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IN THE NETWORK OF ROADS APPLICATION OF THE INTELLIGENT TRANSPORT SYSTEM

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ABSTRACT

This article provides an overview of the development of the transport network in the use of roads, the expediency of the use of intelligent transport systems in the construction of road infrastructure and the optimization and management of traffic. It is expedient to use science-based methodology to increase the transport supply of the settlements of the region, the optimal distribution of freight flows in the transport networks and the development of the transport network. The governments of foreign countries have found it necessary to use an intensive [1] approach to solving the transport problem when using the road network. ITT is an important, ie efficient and safe level of increasing the traffic flow capacity of highways. It will also reduce the cost of building road infrastructure. As a result, consumers will be provided with a large amount of information and security, as well as the level of interaction of the participants will increase the quality.

KEYWORDS: *Highways, Road Transport, Transport Network, Transport Network Section, Optimal, Throughput, Problem, Solution, Freight Flow, Software, Intelligent Transport Systems.*

INTRODUCTION

The road network is considered to be the most important for the country's economy. As the infrastructure of the road network, which provides communication between each region of the region, develops, the state of the transport system that benefits from it is closely linked with the sustainable development of the national economy. Reliable and high-tech transport infrastructure will allow to meet the growing demand of society in freight and passenger transportation.

In this case, the "optimal distribution" of freight flows on the roads for each mode of transport gives only the "local optimum" for this mode of transport. The essence of the matter is to achieve a "global optimum" based on the optimal distribution of traffic to different transport networks.

Therefore, it is expedient to study the transport networks of regional highways and railways together.

Research on the development of the national road network and ensuring safe traffic is a key issue in the development of safe and low-cost transport networks that meet the requirements of road users to export their products to domestic and foreign markets.

It is more difficult to define the transport network and solve their development on the basis of unscientific basis in accordance with the conditions of the region. It is expedient to use science-based methodology to increase the transport supply of the settlements of the region, the optimal distribution of freight flows in the transport networks and the development of the transport network. Also, with the introduction of intelligent transport systems, the region will expand opportunities for the development of a multimodal transport network and efficient use of the network. In this regard, practical work is being carried out in the framework of the project "Intelligent Transport Systems: New ICT based Master's Curricula in Uzbekistan".

To address the above, experts have proposed several methods [1]:

- construction of extensive road infrastructure;
- Intensive use of ITS in optimization and management of traffic flow.

According to many authors on the construction of extensive road infrastructure [2], such infrastructure for the development of the transport services market at the present stage is a multimodal transport network, taking into account international transport corridors.

Multimodal transport is domestic transport with at least two modes of transport in the road network [3].

The main characteristic of the transport system is its provision. Provision is determined by the geographical advantage of the region (district, city or corridor) over all regions [4].

It is recommended that the definition of a low-cost transport network be performed by the method of graph theory. In this case, the existing points of road and rail transport (in terms of sending, receiving, economic and technical, capacity and other indicators) are shown as nodes of the graph. Addresses where different modes of transport are connected, i.e., points where it is possible to reload from one mode of transport to another, are represented in the form of several addresses, respectively.

These methods are based on the optimization of freight flows of vehicles in the road network [5,6], which simultaneously addresses the issues of optimizing freight flows in the network and the development of the transport network.

In the process of solving the problem, the characteristics of the arcs connecting the settlements (nodes) in the transport network are placed on the sections, and the flow of cargo (transport) is provided through low-cost arcs. The solution to this problem is obtained using a program designed for computer technology.

The governments of foreign countries have found it necessary to use an intensive [1] approach to solving the transport problem when using the road network. ITT is an important, ie efficient and safe level of increasing the traffic flow capacity of highways. The Government of the United

States is actively developing and supporting the ITT. Because unlike the standard method of building new highways, it is a useful way to solve this problem. Research is being carried out to address this issue in the framework of a practical project on "Optimal development of the transport network in the regional road network and the widespread use of logistics principles in the effective management of future freight flows."

The use of intelligent transport systems in the optimization and management of traffic flow in the road network is based on maximizing the use of the transport network, improving the efficiency and safety of the transport process, improving the comfort of transport users and drivers and providing emergency medical care. It will also reduce the cost of building road infrastructure. As a result, consumers will be provided with a large amount of information and security, as well as the level of interaction of the participants will increase the quality. In developed countries such as the United States, Japan, Germany, France, China, 20-30 years ago, these technologies were widely used in traffic management.

The introduction of intelligent transport will make it possible to comprehensively improve the socio-economic interests at several levels, including its advantages [8]:

- Save time on the road, reduce the labor force of drivers and traffic congestion;
- environmental protection is provided; □
- Reduced the cost of road infrastructure construction; □
- The development of industry will provide employment for most workers.

Intelligent transportation system (ITT) is a complex engineering structure that is an innovative approach to modeling transport systems and traffic flow management.

Currently, research is being conducted in 6 higher education institutions of the country on "Intelligent Transport Systems:".

Taking into account the above, the widespread introduction of intelligent transport systems in the road network in this area will allow to fully use the opportunities and resources of the country's potential to increase exports and transit of road transport services and minimize and target the cost of construction of transport networks.

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