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IMPROVEMENT OF THE OPERATIONAL CONDITION OF BRIDGES IN THE REPUBLIC OF KARAKALPAKSTAN

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Abstract:

In this article, we will give an idea of improving the operational condition of bridges.

Keywords: *Construction of roads, highways, bridges, motorways, overpasses.*

Today, the main task of the road construction industry, which is directly related to the development of the national economy, is to radically improve the condition of bridge structures on highways and their operation in accordance with modern requirements.

In total, there are more than 14 thousand bridges in Uzbekistan, of which 68%, that is, 9900, were built in the 60 – 70s of the 20th century. For this reason, today more than 5,476 bridges are under repair.

In the context of the rapid development of the global technical economy, including the technical economy of our country, the mass and intensity of traffic of vehicles is increasing. In the QMS 05.03 – 97 "Bridges and pipes" adopted in 1997, a-11, NK -80 and pedestrian were adopted as the main temporary loads in the design of automobile bridges and overpasses. In 2012, these rules were amended, and a-14, NK-100 and pedestrian were adopted as temporary cargo in the new, currently operating SHNK 05.03-12 "bridges and pipes", i.e. the class of temporary cargo was significantly increased.

An increase in the class of temporary loads falling on automobile bridges and overpasses, in turn, leads to the fact that the bearing capacity of the head beams of the intermediate device is insufficient to transfer modern loads. This leads to restrictions on the passage of modern goods over bridges and overpasses located on motorways. It has become known from research that the service life of bridges and overpasses may be reduced by about 50% if the transfer of modern goods from these transport facilities in operation continues. This leads to significant economic losses.

The fabric of road bridges and overpasses is the construction of these structures with direct impact of vehicles, and in the process of operation, the canvas elements largely belong to the type of delicate structural elements.

The reliability of the bridge elements, especially the roadway structure, largely depends on the materials used in this structure, their laying technology and many other similar factors. In addition, one of the most significant factors affecting the bridge's load capacity is the regulatory and design loads coming from vehicles adopted in current regulations.

At this stage, it is possible to list the reasons for the unsatisfactory condition of bridges and overpasses located on motorways:

insufficient capacity of a large number of bridge structures, especially near regional and regional centers and other large cities;

insufficient load capacity of bridge structures or modern load capacity;

the magnitude of higher erosion rates, which continue to shorten the service life of structures;

The occurrence of defects that occur during operation largely depends on the imperfection of the properties of reinforced concrete elements, as well as on the level of temporary loads during the operation of bridges.

Therefore, conducting research aimed at assessing the impact of modern transport loads, including large and heavy loads, on the construction of automobile bridges and overpasses is one of the urgent issues today.

As mentioned above, a very large part of the reinforced concrete bridges currently in operation on the highways of our country are not intended for the transportation of temporary goods adopted recently, and maintaining the load capacity of these structures in the most economically acceptable solutions is an important task of our national bridge builders, as well as organizations responsible for the operation of these bridges.

Currently, in our republic, in the practice of increasing the load capacity of operated bridge structures, the replacement of head beams of intermediate devices with beams manufactured at factories or landfills according to new regulatory load classes is used, i.e. complete removal (reconstruction) of operated intermediate devices and their replacement with beams a-14, NK-100 according to the latest version of SNK 2.05.03-12. It is calculated according to the load class and to replace the finished intermediate devices. The design of the roadway remains unchanged, i.e. a leveling layer 2-3 cm thick, waterproofing 1-2 cm thick, and a protective layer 4-5 cm thick are laid on the headboards of the intermediate devices.

On our part, in order to increase the bearing capacity of the intermediate device and adapt it to modern loads, it was proposed in the proposed way to increase their bearing capacity by laying a layer of self-supporting concrete on top of the head beams of the bridge intermediate device in operation.