

## The actions aimed to prevent traffic accidents

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**Abstract-** In Russia an accident rate of motor transport is the most actual social and economic issue. The main objective of the enterprise, carrying out transportation of goods, safety of transportations is. Growth rates of vehicle fleet exceed rates of development of a street road network twice. Many of federal and regional roads not fully conform to requirements of the specifications and technical documentation. About 80% of road accidents are made because of violations by drivers of the traffic regulation. At the same time the developed system of the state, and also public impact on consciousness of participants of traffic remains inefficient, also quality of preparation of driver's shots is unsatisfactory.

**Keywords:** Traffic accident, traffic safety, actions, accident rate, traffic operations.

### Introduction

In Russia an accident rate of transport is the most acute social and economic issue.

It should be noted a number of the factors carrying both objective, and subjective character which interfere with achievement of positive shifts in the solution of problems of safety of traffic.

Legislative and other standard and legal, and also normative and technical base doesn't allow to create optimum structure of public administration now, to introduce modern forms and methods of activity in the field of traffic safety.

### Literature review

About 80% of road accidents occur due to violations of traffic rules by drivers. At the same time the existing system of state and social impact on the consciousness of road remains ineffective, is unsatisfactory and the quality of driver training.

The growth rate of the fleet is 2 times higher than the rate of development of the road network. Many of the federal and regional roads are not fully meet the requirements of regulatory and technical documentation.

System engineering and technical support activities in the field of road safety is inadequate to the needs of road users [5].

The technical condition of motor vehicles, as well as the level of active, passive and post-accident safety of vehicles are currently still insufficient.

Low efficiency provide first aid to victims of road accidents, lack of required number of modern means of communication and emergency evacuation lead to an increase in the number of fatalities.

Road safety is achieved as a result of certain activities covered by the concept of traffic management [3, 4, 6].

Analysis of legal and professional literature in the field of road safety, allows us to formulate the main measures to prevent traffic accidents and eliminating the causes and conditions conducive to their occurrence [1, 3]:

- improving training for drivers of vehicles;
- improvement of governance in the field of road safety;
- strengthening the legal responsibility for violations of traffic rules;
- improvement of the activities for the prevention of road traffic injuries;
- improvement of road infrastructure;
- improving the technical condition of vehicles;
- improving the provision of pre-hospital and emergency medical assistance to victims of road accidents.

Measures to improve the organization of road safety are presented in fig. 1:

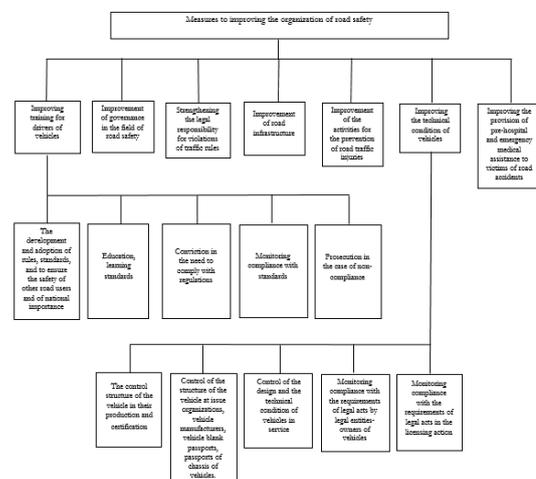


Fig. 1. Main actions to prevent traffic accidents

## Methods and materials

To determine the effectiveness of road safety using the method of comparative analysis of changes in the number of accidents, fatalities, injuries and the size of the social and material damage for a certain period before and after the event and calculate the average reduction in the number of road accident  $\Delta k$  as a result of these actions. At the same time it's necessary to take into account the changes in the average intensity of traffic on the stretch of the street or road [7].

On the basis of statistical studies can be determined by the expected effect of reducing the number of accidents as a result of events that have been effective in similar places. Calculated values of each event are probabilistic in nature. They are used in the planning of events and to determine their expected effectiveness. To improve the reliability of the data most appropriate previous and subsequent period is a period of 1 to 3 years [2].

The number of traffic accidents that can be prevented as a result of actions realization,  $\Delta A$  is defined according to the formula:

$$\Delta A = \Delta k B, \quad (1)$$

where  $\Delta k$  – reduction Indicator  $\Delta k$  of traffic accidents; B – an average number of accidents before actions realization.

Under undertaking of several actions to raise traffic safety, an expected reduction of traffic accidents is defined according to the formula (Gubonkov O.E.2006):

$$\Delta k = 1 - (1 - \Delta k_1)(1 - \Delta k_2)(1 - \Delta k_3) \dots (1 - \Delta k_n), \quad (2)$$

where  $\Delta k_1, \Delta k_2, \dots, \Delta k_n$  – expected reduction over the year of actions realization correspondingly 1,2,...,n-action that are presented in the tab.1.

Tab. 1. Reduction Indicator  $\Delta k$  of traffic accidents

Actions to prevent actions rate	For transport	For pedestrians
Introduction of traffic light regulation at the intersection	0,3	0,3
Installation of traffic light regulation on an adjunction	0,1	0,1
Installation of traffic lights at the crosswalk	0,05	0,25
Replacement of the H-shaped intersection by an outcome with a roundabout	0,3	0,115
Construction of the central dividing strip on the main road	0,2	0,2
Construction of the underground (elevated) crosswalk	0,3	0,4
Safety island device	1	0,2
Channeling of channels of vehicles at the intersection by means of the directing islands	0,1	0,1
Construction of an outcome in two levels for the transport and pedestrians	1	0,5

Physical restriction of speed of the movement, km/h		
from 60 to 50	0,09	0,09
from 50 to 40	0,09	0,09
from 40 to 30	0,09	0,09
Installation of the sign STOP on crossing	0,15	0,15
Installation of the sign STOP at the intersection	0,05	0,05

## Results and discussion

Development and deployment of the most effective measures directed on decrease in social and economic losses from accident rate demand joint efforts of all branches of the government, local governments and public associations with broad support of the taken measures by society in general.

World experience testifies to need complex to the solution of various problems in the field of traffic safety. In the developed countries coordination of works on prevention of accident rate is carried out by the relevant committees, bureau, councils [8].

In the Russian Federation active steps are taken for elaboration of uniform approach to planning and implementation of actions, for the prevention of road accidents and decrease in weight of their consequences now. For this purpose coordination of activity of federal and regional executive authorities in the field of traffic safety by the resolution of the government of the Russian Federation of October 19, 2004 is assigned No. 567 to the Ministry of Internal Affairs of Russia.

The Federal law "About traffic safety" as its provisions don't consider many basic changes which happened both in the field of traffic and during administrative reform demands processing.

In the called law competence of government bodies of executive power, local government and public associations of the sphere of safety of traffic is properly not established, the mechanism of realization of the main activities isn't defined.

## Conclusion

Researches conducted in Russia have showed that under standard actions realization more than five distribution of number of complexes of actions at change of the expected reduction of damage submits to the normal law. Thus the maximum opportunities of reduction of accident rate make 60–80%, target indicators of reduction of accident rate in the centers are in limits of 30-50%.

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