Road Safety Audit Based on the Results of 2019

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Abstract. The article analyzes the accident rate in various regions of the Russian Federation based on the results of the five-year period 2015-2019, the main periods of time are identified for which a significant number of road accidents are characteristic. The main directions of activities to reduce the accident rate in certain periods of time are determined, practical recommendations and solutions are proposed. In general, the use of a detailed approach to the analysis of accidents makes it possible to concretize certain types of incidents and develop measures to reduce or completely eliminate them.

1. Introduction
In the modern world, almost every day, people are faced with various types of vehicles: cars, trucks, passenger and air. According to the statistics of accidents, the most dangerous type of transport is automobile, since it is the car that is the most common mode of transport among all available ones. One of the reasons for the widespread use of the car is its affordability. In addition, the advantages are comfort, speed of movement and the ability to travel at any time of the day or night. Due to the rapid growth of personal vehicles, statistics on road traffic accidents are changing.

A road traffic accident (RTA) is an event that has arisen during the movement of a vehicle on the road and with its participation, in which people are killed or injured, vehicles, structures, cargo, the environment are damaged, or other material damage is caused [1-3].

According to research, RTA accidents can be influenced by factors such as visibility on the road, the physical and psychological condition of the driver, and the time of day. The State Traffic Safety Inspectorate of Russia on the official website of the department publishes reports on the number of accidents and victims. According to numerous statistics, it can be concluded that the largest number of fatal accidents was recorded in the dark, namely in the period from 19 to 22 pm [4].

2. Theoretical part
This paper analyzes the number of road accidents in the Belgorod and Voronezh regions, over the past 5 years, during the day.

The aim of the study is to develop approaches to reducing the accident rate during "peak" periods.
Analyzing figure 1, it is immediately noticeable that closer to the evening rush hour, the number of accidents increases significantly. Only after midnight does the accident rate decline sharply. Perhaps this is due to the fact that many city enterprises are closed during this period of time. In the Belgorod region, the largest number of accidents occurs during the evening rush hour, namely from 17 to 20 pm. In total, 1,323 incidents occurred in the Belgorod region for the period of 2019. The average incidents are 55 incidents per hour. The maximum number of incidents per hour occurred in the period from 5 pm to 6 pm and amounted to 111 incidents. The minimum number was recorded from 04 to 05 am and is 9 cases.

Analyzing figure 2, it can also be seen that the peak of incidents falls on the period from 6 pm to 8 pm. In the Voronezh region in 2019, a total of 3115 incidents occurred. The average is 129 incidents. Looking at the graph, you can see that the maximum number of incidents occurs from 5 pm to 6 pm and is 226 incidents. The minimum was recorded from 05 to 06 am and amounted to 43 incidents. If we compare the selected regions, it is noticeable that in the Voronezh region there were 1792 more accidents, but the greatest accident rate in both regions occurs at the same time, namely at the evening rush hour from 17 to 18 hours.

**Figure 1.** The graph of the dependence of the number of accidents on the time of day in the Belgorod region.
After the analysis, it can be concluded that the greatest accident rate falls on the time interval from 17 to 18 hours. You can also notice that, starting at 5 am, the number of incidents increases throughout the day, practically without recessions. Only after passing the evening rush hour, namely 20 hours, the number of accidents begins to decline rapidly, up to 5 am.

3. Practical part

After analyzing the selected areas, the best solution would be to improve a number of measures to reduce the accident rate in the evening rush hour [5-7]. Such activities are: the active creation of a propaganda system in order to form a negative attitude towards offenses in the field of road traffic, the formation of children's safe behavior skills on the roads, an increase in driving culture, as well as increased requirements for the training of drivers to obtain the right to drive vehicles and requirements for driving schools performing such training.

Thus, for example, activities to develop a system for organizing the movement of vehicles and pedestrians, to improve traffic safety, provides for the safe participation of pedestrians in road traffic, as well as the elimination and prevention of dangerous traffic areas, traffic jams and congestion, the organization of transport planning in order to ensure safe and efficient road traffic, development of intelligent traffic systems, ensuring passive safety of road traffic and road infrastructure after accidents [8-11].

All measures are aimed at the development of the systems listed above, at ensuring the safe participation of children in road traffic, as well as at increasing the level of the technical condition of the vehicles in use.
First of all, in order to significantly reduce the number of accidents on the roads, it is necessary to conduct an analysis on the basis of which it is possible to more accurately understand how the number of accidents changes during the day, over several years. After that, on the basis of the data obtained, various measures can be introduced to reduce the accident rate at certain time intervals. Road safety is currently a difficult task that requires careful analysis, detailed research and effective solutions.

The main tasks and functions of the Office are:
1. prevention of road accidents and reducing the severity of their consequences in order to protect the life, health and property of citizens, protect their rights and legitimate interests, as well as protect the interests of society and the state;
2. coordination, within the limits of the powers granted, of the activities of the executive authorities of the constituent entities of the Russian Federation, aimed at preventing road accidents, reducing the severity of their consequences;
3. Operational management of the activities of the subdivisions of the state traffic safety inspectorate of Russia to fulfill the functions assigned to them to ensure road safety, to participate in measures to protect public order and ensure public safety;
4. organizational and methodological support of the activities of the traffic police units of the territorial bodies of internal affairs of the region.
4. Conclusions
Evaluation of statistical data is one of the constituent parts in the organization and maintenance of road safety. After all, thanks to the analysis of statistics, it is possible to assess the accident rate, as well as the number of incidents and their causes. Thus, we can identify the main factors that significantly affect the risk of accidents when solving the problem of improving road safety.

In order to significantly reduce the number of accidents on the roads, it is necessary to conduct an analysis, according to data taken from the State Statistics, on the basis of which conclusions can be drawn about how the number of accidents changes over several years, and whether there is a dependence of the number of accidents on time days.

After analyzing all the data, it is possible to determine the mathematical dependence of such quantities as the number of accidents on the time of day, in order to determine and further develop measures to reduce the accident rate at certain time intervals.

5. References
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