

MODERN METHODS OF PREVENTING TRAFFIC ON CENTRAL CITY STREETS

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Abstract

This article analyzes the negative impact of several factors on road capacity. The factors causing traffic jams were studied and analyzed based on the results of research and inspections.

Keywords: Traffic jams, road traffic accidents, research on the impact on capacity, hazards, trees, buildings, winter and summer, driver, sharply limiting capacity, Road surveillance.

Introduction

Road congestion is a condition that occurs when the volume of traffic approaches the capacity of the road, which increases the density of traffic or reduces the speed below the free flow rate. The transition of the urban population to road transport, a sharp increase in the number of cars, and an increase in traffic on the roads. It mainly causes a number of problems and traffic jams on city streets and intersections, as a result of which every driver stranded in traffic loses extra time, vehicles emit harmful gases and damage the environment, excess fuel consumption and negatively affect the health of drivers.

In accordance with the Decree of the President of the Republic of Uzbekistan dated January 28, 2022 No. UP-60, in the "Development Strategy of New Uzbekistan for 2022-2026," special attention is paid to the adaptation of road infrastructure to international standards, the full digitalization of the traffic management system, the creation of decent conditions for all its participants for safe movement on roads, as well as ensuring broad public participation in work in this area and the effective use of funds allocated in this direction through the "Open Budget" information portal.

In this case, increasing the capacity of roads at city intersections, proper organization of traffic lights, and developing measures to prevent traffic jams is one of the urgent problems.

The problem of traffic congestion at intersections also has a significant negative impact on the economic and social development of many countries. According to the World Bank, road accidents at the national level lead to economic losses of 1-3 percent of the gross national product. Global economic losses worldwide exceed 500 billion US dollars annually. In



developing countries alone, the annual damage from road accidents exceeds 100 billion US dollars.

The recent increase in traffic congestion on the roads of Tashkent is causing concern. This problem, which concerns all the world's megacities, today torments residents and guests of our city, causing them to waste their time, become nervous, and violate traffic rules.

Admittedly, the expansion of the capital's roads, the qualitative renewal of roads, the laying of asphalt, the construction of bridges and overpasses, and the installation of surveillance cameras played a significant role in solving the problem. However, there are still such "artificial" obstacles in this regard that if we do not remove them, no matter how smooth our roads and streets are, traffic jams will not decrease, but will increase.

The method of organizing traffic on roads should be chosen based on the density of vehicles, the composition of vehicles, road capacity, etc. To solve the problem of traffic control, data on hourly and average annual traffic speeds are used. This indicator is determined by observation or automatically.

Visual (observation) method - the speed of movement on a certain section of the road is calculated on a special form, on which the cycles completed per unit of time (minute, hour, day) are recorded.

Automatic methods - speed is determined based on the use of the following sensors: pneumatic, photoelectric, ultrasonic, mechanical, radar, inductive, electronic, etc.

In this work, traffic conditions at intersections in the city of Tashkent were analyzed automatically.

If we look at the research of our scientists on the prevention of traffic jams, then in the studies of Doctor of Technical Sciences Alexey Valeryevich Kostsov worked on determining the speed of public transport, as well as the dependence of traffic on the central streets of the city.

Recommendations have been developed for improving the speed of vehicles and rolling stock in public transport movement by organizing additional sections for public transport. One of the important indicators characterizing the operating conditions of the Tashkent city road network in modern conditions is the distribution of road and public passenger transport between these routes.

An increase in the level of traffic load on the road requires a further increase in speed ($2 > 0.7$), only the influence of the dependent speed of movement of trucks and rolling stock significantly decreases (Fig. 1). Dependence of the speed of rolling stock transfer on the level of occupancy of central streets: a) under the conditions of movement of rolling stock of public transport in areas allocated for vehicles of a fixed route; b) movement of public transport in a mixed traffic flow. According to him, the movement of public transport along a separate corridor will not negatively affect the increase in traffic, the convenience of movement of the population, and the quality of transport services. Public transport conditions can be improved by creating additional public transport areas. Of course, on a number of streets of the capital, Tashkent, public transport is separated from the general traffic flow by a horizontal line 1.1 and a horizontal road line 1.23.





Figure 1. Isolation of bus traffic from the general flow.

a) on routes where the rolling stock of public transport moves along designated lanes (using the example of Shota Rustaveli Street in Tashkent).

b) movement of public transport in a mixed flow with the general transport flow.

In his research, A. Lipnitsky considered ways to implement traffic regulation. International statistics, which transform unregulated intersections into small and medium-sized intersections and intersections by changing the traffic regime at intersections, not only reduces traffic congestion by 40-80%, but also positively affects the movement of public transport and other modes of transport. Changing all intersections at the same level The intersection of city roads and their uniform intersection with bypass roads on all sections of city roads depends on geographical location, architectural and construction conditions, economic costs, road conditions, and traffic flow. Another important aspect of organizing public transport movement depends on the size of this type of transport.

It is known that public transport has a wider and longer volume compared to other modes of transport. It is known that at regular intersections and at intersections, for example, due to the relatively large size of public transport vehicles turning left, they occupy more space at the intersection turn and restrict the movement of vehicles in the opposite direction to a certain extent. This, in turn, affects the movement of the intersection and the movement of other vehicles. Therefore, when organizing public transport at intersections and crossings, it is necessary to find a solution that does not interfere with the movement of other types of transport, taking into account these features.



Figure 2. View of intersections with organized circular traffic



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