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ORGANIZING THE MOVEMENT OF PUBLIC TRANSPORTATION ON CITY ROADS

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Abstract: When designing urban and rural settlements, it is necessary to provide a unified system of transport and road network. The transport organization of the city should be connected with the planning structure of the settlement and the surrounding area. Great attention should be paid to the issues of road safety and prevention of road traffic accidents, in particular, to improve the movement of public transport on city roads and to monitor the reasonable usability of the proposed solutions.

Key words: Public transport, speed, additional lane, normal, express, semi-express.

In order to create favorable conditions for the population and improve the ecological situation in the city, special attention is paid to the development of the surface public transport system in our capital.

In recent years, public transport has been launched in new directions in the city, existing buses have been modernized, and new technologies of system management and monitoring have been introduced.

A bus is several times more efficient than a car:

Today, 5 million people (permanent population - 3 million, daily visitors to the city - 1.5 million, temporary citizens - 0.5 million) live in the city of Tashkent, of which the average number of mobile population is 3.5 million people.

According to the analysis, the number of daily trips of the mobile population of the capital is on average 9 million, of which 6 million are made by transport.

1.7 million (28 percent) of the trips made in transport are made by public transport (bus, metro), 4.3 million are made by passenger cars.

On average, about 1 million cars move through the city during the day (770 thousand are registered, 200 thousand go in and out), and the main streets receive twice as much traffic.

According to the analysis, one passenger car carries an average of 4.3 passengers per day, and one bus carries an average of 580 passengers per day (a bus is 135 times more efficient than a passenger car).

Figure 1. The current view of the dedicated lane for public transport and the updated public transport

To calculate the bus route scheme, the transport network of the city is determined, which consists of nodes (the centers of microdistricts into which the city is first divided) and edges (streets where the bus can move between these points), as well as the number . movements between points derived from the study of passenger flows.

The criterion of the optimality of the route scheme is the minimum total time spent by passengers on the movement, including travel, waiting and transfer time.

The routing diagram is calculated on the computer using the dynamic programming method, which consists in dividing the problem into several stages, finding the optimal option at each stage, and obtaining a sufficiently approximate solution to the general goal, consisting of optimal options step by step.

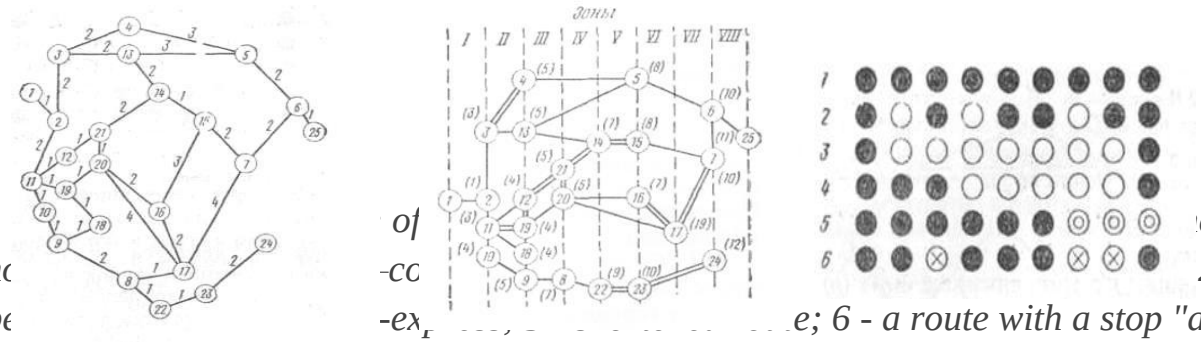
The algorithm for finding the shortest paths is as follows. The given transport network (Fig. 2.a--) is divided into zones (Fig. 2.b) so that each zone is connected with points in neighboring zones by one link (route section between points) includes all points. Then the shortest paths between the given points are determined step by step (by zone). While getting the same distance in options, traffic conditions are taken into account when choosing the final solution.

On each route, depending on the choice of the number of stops, different types of messages can be organized (Fig. 2.c):

- normal (buses stop at all stops);
- express (buses stop at some main stations);
- express (buses transport passengers between the starting and ending points without intermediate stops);

- semi-express (buses transport passengers between a group of stops located close to each other and one or 5 group drop-off stops located far from them without intermediate stops);
- reduced (buses operate in normal mode, but only on part of the route);

a) b) c)



of e
sh -cc 2
spe -ex e; 6 - a route with a stop "at the request of the passenger".

After the received applications are considered, the directions of action and their schedules are formed in the control center. Every passenger who applies must have comfortable conditions, including a guaranteed seat. Transportation of such a system is most common in cities or areas with low passenger traffic, and potential passengers are mainly disabled and senior citizens. For such transportation, small-capacity buses or minibuses are used, which provide comfort for this category of passengers (low stairs, wide aisles, space for hand luggage). Fares are 1.5 times higher than regular city routes.

Figure 3. Scale of organization of public transport on city roads

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