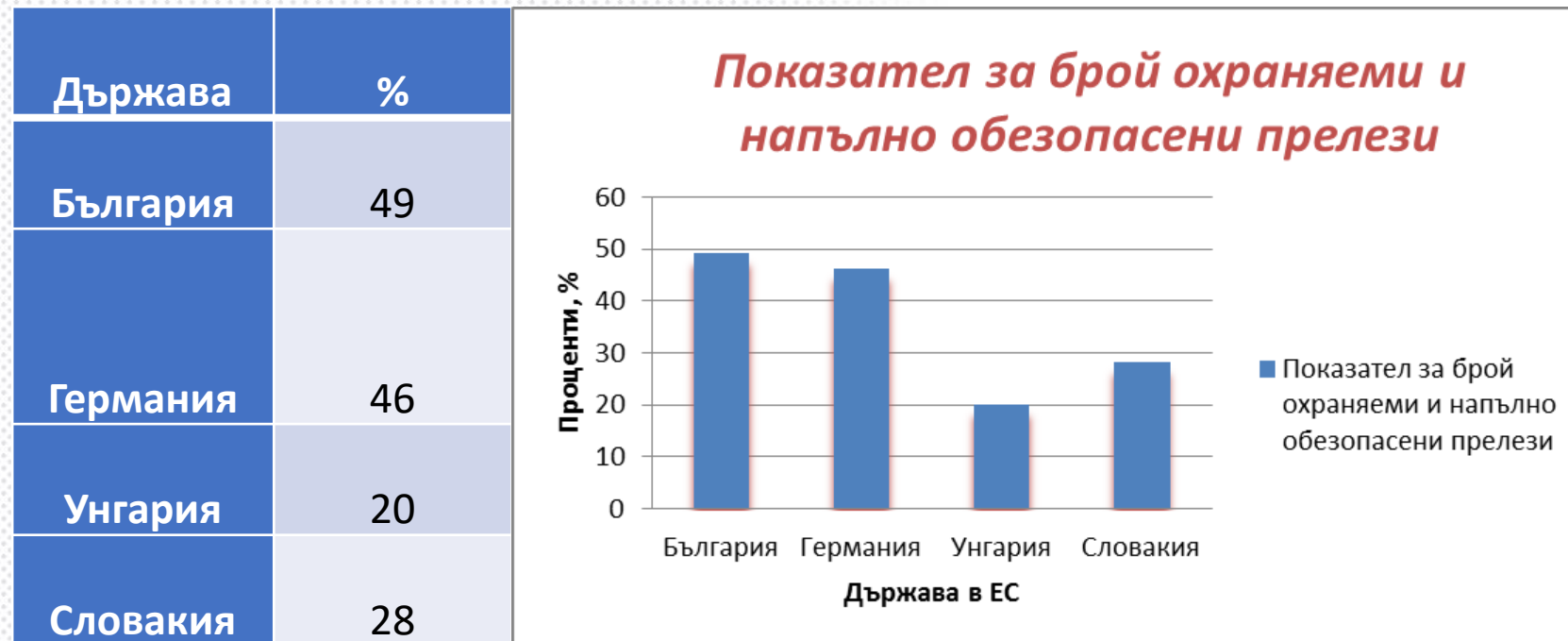
Number of railway crossings by type



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Bulgaria holds the record for the largest number of guarded and fully secured crossings!





Bulgaria also holds the record for deaths at railway crossings in Europe in relation to the number of population and kilometers of railway.

Държава	%
България	2,7
Унгария	2,01
Германия	0,67
Италия	0,19



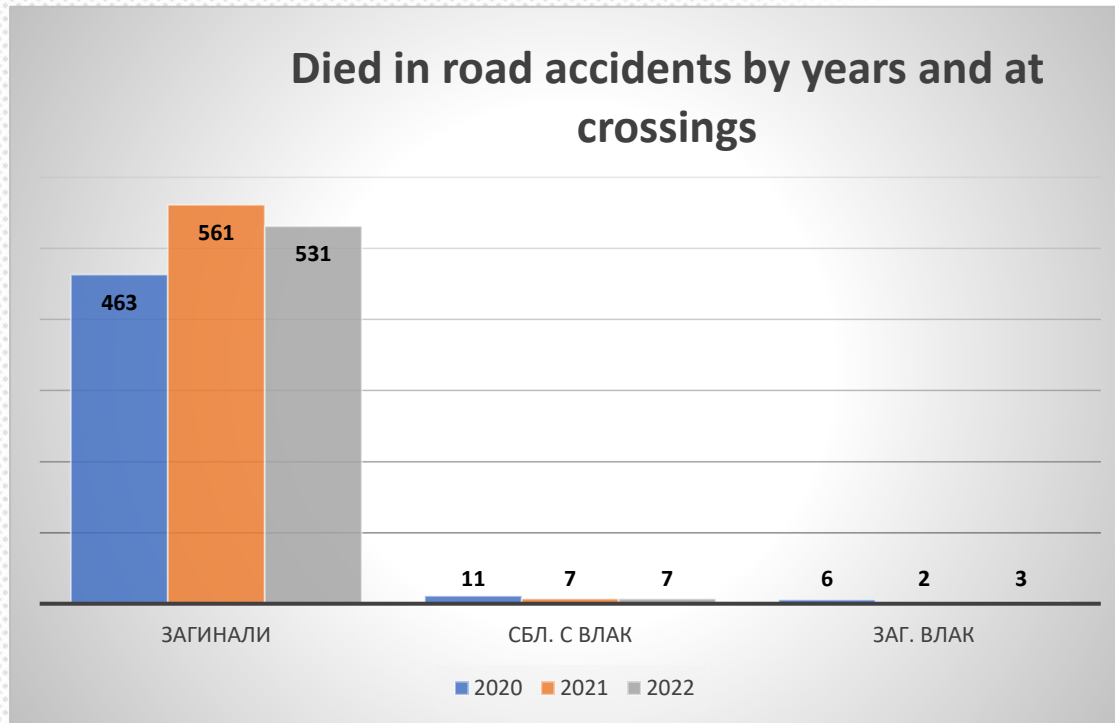


пътен участък	общо			в населено място			извън населено място		
	ПТП	загинали	ранени	ПТП	загинали	ранени	ПТП	загинали	ранени
жп прелез неохраняем	7	2	6	4		4	3	2	2
жп прелез охраняем	5	1	5	1	1		4		5
подлез	3		3	3		3			
надлез	19	4	22	10		11	9	1	11

Road accidents in 2022



Died in road accidents by years and at crossings

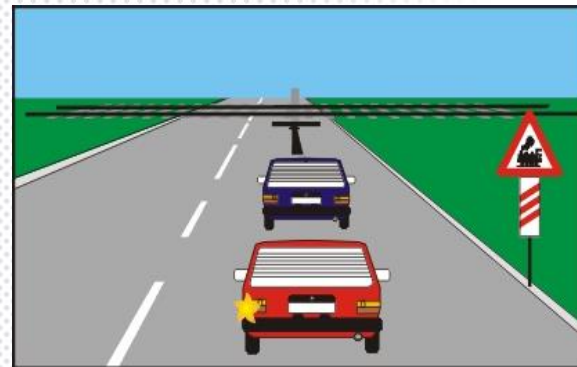




3. Regulations

The normative basis that must be observed during the construction and subsequent crossing of a railway crossing is:

- Ordinance No. 4 of 27.03.1997 on railway crossings [1]. It refers to the categorization, device, signaling of crossings. It is now included as a section in Ordinance No. 55 of 2004.
- Road Traffic Act - Section Twelve. Railroad crossing [2].
- Road Traffic Regulations - Chapter Seventeen. Crossing a railroad crossing [3]. They refer to the exact requirements and their strict compliance.



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4. Causes of road accidents at railway crossings



Low driver culture.



The systematic thefts.



Lack of signs and markings.



Maintenance of
the built facilities.

Crossing with lowered barriers or prohibitory lights at crossings is tantamount to a suicide attempt!!!



Vidin - Dunavtsi Level crossing





4. Active and passive measures

4.1. Active measures

Improvement of traffic organization, through additional restrictions:

- Speed reduction, with signs, markings, etc.
- Eliminating the subjective factor in the control of crossings: introduction of automated systems where there is no human intervention.
- New signalling - implementation of control systems and video surveillance of the "dangerous zone" of the crossings. They serve to track offenders and prevent reoffending.
- Reduction of the time of the closed status of the crossings.
- Conducting media campaigns to acquaint the general public with the rules for crossing railway crossings.



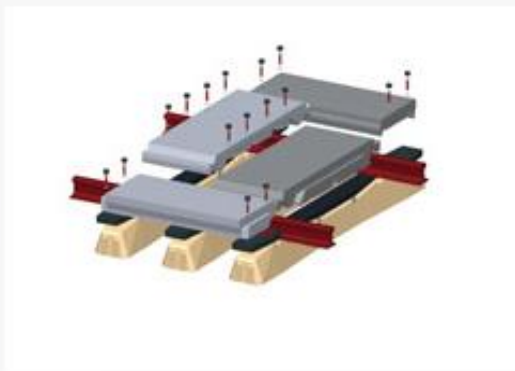
4.2. *Passive measures*

In European practice, there are the following main trends in the operation and maintenance of railway crossings, through passive measures dependent on civil engineers:

- Reducing the number of crossings: building underpasses, overpasses, tunnels and avoiding the crossing of a railway line with a road.
- Placement of artificial obstacles to reduce the speed before entering the crossings - lying down policeman.
- Placement of artificial obstacles to prevent the passage of cars when the barriers are down. All over the country, drivers can be seen not only not stopping at lowered barriers, but defiantly overtaking conscious wait-standers. And this is not sanctioned because there are no cameras, there is no punishment.
- Installation of quality crossing pavement so that cars can be quickly and safely pulled out after crossing the crossing.



The high wear resistance and accuracy of manufacturing of the level crossing pavement is of particular importance for ensuring smooth and safe passage through the level crossings of both trains and road vehicles passing through the level crossings.



Level crossings with an elastic crossing surface from company **REM**



Level crossings with an elastic crossing surface from company **STRAIL**



6. Conclusion.

- A change is needed in the normative documents, including in their organization: Ordinance 4, Ordinance 55, etc.
- It is necessary to improve the technical means for equipping the crossings, for example, introducing video surveillance or installing cameras, impossibility to cross the crossing when the barriers are down, etc.
- There is no absolute safety. Even with an underpass/overpass there is a possibility of accidents.





References:

- 1) National Safety Authorities (NSA) Annual Safety Report 2022 - Railway Administration Executive Agency
- 2) National Railway Infrastructure Company (NRI);
- 3) Ordinance No. 4 SG No. 32 of 1997 for railway crossings;
- 4) Road Traffic Act – Section Twelve. Rail crossing;
- 5) Road Traffic Regulations - Chapter Seventeen. Crossing a railroad crossing.
- 6) Road and transport accidents in the Republic of Belarus 2020, 2021, 2022, NSI, ISBN 1312-8450



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**Thank you for your
attention!**



UNIVERSITY
OF ARCHITECTURE
CIVIL ENGINEERING
AND GEODESY

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Девета годишна конференция: БЕЗОПАСНА ПЪТНА ИНФРАСТРУКТУРА