

CURRENT STATE AND PROSPECTS FOR THE DEVELOPMENT OF BRIDGE CONSTRUCTION IN TURKMENISTAN

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Abstract: *the current state of affairs in the field of construction of bridge structures in Turkmenistan is shown. A conclusion is made about the prospects for further work on the introduction of innovative technologies in relation to domestic bridge construction.*

Keywords: *transport industry, bridge structures, modern technologies.*

The total length of highways in Turkmenistan is more than 14,000 kilometers. Highways in our country are both being built and reconstructed, where modern bridge structures are also being built. The Turkmenavtoyollary State Concern is doing a lot of work in this direction. Thus, about 30 bridges were built on the Turkmenbashi-Ashgabat highway. 12 bridges were built on the Ashgabat-Mary highway, and 62 bridges were put into operation on the section from Archman to Turkmenbashi.

The transport infrastructure of the Turkmen capital is actively developing. The key object of the city's transport infrastructure is the International Airport, the original appearance of which has become the new calling card of Ashgabat. The International Passenger Auto Terminal is located in the northern part of the city, and the future highway to Turkmenbashi, 562 kilometers long, will also run. The width of its road with 6 lanes is 34.5 meters. In total, 12 overpasses and 217 reinforced concrete bridges will be built along the route. The potential of the developing multimodal transport system of Turkmenistan is high. The Ashgabat-Karakum-Dashoguz railway, about 600 kilometers long, runs north of the capital through the Karakum desert and a highway runs parallel to it.

The implementation of large transport projects makes reality the idea of diversifying and optimizing the transport system on the Eurasian continent, which will involve more and more new geographical spaces, economic and production centers. This will inevitably entail an increase in business activity, an influx of large investments, and the creation of jobs.

In independent and neutral Turkmenistan, the Turkmenabat-Farab railway and road bridges were put into operation, which are key elements of the country's transport infrastructure, reviving the Great Silk Road in a new quality. Thus, the

territory of Central Asia is step by step becoming one of the most important transport and transit crossroads of the continent [1, 2].

This railway bridge has a length of 1750 meters. This is a category I overpass with a width of about 6 meters, built using the most advanced technologies in the field of global bridge construction, adapted to the conditions of the Amu Darya with its strong current and other “whims”. Designs of increased seismic resistance and operational strength were used, designed for super-heavy freight trains. The underbridge navigation clearance is 10 meters in height and 60 meters in width. The bridge spans are supported by 18 reinforced concrete supports, of which 16 are built at various water depths and 2 supports are located on the banks of the river.

Reinforced concrete piles with a diameter of about two meters each, made of monolithic high-quality concrete and durable reinforcement structures, evenly distribute the load on the supports, which entered the ground from the bottom of the river more than 40 meters deep. To protect against abrasion by sediments within the river bed, the piles are located inside glass-polyester pipes, the total length of which was about 7,000 meters. Crossbars are installed in the upper part of the supports. Over 500 thousand cubic meters of high-quality concrete were used to construct bored piles with a total length of about 18,000 meters and supports for the railway bridge.

A full range of technological operations was carried out for anti-corrosion protection of supports and spans, straightening and balancing of the upper structure of the tracks, including at the approaches to the bridge, which in total amount to about 2 kilometers. The latest alarm, communication and broadcasting systems, fire water supply, and air duct have been installed. An operational area for maintenance personnel of a unique engineering structure was built. In addition, a large complex of concrete bank protection works was carried out on both banks of the Amu Darya within the radius of the railway bridge [3].

The length of the road bridge is 1600 meters; it was built downstream of the river, 450 meters from the railway. The most modern designs and advanced technologies that have no analogues in the Central Asian region were used here. The design of the road bridge takes into account such operational and technical characteristics as: load capacity, speed, use of all high-strength structures, high seismic resistance. The bridge is designed to withstand earthquakes measuring 9 on the Richter scale. A large complex of scientific and survey, geophysical, geological, engineering, technical and construction work was carried out with high quality. Using bored technology, 17 powerful supports were built from high-quality concrete and reinforcement. Powerful foundations for multi-ton steel bridge structures are based on the supports. The roadway of the bridge, consisting of four lanes, is 21.5 meters wide.

To ensure the safe movement of vehicles at the approaches to the bridge, ramped road junctions with a length of 6 kilometers have been made, which will

allow cars entering and leaving the side tracks to change the direction of movement without entering the oncoming lane. On both sides of the bridge there are pedestrian paths with metal fences 1.5 meters. The road surface of the bridge consists of a cutting-edge polymer material called matacryl, which is characterized by high strength, durability, resistance to ultraviolet radiation and, at the same time, thin layers and low weight compared to asphalt concrete.

A significant factor is that it will be possible to access the left bank side of the road bridge not only from Turkmenabat, but also along a new wide highway laid from the nearby Serdarabat etrap. Transit heavy trucks will travel along this road, without entering the administrative center and without congesting city streets, to the new Turkmenabat-Farab road bridge. The highest requirements for the quality of construction and operational parameters are typical for all such facilities in Turkmenistan, where large-scale programs are being implemented to develop all types of transport communications, including road transport, and a huge amount of work is being done to develop road infrastructure.

In a short period of time - 2009-2016, only in Lebap velayat, ultra-modern road bridges Atamurat-Kerkichi, Seydi-Eljik, the Atamurat-Kerkichi railway bridge, and the interstate railway Atamurat-Imamnazar-Akina with a length of 88 kilometers were put into operation across the full-flowing Amudarya River. The development of the transport infrastructure of Lebap velayat is associated with the industrial diversification of this region, one of the points of industrial growth of which is the Garlyk mining and processing plant.

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