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Method of Determination of Transport Intensity in Urban Conditions

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Abstract: Due to the rapid growth in population mobility, the demand for transport services is growing. The increase in the congestion of city streets creates problems characteristic of the harmful impact on the environment, the growing demand for energy resources. This highlights the relevance of improving the efficiency of the use of existing transport infrastructure through planning and modeling. The article describes a method for determining the actual traffic flow at intersections in the context of existing modes of transport (for example, the city of Navoi).

At the same time, the experimental assessment of the traffic flow in the city by means of such measurements as cordon, rush hour and daily, is carried out using modern information technologies. As a result of determining the quantitative indicators of the traffic flow, areas were identified that require improvement of the transport infrastructure of the city of Navoi.

Keywords: traffic flow, cordon, rush hour, daily measurements, types of measurements, traffic jam, intersection, road sections, observation device, transport, taxi.

INTRODUCTION

The development of all sectors of the economy and the growth of living standards require the development of the transport sector. The rapid growth of the exchange of material and commodity resources and mobility in the country leads to a growing demand for transport services. At the same time, each new facility, new residential areas, manufacturing enterprises, trade, consumer services and social facilities create additional loads on the transport system [1].

The purpose of the study: to develop a method of quantitative research of traffic flow on a selective basis.

Objectives of the study: to develop a procedure for organizing traffic intensity measurements at the main junctions of the regional road network; determination of categories of traffic intensity measurement; develop a procedure for analyzing measurement results

LITERATURE ANALYSIS AND METHODOLOGY

As a result, poorly organized transport services, congestion in road infrastructure facilities that do not respond to large flows in terms of technical parameters, increased travel time, increased fuel consumption and environmental damage (due to congested vehicles) increase the number of road accidents. Today in our republic 3 mln. The number of registered vehicles is growing by an average of 6-7% per year. This increases the importance of measures such as improving the quality of public transport services, solving transport problems in large cities, radically revising and expanding passenger routes to meet the needs of the population, managing non-route taxi activities, building bicycle transport infrastructure. In this regard, a

number of issues of systemic urgency were identified at an extended video conference chaired by the President of the Republic of Uzbekistan on November 30, 2020 "On measures to further develop public transport in Tashkent and the regions." In particular, taking into account the current and next 10 years of demand for transport services, the development of transport master plans of large and medium-sized cities, including specific targeted measures for the strategic development of the transport system.

Implementation of the above tasks requires a study of the current state of the urban transport system.

Transport problems are mainly solved by deterministic approach and physical analogy method based on pro T.Metson, R.Smith, V.Leitsbach, H.Inose and T.Hamada conducted research on identification, analysis of traffic flow data, assessment of traffic flow indicators and their forecasting [5-7]. Based on the analysis, the process of modeling traffic flow showed that the capabilities of modern information technology are not fully involved in the process of determining traffic intensity, and the need to take into account the specifics of the region in the process of determining traffic intensity [8-9].bability theory and mathematical statistical methods based on systematic approach [2-4].

DISCUSSION AND RESULTS

Measurement of traffic intensity is carried out for 3 types of objects:

1. At the crossroads;
2. Along the two sides of the traffic at the intersection and at the intersection;
3. In all maneuvering directions allowed on each side of the intersection and road intersection.

Measurement of traffic intensity is carried out using video surveillance cameras. Video quality and viewing angles should ensure visibility of not only the intersection, but also the existing pedestrian crossings at the relevant intersection

Categories of measurement:

Type 1 - in 2 directions (forward and backward) at the intersection of a section of road or street (Figure 1).

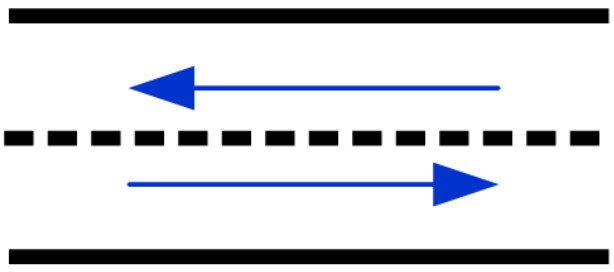

Figure 1. Measurement at the intersection of a section of road or street

Type 2 - Measurement along both sides of traffic at the intersection and road intersection. For example, at a 4-sided intersection in 8 directions (4 sides * 2 directions), at the intersection - directions (intersection sides * direction) (Fig. 2).

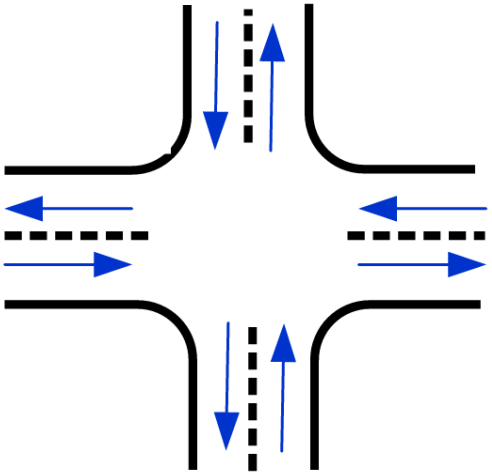

Figure 2. Measurement along both sides of traffic at the intersection and at the intersection.

Type 3 - Measurement in all maneuvering directions allowed on each side of the intersection and road intersection (right turn, left turn, right direction, turn) (Figure 3).

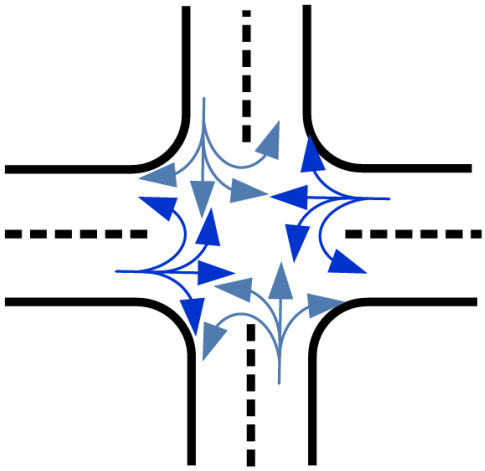

Figure 3. Measurement in all maneuvering directions allowed on each side of the intersection and road intersection

Measurement period:

The measurement will take place on weekdays, from Monday to Thursday. Depending on the measurement period, the time, cord, and diary are available, and are determined by the intersection and location dislocation being studied.

The analysis of video images taken by video surveillance cameras is carried out visually and recorded on a sheet of records of the number of vehicles. PTV is downloaded by exporting to Vissim programs.

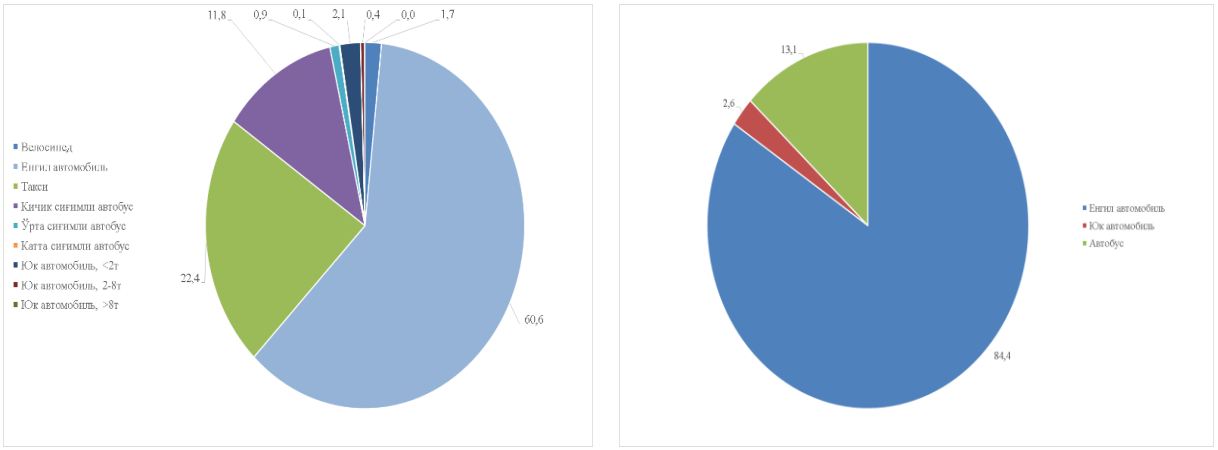

Figure 5. Average traffic flow in the Navoi agglomeration

CONCLUSION: The structure of traffic flow in Navoi was determined by the method of quantitative research of the developed traffic flow on a selective basis. According to the results of the study, cars predominate in the flow of the Navoi agglomeration, accounting for 78%. 15% and 63.5%, respectively, for taxis and private transport. It was found that minibuses account for 14% of the average traffic flow and trucks for 5.7% of the average traffic flow.

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