

Providing citizens of the country with transport infrastructure facilities (on the example of the city of Tyumen)

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Abstract. The problems of citizens in providing them with transport infrastructure are considered on the example of the city of Tyumen, the solution of which is possible within the framework of the country's transport strategy. In addition to the directions for improving the quality of life of the citizens of the country, depending on the transport complex, highlighted in the country's transport strategy, an additional direction is proposed. Providing citizens of the country with comfortable conditions and the availability of the use of transport infrastructure facilities created in connection with the provision of other subjects with transport infrastructure facilities must be considered comprehensively. In particular, in conjunction with the directions of providing other subjects (cargo owners, transport industry enterprises and their investors, the state) with transport infrastructure facilities. The study of the approach under consideration will reduce the risks of improper operation of transport infrastructure facilities in the long term, prevent inconvenience to the population in connection with the operation of facilities, and reduce financial costs for repair and restoration work of facilities.

1 Introduction

Providing a set of material and technical systems of transport for citizens of the country in order to carry out their economic and non-economic activities is possible through a constantly developing transport infrastructure [1, p. 31], the classification of objects of which is carried out according to types and functions [2, p. 48]. The dependence of the quality of life of citizens of the country on the development of transport infrastructure is obvious, it is determined by the components that characterize the availability and quality of transport services.

Evolutionary processes in the transport infrastructure system are determined by the country's transport strategy, the priority of which is to ensure its national interests. The existing transport infrastructure in the country is also determined by regional features [3, p. 90], which predetermines differences in its functioning and modernization.

The efficiency of the transport infrastructure system created to improve the quality of life of citizens is characterized by the comfort of the conditions for its use and the absence of

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shortcomings identified during the operation of infrastructure facilities. State control over the functioning of the transport infrastructure system should be verifiable, timely and comprehensive, including at the regional level.

2 Materials and methods

The directions of development of the transport infrastructure for the life support of the citizens of the country are different from the vectors of development of providing the transport complex with other subjects: cargo owners, enterprises of the transport industry, the state. The connecting goal of the country's transport strategy is the formation of a single transport network. In this regard, the relevance of scientific research in the field of formation and development of transport infrastructure for the life support of citizens of the country is aimed at creating conditions conducive to the simultaneous implementation of the directions of development of the system for all its subjects. Compliance with the interests of all subjects should be carried out at the stage of planning and developing schemes for the development of transport infrastructure, including on the basis of the experience of operating infrastructure facilities in the regions. The influence of transport infrastructure on the sectoral development of the region is interdependent. The complexity of organizing a transport infrastructure system determines the complexity of fulfilling functional tasks to ensure a balanced provision of the rights of all subjects to favorable, safe conditions for using infrastructure facilities.

On the basis of the conducted research, significant problems are identified that affect the provision of citizens of the country with material and technical systems of transport, a direction is proposed for the development of transport infrastructure facilities in order to improve the quality of life of citizens. An empirical assessment of the identified problems was carried out through continuous monitoring of precedents of violation of the interests of the population of the city of Tyumen in the field of transport infrastructure, published by the media, as well as by conducting a population survey. The survey methodology was to identify the most significant problems for the population in providing them with transport infrastructure and its accessibility.

3 Results

An analysis of the empirical base made it possible to formulate the following problems identified by citizens in providing them with urban transport infrastructure:

- inconvenient public transport (in order to preserve the environment, it is necessary to switch to electric buses);
- the need for several transfers on the way to work, which increases the final fare and increases the duration of the trip;
- insufficient number and small size of public transport, which leads to its overcrowding, the difficulty of traveling with a stroller, the length of waiting for transport;
- unavailability of public transport after 20:00 due to the reduced mode of its operation in the evening;
- annual increase in public transport fares.

The solution to these problems can be the implementation of the country's transport strategy (hereinafter referred to as the Strategy)(Decree of the Government of the Russian Federation of November 27, 2021 N 3363-r "On the Transport Strategy of the Russian Federation until 2030 with a forecast for the period until 2035"). Priority areas for providing citizens of the country in the transport infrastructure are defined in the Strategy, which can be presented as follows (table 1).

Table 1. Directions for the development of transport infrastructure for citizens of the country.

Improving transport accessibility	Improving the quality of transport services	Creation of transport infrastructure
Improving transport accessibility for citizens of socio-economic, tourist and cultural centers	Improving the quality of transport services in terms of comfort and safety of transportation while minimizing the negative impact on the environment while maintaining the affordability of transportation	Creation of transport infrastructure for the development of domestic tourism
Increasing the availability of transport services for residents of remote, hard-to-reach and geostrategic territories	Improving the quality of transport services in terms of the speed of passenger service and, as a result, increasing the mobility of the population	

As can be seen from the presented table 1, the directions of development of transport infrastructure are focused on improving the transport conditions for the citizens of the country, expressed in the availability or quality of transport services. The designated directions are being implemented gradually. Evaluation of their effectiveness should be carried out in a situation of stable conditions for the development of the country, excluding the influence of unforeseen and prolonged circumstances (for example, a pandemic of coronavirus infection). Despite the federal objectives of the Strategy with a set deadline for their implementation, the solution of the above-mentioned urban problems of transport infrastructure must be carried out promptly, taking into account the goals stated in the Strategy. In particular, the citizens of the country need to improve the quality of life in the part that depends on the transport complex. In this regard, the defining moment in solving regional problems of transport infrastructure is the development of the material and technical system of transport.

In addition to the proposed directions in the Strategy, it seems important to single out a separate direction for providing the citizens of the country with comfortable conditions and the availability of the use of transport infrastructure facilities created in connection with the provision of other entities in the transport infrastructure. Its essence lies in the comprehensive provision of the development of transport infrastructure facilities for all subjects, in the interconnection of all areas of development. A broad interpretation of the concept of infrastructure [4, p. 11] confirms the importance of the proposed approach in resolving the problems of the transport complex in the interrelation of conditions, directions of development, interests of transport infrastructure subjects. In addition to the citizens of the country, the strategy includes cargo owners, transport industry enterprises and their investors, and the state as subjects.

Confirmation of the need for interconnected provision of comfortable conditions for all subjects in the operation of the transport infrastructure is the situation in which the drivers who deliver goods to the distribution center find themselves. Truckers, forced to wait in line for several days to unload goods, were not provided with minimal amenities: food points, dry closets (<https://72.ru/text/gorod/2022/11/03/71786414>). Logistics centers created to meet the needs of society in goods must provide comfortable conditions for those who contribute to its activities, and also not cause harm to the population. So, in order to build a logistics center next to a residential area, hundreds of trees were cut down (<https://72.ru/text/gorod/2020/05/14/69256546/>) Such examples characterize the lack of interconnection in the development of transport infrastructure facilities for citizens and enterprises of the transport industry. In particular, the lack of the necessary minimum supply

of goods does not contribute to improving the quality of life of these citizens. In the context of the development of urban transport infrastructure, planning and implementation of tasks to ensure the interests of all infrastructure entities should be carried out in conjunction. Otherwise, violations of the rights and interests of subjects during the operation of the infrastructure are inevitable.

In order to ensure a continuous traffic flow and eliminate unnecessary bus stops, devices for regulating the movement of pedestrians in Tyumen, the construction of underground and overground pedestrian crossings is being actively carried out, the safety and convenience of which are not unconditional. The reasons for flooding the urban underpass with rainwater are the failure of pumping equipment that pumps water into storm sewers (<https://72.ru/text/gorod/2017/06/22/50529401/>); an increase in the water level above the level of the carriageway (storm sewers on the road cannot cope with a large volume of water), as a result of which the water went into the underpass (<https://ura.news/news/1052393313>); due to heavy rain and wind (<https://tmn.sm.news/v-tyumeni-iz-podzemnogo-perexoda-bylo-otkachano-pochti-300-litrov-dozhdevoj-vody-71401-u3t5/>). Despite the annual problem of newly built underpasses being flooded with heavy rains, the city plans to build two tunnels: a car tunnel and a pedestrian one (https://vsluh.ru/novosti/transport/v-tyumeni-poyavitsya-dva-tonnelya-odin-pod-zheleznoy-dorogoy-drugoy-s-vykhodom-k-ture_371243). The construction of roads without properly functioning rainwater (stormwater) sewers leads to periodic flooding, preventing the use of roads by motorists and pedestrians (https://vsluh.ru/novosti/obshchestvo/obilnye-osadki-ustroili-potop-v-rayonakh-tyumeni_388413/). Ensuring the creation of conditions for the rapid movement of transport, the state at the same time does not create high-quality and elementary conditions for the life support of citizens, which entails financial costs to eliminate the consequences of flooding, obstacles in the use of an engineering transport structure [5, p. 516] by citizens of the country.

Elevated pedestrian crossings, which exclude the possibility of their rain flooding, are subject to other hazards that prevent their operation. The fall of the urban overhead pedestrian crossing onto the roadway and its destruction can be facilitated by the collision of a vehicle with a bulky load with an installation - a manipulator (crane), the boom of which is lowered onto the change house at a slight upward angle. The actions of the driver of the vehicle are qualified by the court under Art. 168 of the Criminal Code of the Russian Federation (destruction or damage to property through negligence), a sentence of 360 hours of compulsory work was imposed. As a result of the incident, property damage in the amount of more than 5 million rubles was caused (sudact.ru/regular/doc/3fOXCCdEARWt/). These cases are not isolated. For example, a truck carrying a crane passed two pedestrian crossings safely, and hit a beam at the third crossing (ura.news/news/1052594172). Such situations indicate the need for a preliminary check of the height of overhead crossings before putting them into operation.

The given examples testify to the importance of predicting the use of material and technical systems of transport in different conditions by all subjects of the transport infrastructure. Timely forecasting of the planning and functioning of the placement of transport infrastructure facilities based on the accumulated experience of operating infrastructure facilities and systematizing the problems of providing transport services identified by citizens will ensure reliable, safe and uninterrupted operation of the transport complex. Under the indicated conditions, it is possible to implement directions for improving the quality of citizens of the country, depending on the transport complex. For the effective use of the economic and production potential, a developed transport infrastructure is required [6, p. 47]. The demand for solving transport problems in the country is justified by the country's transport strategy.

4 Discussion

Providing the citizens of the country with affordable and high-quality transport services by the state is impossible without a guarantee of providing them with decent, high-quality, safe conditions for using transport infrastructure facilities. The implementation of the state policy to create a unified transport network is determined by socio-economic and environmental conditions that allow ensuring equal protection of the rights of all subjects of the transport infrastructure. In this regard, the directions proposed in the transport strategy for ensuring the country's citizens in improving the quality of life in terms of the transport complex must be considered comprehensively, in conjunction with the directions for providing other subjects in the transport infrastructure.

Activities for the creation and modernization of transport infrastructure facilities must be carried out in a prospective aspect, taking into account the expected risks, in order to prevent damage to infrastructure facilities.

5 Conclusion

The effectiveness and efficiency of the implementation of the transport strategy in terms of providing the citizens of the country with transport infrastructure should be determined not only by the creation of infrastructure facilities, but also by the elimination of existing shortcomings that impede their operation. The development of transport infrastructure must be carried out on the principle of providing all subjects with comfortable conditions and the availability of its operation.

The proposed approach to planning the development of transport infrastructure, which, among other things, provides favorable conditions for the life support of the citizens of the country (on the example of the Tyumen region), will increase the level of approval by the population of the country of ongoing changes in transport infrastructure, reduce the financial costs of restoration work, and prevent damage.

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