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| Research Article

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Requirements for Road Factors on Motorways

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Abstract: The reliability of a road as an integrated transport structure is its ability to ensure the safe designed movement of traffic flow at an average speed close to optimal during the standard or specified service life of the road, with sufficient values of other indicators.

The criteria for the reliability of highways are:

and comfortable movement of vehicles ;

- suitability for use as a condition of the road that performs the functions specified by the parameters specified in the requirements of the technical documentation;
- level of safety margin for permeability and strength of the road surface;
- adapting the structure to identify and prevent the causes of breakdowns, damage and eliminate their consequences through repair and maintenance.

Key words: drivers, speed, road, vehicles, Environmental factors, traffic flow, Speed limit, roadway.

Introduction; Geometric parameters of the road . These parts are important factors affecting traffic safety. For example, if the width of the road strip outside the settlement is 3 m , then safety during oncoming traffic is ensured only at low speeds. Otherwise, a collision or vehicles may leave the roadway. On roads of lower categories, the shoulder does not have an improved surface, so driving on it can lead to a car sliding to the side and overturning. If the width of the lane is 3.5 m, the safety of passage increases significantly. A traffic strip with a width of 3.75 m allows both vehicles to pass oncoming vehicles without reducing speed, even if they are close to the limit. To better guide drivers to the right edge of the road and to preserve the road surface on new roads, curbs up to 0.75 m wide are laid along the road, but the driver can safely move only at the very edge of the road sections. On highways with a median strip, curbs are installed on both sides. On roads with different driving conditions (sharp turns, slopes alternating with straight sections), the relative number of accidents is higher than on roads providing smooth and calm driving conditions. According to statistics, the number of accidents increases with an increase in the number of intersections and crossings per 1 km of road, since the likelihood of incorrect

assessment of the situation and driver errors increases. As the density of intersections and crossings with the main road increases, the risk of accidents for pedestrians and cyclists increases, compared to other road users.

Methods

The main risk factors for road accidents related to the regulation of intersections include the number of intersecting roads, the proportion of vehicles entering the main road from secondary roads, the method of organizing traffic at the intersection, the speed limit, the technical equipment of vehicles at the intersection and the quality of its maintenance.

Environmental factors that increase the risk of accidents include darkness, adverse weather conditions, unsafe road conditions, traffic congestion, and road maintenance. These factors are associated with road factors that increase the number of accidents .

Adverse weather conditions. Statistics confirm an increase in the number of road accidents during precipitation.

Road surface condition . On a slippery road, the risk of an accident increases immediately after the onset of ice.

As drivers adapt to difficult road conditions, the number of accidents gradually decreases, and the impact of adverse external factors decreases. Uneven road surfaces, combined with adverse weather conditions, increase the risk of accidents . Carrying out road repair work. The presence of areas where road repair work is being carried out on the road impedes the smooth movement of traffic flow and limits the capacity of the road. This area can become congested possible, which increases the risk of accidents. Roadworks act as a surprise factor for the driver , which is especially dangerous in an area that the driver uses every day.

Results; The quality, reliability and condition of the road surface have a significant impact on road safety. Road factors include:

Type and geometric parameters of the road - road width, number of intersections, level of arrangement of intersections and traffic islands, correctness of markings, speed of movement (categories of highways, federal, regional and local roads), etc.

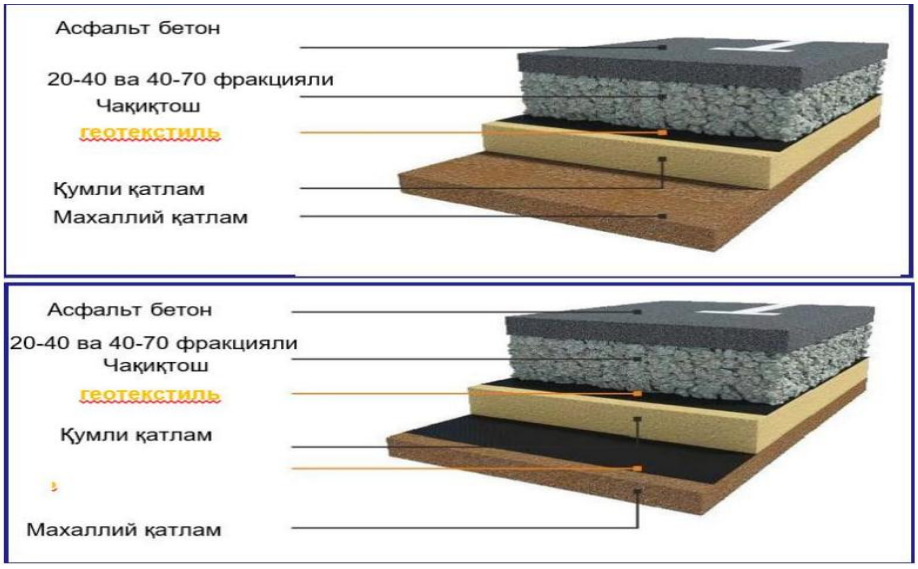

Figure 1. Condition of the road surface.

Speed limit compliance - for each category and geometry of roads, there is an optimal safe speed limit at which the number of accidents is reduced or at least does not increase.

The material of the road surface - the traction of the car's wheels with the road depends on it , and therefore the level of accident risk. Asphalt concrete, gravel and soil grip car tires differently, and also change their technical characteristics in different weather conditions. The condition of the road surface affects the adhesion of car wheels to the asphalt, road stability and vehicle maneuverability. The risk of an accident increases to the maximum on an icy and snowy road , the second most dangerous is a wet road, the third is a road with an uneven surface.

Discussion; The influence of the road factor affects not only the safe conditions and driving modes of a single vehicle, but also the interaction of vehicles in the traffic flow. Therefore, it is necessary to study the characteristics of changes in the main signs of road traffic - intensity, speed, density.

Traffic intensity - the number of vehicles passing any section or segment of the road per unit of time. Often, one hour is taken as the time period, and accordingly, traffic intensity is determined as vehicles per hour. Data on daily and average annual traffic intensity are used to solve some problems.

One of the main features of the change in traffic intensity is its unevenness in time and space. The change in traffic intensity during the day is characterized, first of all, by the presence of morning and evening rush hours. During these time periods , there is a large load, which creates significant problems for road users. The traffic load during rush hours is about 15% of the daily traffic load . A typical graph of the change in traffic intensity during the day is shown in Fig.

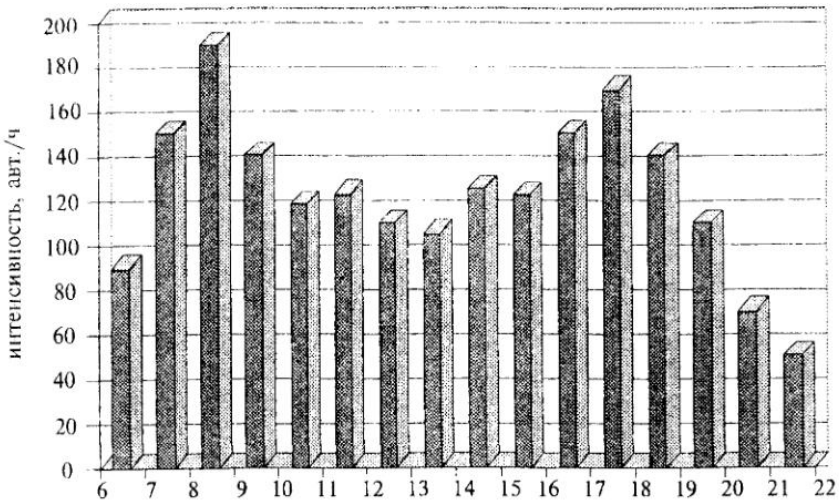

Figure 2. Typical histogram of movement intensity changes depending on the time of day .

Significantly affects the conditions and methods of movement of vehicles . Numerous studies have shown that the composition of the traffic flow reduces the level of road safety. An analysis of road accidents in Uzbekistan showed that on highways with a homogeneous composition of the traffic flow, the specific number of road accidents per kilometer (accidents/million km) is 4-5 times lower than on streets with a reduced number of accidents. 40-45% of trucks .

The density of the traffic flow is determined by the number of vehicles per 1 km of roadway. The unit of measurement of the density of the traffic flow is vehicles/km. With an increase in the density of the traffic flow, the distance between cars decreases, the speed of movement decreases, the driver's work intensity increases , and traffic conditions worsen. The maximum density of the traffic flow is reached in traffic jams. The numerical values of the maximum density are determined by the composition of the flow. For a mixed traffic flow, this is approximately 100 vehicles/km , for mainly passenger cars - up to 150 vehicles/km.

on how road factors can ensure road safety :

Further improvement of road surface: The quality, organization and well-being of the road surface are important factors in ensuring road safety. On soft, bumpy or flooded roads, vehicle control becomes difficult and stops take longer. Therefore, the road surface should be flat, dry and durable. Proper side shoulders, adequate maintenance and cleanliness should be provided on the sides of the road.

Conclusion; Road signs: Road signs, lines and traffic signs are a key component of road safety. Road signs should be clear, visible and correctly positioned. They provide important information to users about directions, warnings of dangerous areas and restrictions on the movement of vehicles. Obscured, poorly visible or incorrectly installed road signs can cause dangerous situations.

Road lighting: The road lighting system must ensure the safety of road traffic, especially at night and in the dark. The normal operation of the road lighting network, the quality of lighting equipment and the lighting power must be sufficient. In dark or poorly lit areas, vehicles cannot see people and other objects, which can lead to harmful consequences.

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