XVII International Symposium
"ROAD ACCIDENTS PREVENTION 2026"
Novi Sad, Serbia, 14th and 15th October 2026.

https://doi.org/10.68515/RAP.2026.17.24

ROAD SAFETY PARAMETERS IN AP VOJVODINA: AN ANALYSIS OF RECENT CHANGES

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Abstract: Monitoring road safety status and trends is a critical segment of the safety management process. Changes in absolute parameters can reflect the effectiveness of the protective system. This paper analyzes changes in road safety parameters within the Autonomous Province (AP) of Vojvodina, comparing the year 2025 against the 2020–2024 baseline period.

Keywords: Traffic safety, change parameters.

1. INTRODUCTION

Every year, approximately 1,19 million people die in road traffic crashes, while between 20 and 50 million sustain non-fatal injuries. For most countries, these accidents cost roughly 3% of their gross domestic product (WHO, 2025). Viewing road safety as a core modern value implies a reliable transport system that eliminates fatalities and serious injuries. Within this framework, it is essential to determine: (1) which processes drive the development of safety as a societal value, (2) how safety is institutionalized within transport systems, and (3) how to cultivate safety-oriented values within the individual (Wachter & Yorio, 2014).

The primary mission of road safety initiatives is to reduce fatalities, injuries, and economic losses resulting from road traffic crashes. Over extended periods, tracking changes in key parameters allows for both evaluating past performance and forecasting future trends (Mannering, 2018; Broughton, J., & Knowles, J. (2010).). This requires continuous monitoring and a comprehensive analysis of general tendencies within the sector. Establishing these baseline conditions is the foundational step in the safety management process. Ultimately, a precise understanding of past and present trends is what enables high-quality, data-driven decision-making to systematically improve road safety (Elvik, 2010).

Over the last decade, the Autonomous Province of Vojvodina (APV) has averaged approximately 7.000 road traffic crashes annually, accounting for about a quarter of all crashes in the Republic of Serbia. Furthermore, around 160 fatalities occur each year in the region, representing nearly one-third of the country's total traffic-related deaths. The primary objective of this paper is to analyze the changes in absolute road safety parameters within APV.

This is part of the Report on Traffic Safety, which is carried out every year in the APV region (ADOMNE and MHM Project, 2026).

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2. METHODOLOGY

The scope of this study focuses on the fundamental characteristics of road safety within the APV spanning the 2020-2025 period.

Data was sourced from the official database of the Road Traffic Safety Agency (RTSA), specifically examining traffic crashes and their outcomes.

To identify key similarities and differences in trends, a comparative analysis was applied to the historical accident data.

3. RESULTS

In 2025, the number of traffic accidents increased across all severity categories compared to the 2020-2024 average, with the sole exception of fatal crashes (Table 1 and Fig. 1).

Specifically, total road crashes rose by 3,3%, while injury-causing incidents saw a 6,0% uptick. Conversely, road crahses involving fatalities decreased by 5,4%.

Table 1. Changes in the number of road traffic crash, APV, 2025 compared to the 2020–2024 average

Road traffic crash	Period 2020-2024.						2025	Changes	
	2020	2021	2022	2023	2024	Average		N	%
Total	6193	7190	6921	6980	6972	6.851	7080	229	3,3
Casualties	3363	3860	3792	3844	4029	3.778	3987	209	5,5
Injuries	3237	3705	3634	3725	3889	3.638	3855	217	6,0
Fatalities	126	155	158	119	140	140	132	-8	-5,4
PDO	2830	3330	3129	3136	2943	3.074	3093	19	0,6

Notice: Property Damage Only (PDO)

In 2025, the number of road crash casualties increased across all categories compared to the 2020–2024 average, with the sole exception of fatalities (Table 2 and Fig. 2).

Specifically, the total number of casualties rose by 7,1%, driven primarily by a 11,6% surge in serious injuries. Conversely, the number of fatalities experienced a minor decline of 0.5%.

Table 2. Changes in the number of road traffic crash casualties, APV, 2025 compared to the 2020–2024 average.

Consequence	Period 2020-2024.						2025	Changes	
	2020	2021	2022	2023	2024	Average		N	%
Casualties	4992	5737	5706	5713	5956	5.621	6021	400	7,1
Injuries	4859	5575	5533	5587	5806	5.472	5873	401	7,3
Light injuries	3963	4592	4568	4611	4744	4.496	4783	287	6,4
Serious injuries	896	983	965	976	1062	976	1090	114	11,6
Fatalities	133	162	173	126	150	149	148	-1	-0,5

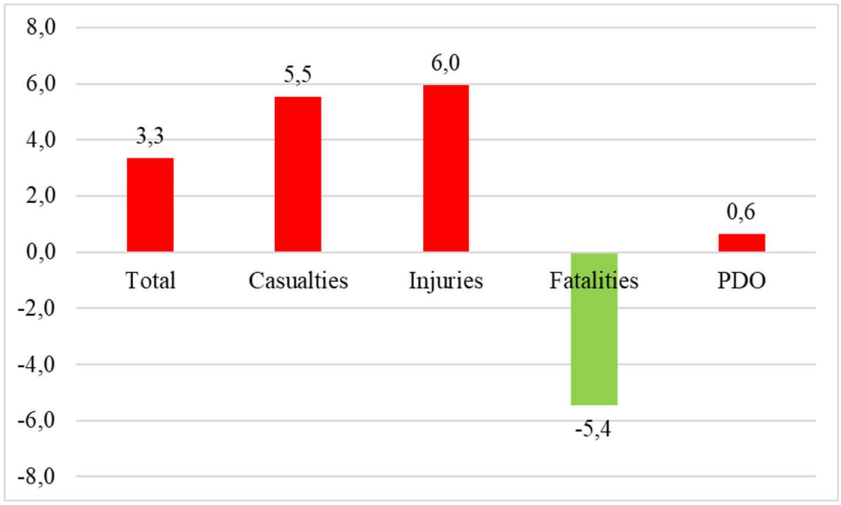


Fig. 1 The value of the changes (%) in the number of road traffic crashes, APV, 2025 compared to the 2020–2024 average

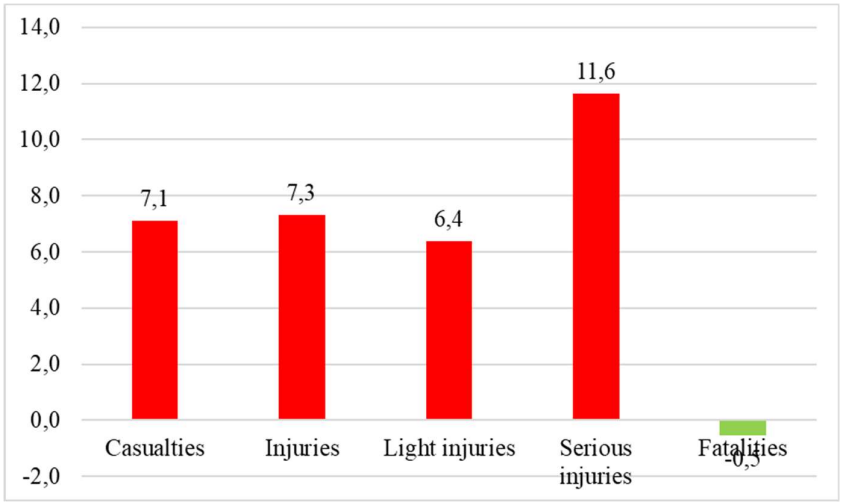


Fig. 2 The value of the changes (%) in the number of road traffic crash consequences, APV, 2025 compared to the 2020–2024 average

In 2025, the number of casualties among drivers and passengers increased compared to the 2020–2024 average (Table 3 and Fig. 3).

Specifically, driver casualties rose by 8,1%, while those among passengers grew by 7,5%. Conversely, the number of pedestrian casualties declined by 4,5%.

Table 3. Changes in the number of casualties by road user category, APV, 2025 compared to the 2020–2024 average

Road user category	Period 2020-2024.						2025	Changes	
	20220	2021	2022	2023	2024	Average		N	%
Driver	3039	3426	3372	3425	3648	3.382	3657	275	8,1
Pedestrian	407	567	537	588	518	523	500	-23	-4,5
Passenger	1542	1738	1788	1692	1786	1.709	1837	128	7,5

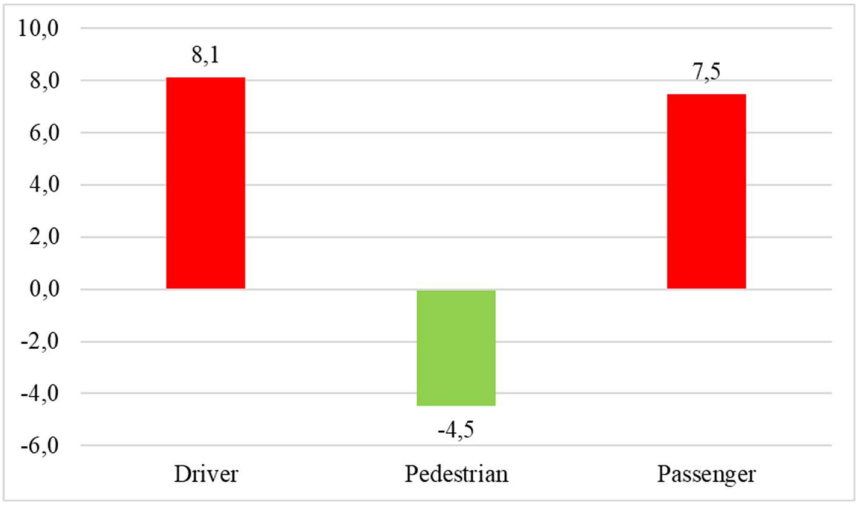


Fig. 3 The value of the changes (%) in the number of road traffic crash casualties by road user category, APV, 2025 compared to the 2020–2024 average

In 2025, casualties among passenger car drivers and cyclists increased by 6,8% and 5,9%, respectively, while those among motorcycle and tractor drivers surged by 31,3% and 28,6%. Conversely, moped rider casualties declined by 8,5% (Table 4 and Fig. 4).

Table 4. Changes in the number of casualties drivers by type of vehicle, APV, 2025 compared to the 2020-2024 average.

Vehicle	Period 2020-2024.						2025	Changes	
	2020	2021	2022	2023	2024	Average		N	%
Passenger car	1882	2177	2117	2045	2167	2.078	2218	140	6,8
Bicycle	668	707	695	779	820	734	777	43	5,9
Goods	171	197	211	212	204	199	200	1	0,5
Motorcycle	173	185	178	254	276	213	280	67	31,3
Moped	102	114	111	83	87	99	91	-8	-8,5
Tractor	24	29	27	25	35	28	36	8	28,6

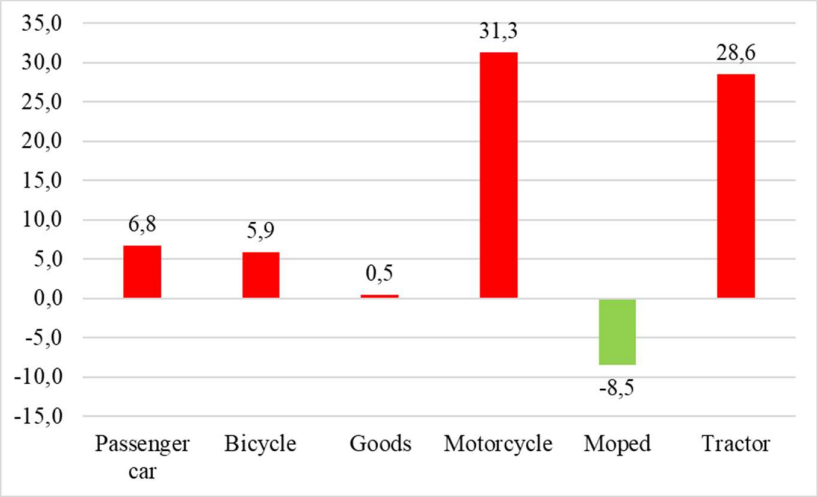


Fig. 4 The value of the changes (%) in the number of casualties drivers by type of vehicle, APV, 2025 compared to the 2020–2024 average

In 2025, casualties increased across all analyzed age groups (Table 5 and Fig. 5). Specifically, the number of casualties rose by 2,5% among children up to 14, by 8,6% within the 15-30 cohort, and by a marginal 0,4% for the 65-and-older population.

Table 5. Changes in the number of casualties by age group, APV, 2025 compared to the 2020-2024 average.

Age group	Period 2020-2024.						2025	Changes	
	2020	2021	2022	2023	2024	Average		N	%
0-14	295	347	387	385	425	368	377	9	2,5
15-30	1539	1885	1788	1634	1804	1.730	1878	148	8,6
65 and older	599	722	746	825	883	755	758	3	0,4

In 2025, the number of male casualties rose by 2,7%, while female casualties experienced a much sharper increase of 13,8% (Table 6 and Fig. 6)

Tabela 6. Changes in the number of casualties by gender, APV, 2025 compared to the 2020-2024 average.

Gender	Period 2020-2024.						2025	Changes	
	2020	2021	2022	2023	2024	Average		N	%
Male	3065	3494	3410	3378	3524	3.374	3465	91	2,7
Female	1927	2243	2296	2335	2432	2.247	2556	309	13,8

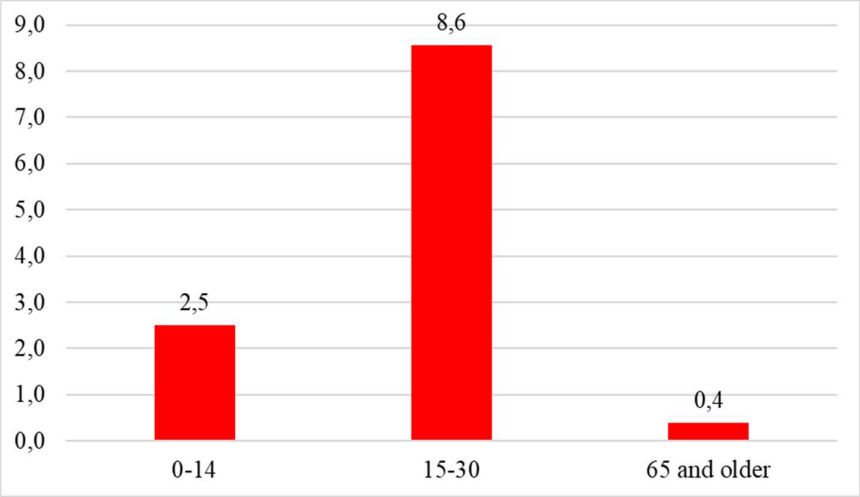


Fig. 5 The value of the changes (%) in the number of casualties by age group, APV, 2025 compared to the 2020–2024 average

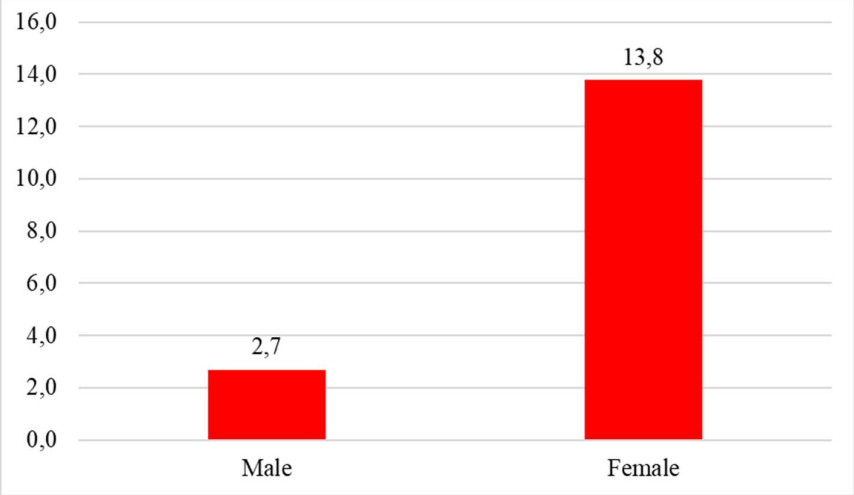


Fig. 6 The value of the changes (%) in the number of casualties by gender, APV, 2025 compared to the 2020–2024 average.

4. CONCLUSION

The evidence from 2025 reveals a critical shift in the road safety landscape of AP Vojvodina. While fatalities experienced a marginal decline (0,5%), this positive trend is heavily overshadowed by a comprehensive escalation in both crashes and casualties. The 3,3% rise in total road crashes and the 11,6% surge in serious injuries indicate that the overall severity of non-fatal crashes has intensified.

Demographically and operationally, the data points to specific high-risk areas: the alarming spike in motorcycle and tractor driver casualties (31,3% and 28,6% respectively), alongside a disproportionate 13,8% increase in female casualties, underscores an urgent need to modernize current protective systems.

These findings suggest that existing traffic safety management measures are failing to contain rising risks, necessitating targeted, data-driven interventions for vulnerable road users.

Continuous evaluation of road safety conditions and trends constitutes the foundational step in the safety management process. A precise understanding of historical and current trends is essential for high-quality, evidence-based decision-making on how to systematically improve safety outcomes.

Furthermore, analyzing changes in absolute indicators helps strengthen public attitudes, awareness, and perceptions regarding strategic achievements and the potential for meeting defined safety goals. This underscores the vital importance of such analyses, demonstrating that they must be systematically conducted across all levels of social organization.

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