

ABSTRACT

of the dissertation work of Laura K. Bekmagambetova on the topic: "Scientific and practical basis of the concept of public transport in the cities of Kazakhstan", submitted for the degree of Doctor of Philosophy PhD in the specialty 8D11361 - "Organization of transportation, traffic and operation of transport"

The relevance of the topic. Urban public passenger transport is one of the priority structures that determine the functioning of the entire urban economy. The work of urban transport, especially urban passenger transport, can be compared with the work of the vascular system, which ensures the vital activity of the whole organism.

Problems with the transportation of passengers in large cities arose along with their appearance and development. Transportation of labor trips of the population is particularly difficult, since passenger transportation is massive and at the same time high. This problem can be solved by effectively organizing the work of urban public passenger transport.

Cities of Kazakhstan are growing and developing. Their growth and development the street and road network increases the number of residential and industrial buildings, and old urban development objects appear and disappear. All this has changed and has led to the modernization and improvement of existing transport networks and routing systems. This can be achieved only when performing design work.

The socio-economic situation in Kazakhstan against the background of changes has not bypassed public passenger transport. These changes in large cities have occurred against the background of established methods of industrial and housing construction of cities: large territories (districts and microdistricts); industrial areas (including a whole group of city-forming enterprises) and residential buildings (with a population of several tens to several hundred thousand people, often far from the historical center of the city and industrial zones) where streets of urban and district significance, as a rule, are located along the perimeter of the territory and within which local roads are laid, are not mobile enough for the movement of large vehicles or are completely unsuitable.

In addition, there was a rapid growth of the automobile fleet in the cities, mainly due to an increase in the number of passenger cars. A new type of public transport has appeared - fixed-route taxis, which quickly and actively take their place in passenger transportation. The change in the city's management system has led to great difficulties in the operation of traditional types of urban passenger public transport – tram, trolleybus, bus. The volume of their passenger traffic has sharply decreased, serious economic and technical problems have arisen.

At the same time, these socio-economic changes have caused an increase in the labor activity of citizens and, as a result, their transport mobility.

All these changes and factors have caused significant difficulties in organizing the work of urban public transport and its route system. Without overcoming these

difficulties, it is almost impossible to create or improve a new system for organizing the work of public transport. Transport problems in cities have increased not only in the transportation of passengers, but also in ensuring the movement of transport along the streets of the city, which determines the relevance of this work.

The purpose of the dissertation is to form the scientific and practical foundations of the concept of public transport development in the cities of Kazakhstan.

To achieve this goal, it was necessary to solve the following **tasks**:

- analysis of the current state of the public transport passenger service market in the cities of Kazakhstan;

- development of a system of indicators for assessing the quality of transport services for the transportation of passengers;

- determination of the optimal type and rational number of buses for the urban public transport network for carriers;

- to consider the possibilities of improving the ways of managing public passenger transport and to develop an algorithm for the concept of urban public transport development.

The object of the study is public passenger transport.

The scientific novelty of the work consists in the following:

- the scientific justification of the organization of the public transport network is given;

- a methodology for assessing the quality of transport services for the transportation of passengers has been developed;

- for the first time for the urban public transport network, carriers have been offered a method for determining the rational number of optimal bus models, taking into account the structure of passenger traffic;

- scientific and practical measures aimed at improving the efficiency of the organization of regular passenger transportation by public transport are proposed, an algorithm for the concept of urban public transport development is developed.

Research methods. In the course of the dissertation research, analysis and synthesis, comparison, generalization, proof, mathematical modeling, game theory methodology, graph theory, analytical method, system analysis and other scientific methods were used.

Practical significance of the work.

The results of the research of the dissertation work are included in the educational and methodological complex of the discipline "Organization of traffic" for students of the specialty 6B11367-"Organization of traffic" KazATK named after M.Tynyshpaeva and are used during laboratory classes.

There is an act on the implementation of the obtained scientific results of the dissertation work in Almatyelectrotrans LLP (Almaty, Kazakhstan).

Approbation of the work. The main provisions of the dissertation and the results of the research were reported and discussed at scientific seminars of the departments "Organization of transportation and operation of transport" ALiT and "Transport

Management" NTU "Dnipro Polytechnic" (Dnipro, Ukraine), as well as at the XLIV International Scientific and Practical Conference "Innovative technologies in transport: education, science, practice" (Almaty, 2019); in the International Scientific and Practical Journal "VII Global Science and Innovation 2019: Central Asia" (Astana, 2019); at the XV International Scientific and Practical Conference "Trends in the Development of science and practice" (Madrid-Spain, 2021); at the XVIII International Scientific and Practical Conference "Advancement in Research, Practice and Education" (Florence-Italy, 2022).

Publications. 12 publications have been published on the topic of the dissertation, of which 5 articles are in scientific publications recommended by the Committee for Control in the field of education and Science of the Ministry of Education and Science of the Republic of Kazakhstan; 1 article is in scientific publications included in the international information resources Scopus, 6 works are in the materials of the international conference.

The structure and scope of the dissertation. The dissertation with a volume of 148 pages of printed text consists of an introduction, four sections and a conclusion; it includes 22 tables, 36 figures and a list of used sources from 144 titles.

In the introduction, the relevance is revealed, the problems associated with the topic under study are concretized. The purpose and objectives of the research, scientific novelty and practical value of the work, research methods are given.

The first chapter of the dissertation presents a set of problems of the organization of public transport in the cities of Kazakhstan, a statistical review of the indicators of public transport research, current analysis of urban passenger traffic, an information review of the current state of the organization of passenger transport by motor transport and the need to improve the quality of the organization of public transport.

The second chapter of the dissertation examines the scientific justification of the organization of the public transport network and methods for assessing the quality of passenger transport services, provides mathematical models for determining the rational number of public transport and scientific and economic foundations of public transport system management.

The third chapter of the dissertation examines the features of the public transport system in Almaty and regional centers, provides a concept for improving public transport services and a project for the development of urban public transport services.

In the fourth chapter of the dissertation, the proposed algorithm of the concept of public transport development in Kazakhstan is given, the subtleties of the proposed concept are determined and the financial stability of the public transport system is calculated.

The conclusion reflects the main results and conclusions of the dissertation work.

12 publications have been published on the topic of the dissertation:

1 Zh.G.Zhanbirov, L.K.Bekmagambetova, G. E. Zhumataeva Modeling the formation of traffic congestion at street intersections // Vestnik Kazatk No. 1, spetsvipusk, Almaty, 2019. P. 215-227.

2 L. K. Bekmagambetova, G. E. Zhumataeva Features of the modern automotive industry // International scientific and practical Journal "VII and Global Science and innovation 2019: Central Asia". Nur-Sultan, Kazakhstan. P. 82-87.

3 L.K.Bekmagambetova, G.Kairatovna, Zh.Baiburaeva, Zh. Zhanbirov Problems of training competent technical specialists // News of the National Academy of Sciences of the Republic of Kazakhstan, Volume 3, number 331, social and humanitarian Sciences series., Almaty, Kazakhstan, 2020. P. 258-264.

4 L.K.Bekmagambetova, Zhanbirov zh. G., Izteleuova M. S. Study of the urban transport flow system in Almaty // Bulletin of Kazatk No. 2 (113), Almaty, 2020. P. 167-174.

5 L.K.Bekmagambetova Improving the quality of passenger transportation in suburban traffic // Materials of the international scientific and practical conference "innovative technologies in transport: education, science, practice". Volume 1. Kazatk, Almaty, Kazakhstan, 2020. P.278-281.

6 A. Matibrakhimov, L. K. Bekmagambetova Improving the quality of passenger service in urban passenger transport // materials of the international scientific and practical conference HLIV "innovative technologies in transport: education, science, practice". Volume 1. Kazatk, Almaty, Kazakhstan, 2020. P. 282-286.

7 Bekmagambetova L.K., Bekzhanova S.E., Bekzhanov D.Z. There is no science of organizing a public transport network // XV International Scientific and practical conference "trends in the development of Science and practice", Madrid, Spain, December 27-29, 2021, P. 335-342.

8 Vitaly Naumov, Laura Bekmagambetova, Igor Taran, Zukhra Bitileuova, Zhumazhan Zhanbirov mixed fuzzy-logical and theoretical-game approach to substantiating models of vehicles for servicing the public bus network // Scopus, "communications-scientific letters of Zhilina university", 24 (1) 2022. A26-A34.

9 L.K.Bekmagambetova, G.Zhanbirov, B.Bakytuly Transport and logistics systems in passenger transportation // Journal "Vestnik Kazatk" No. 2 (121), Almaty, 2022. P.105-113.

10 L.K.Bekmagambetova, I.Saukenova, R.Musalieva Features of the modern urban passenger transport system // Journal "Vestnik Kazatk" No. 2 (121), Almaty, 2022. P.141-148.

11 Bekmagambetova L.K., Aikumbekov M.N. Features of public transport Almaty // XVIII international scientific and practical conference "progress in scientific research, practice and Education", Florence, Italy, May 10-13, 2022. P.599-603.

12 L.K.Bekmagambetova, Zh.G.Zhanbirov The concept of improving public transport services // XVIII international scientific and practical conference "progress in scientific research, practice and Education", Florence, Italy, May 10-13, 2022, P. 603-613