

Conditions and prerequisites for the problems of traffic flows in modern megalopolises (on the example of Almaty)

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Abstract

Unsustainable transport can cause air pollution, noise, accidents and other negative influences that harm people and the environment, which is especially true in urban areas. Today, about 50% of the world population of 7, 7 billion people live in cities. According to the UN, this share will rise to almost 85% in 2050, when the planet is expected to increase its population to 9 billion people. Today, cities account for nearly two-thirds of global energy consumption and over 70% of emissions. Thus, the sustainability of urban transport is a major issue and will only grow in importance.

The aim of the thesis is to improve the management system of urban traffic flows in a large city of the Republic of Kazakhstan (for example, Almaty) to solve transport problems.

Keywords: traffic flow, transport, megalopolis

1 Introduction

Cities play a critical role in today's world and are the engine of the global economy. Cities, being a place with a high level of accumulation and concentration of population, economic activity are complex spatial structures that are supported by transport systems. Transport, being the most important factor in economic and social development, contributes to an increase in the competitiveness of the economy. The development of transport is inexorably leading to an increase in environmental and environmental pollution, the concept of sustainable transport development is developing all over the world.

Transportation in Kazakhstan is an important and rapidly developing sector of the economy of Kazakhstan. A modern city in the field of transport organization bears the imprint of both global urbanization processes and the unique economic and social conditions inherent in Kazakhstan.

Urban provision of public transport and the organization of movement are the main tasks for the management of the city. With the growth of the population of cities, as well as with the change and development of their economic bases and the adaptation of their housing sector to the changing conditions of life, the importance of vehicles increases, their regulation of the day on the roads more and more vehicles appear.

All aggregate vehicles on the roads form the concept of traffic flow. A traffic flow is the movement of vehicles ordered by the existing transport network.

In our country, the economically and socially developed, densely populated city is Almaty - the place of residence of

about 2 million inhabitants, and in order to ensure the proper conditions for comfortable living, it is necessary to study the experience of world megalopolises, to create the most favorable conditions for the life support of the townspeople.

2 Overview

On the issue of managing urban traffic flows in a large city of the Republic of Kazakhstan, an article was considered in the journals "Almaty Tekhnologialyk Universitetinin Khabarshysy"(in Kazakh) for 2020, "Problems of urban traffic organizations in a large city of the republic of Kazakhstan". The work is devoted to the study of the intensity of urban traffic and the improvement of the management system of urban traffic flows in a large city of the Republic of Kazakhstan (for example, Almaty). Urban road transport has become an integral part of the modern life of the population. It affects not only the economic, but also the social development of the city. A radical improvement in the conditions for traffic in the city, in the long term, can be achieved by implementing urban planning measures: building bridges, tunnels, punching new highways. And also the analysis shows that the situation will be significantly improved by a set of measures related to the improvement of traffic management.

According to the article "The main aspects and problems of road transport in the city of Almaty", the magazine "Vestnik KazATK "(in Russian) No. 1 (100), 2017, the management of traffic flows in the transport system of the city was considered. The article highlighted the main aspects for the implementation of measures to improve and efficiently manage urban transport systems.

The theoretical basis of the research is the textbook by

A.E. Goreva "Fundamentals of the theory of transport systems" 2010, St. Petersburg. The book provides basic information from the theory of systems, gives a characteristic of the main types of transport systems, the features of their structure and functioning. Much attention is paid to the methods of knowledge and research of transport systems that have become widespread in practice. Practical examples are provided for road transport systems.

3 Decision

Currently, there is a developed transport infrastructure in Almaty, represented by various means of transport: public buses, public electric transport, metro, BRT (high-speed bus transport), including "green", taxi, motorcycle and bicycle transport.

Despite this, the transport infrastructure of the city of Almaty has a number of significant shortcomings: low density and lack of roads, poor quality road surface, outdated vehicle fleet, a large flow of vehicles entering the city from the suburbs, including transit, lack of rolling stock and drivers, regularity of routes, traffic congestion, traffic jams, violations of the rules for transporting passengers and luggage, insufficient number of safe pedestrian crossings, poor quality of passenger service, insufficiently thought-out installation of traffic lights, lack of proper information support for drivers and passengers, inconsistent operating mode of organizations (advertising, landscaping etc.) leading to the creation of artificial traffic congestion, a detrimental effect on the ecology of the city (especially on the air basin) and noise pollution.

All this together forms the weaknesses of the Almaty transport. To study the characteristics of the road traffic of the city of Almaty, it is necessary to analyze the road fund, which is the basis for any transport system. The road fund of the city of Almaty is fully owned by the municipality.

References

- [1] "The main aspects and problems of road transport in the city of Almaty", the magazine " Vestnik KazATK " No. 1 (100), 2017 (in Russian)
- [2] "Fundamentals of the theory of transport systems" 2010, St. Petersburg by A.E. Gorev

Every year, work is carried out to increase the length of roads, but despite these measures, the city of

Almaty is inferior to the comparable cities of Warsaw, Budapest and Toronto in terms of the level of road availability and the density of roads in the city. To improve the condition of the road surface in the city of Almaty, the construction of new and repair of existing highways and highways is carried out annually.

4 Conclusion

A theoretical basis for improving the management system of urban traffic flows in the city of Almaty has been completed. The length of the road fund, the density of roads, passenger traffic, in recent years, the freight turnover by road transport, the structure of the vehicle fleet and its analysis by the type of fuel used, the year of production of vehicles, tariffs for travel in public transport were considered. Field observations and statistical measurements of changes in traffic intensity during the day, days of the week and seasons of the year on the streets of Almaty were carried out. With the aim of a deep, wider understanding of the problems of transport in the city of Almaty, taking into account the geographical features, economic and social processes inherent in this city, transport flows were considered, taking into account the adjacent areas of the Almaty agglomeration. The analysis of the size and distribution of the population, taking into account the location of the main jobs in the districts of the city, was carried out to determine the distribution of the load on the road traffic network during a certain time interval. Measures need to be taken to improve urban traffic management. As mentioned earlier, the task of optimal management of urban traffic flows requires a complex impact on a complex and dynamic transport system, which includes the traffic flow of the city of Almaty.

- [3] "Problems of urban traffic organizations in a large city of the republic of Kazakhstan", "Almaty Tekhnologialyk Universitetinin Khabarshysy" for 2020 (in Kazakh)