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DESIGNING INFRASTRUCTURES TO INCREASE TRAFFIC FLOW TO THE POPULATION OF NAMANGAN

Аннотация: Рассмотрен особый аспект организации и эксплуатации городского пассажирского транспорта в городе Наманган. Даны рекомендации по проектам по совершенствованию маршрутов и инфраструктуры городского автобусного транспорта с точки зрения безопасности движения, удобства, надежности и других показателей.

Annotation: A special aspect of the organization and operation of urban passenger transport in the city of Namangan is considered. Recommendations were given on projects to improve the routes and infrastructure of urban bus transport in terms of traffic safety, convenience, reliability and other indicators.

Ключевые слова: маршрут, трафик, маршрутная сеть, узел (соединение), пропускная способность, интервал движения, город, промежуточная остановка, станция, пассажиропоток, скорость, регулярность движения, перекрестки, дополнительные полосы

Key words: route, traffic, route network, node (connection), capacity, traffic interval, city, intermediate stop, station, passenger traffic, speed, traffic regularity, intersections, additional lanes.

Enter. The development of surface public transport, as well as the location of its infrastructure facilities, is carried out based on the master plans of settlements and cities and districts, and for cities with a population of 250,000 or more - taking into account the existing public transport

networks, the estimated peak hours in the most loaded direction and the main indicators of different transport systems allow to do it on the basis of comparison [1, 2, 3].

This is due to planning factors that influence the transport demand. The analysis of the city plan begins with the study and description of its features according to the following parameters [1, 2, 3]:

- the size of the city (population, area of developed territory);
- shape and size of the territory, level of compactness;
- the division of the territory, the presence of natural and artificial obstacles (rivers, ravines, railways and others);
- mutual location of residential areas and industrial facilities;
- placement of intercity and district centers;
- the character of placement of the main focus of the pullers;
- the distance of the population from the city center;
- construction of residential buildings in small districts;
- characteristics of road network placement;

Also, the main issues in the development of the public transport system include factors such as determining the number of routes, establishing new routes, improving infrastructures, and organizing transport sections in order to increase the transport capacity.

Determining the number of routes in a city depends on the length, density and configuration of the transport network, as a developed transport network requires more routes. Cities with densely populated residential areas and permanent work and leisure areas require more routes than cities of the same size with concentrated residential and work areas [1-4].

The total number of directions in the system should correspond to the number of moving parts working in it. With the increase in the number of routes, the intervals of movement and the waiting time for vehicles increase.

The average length of routes is determined by the size of the city and the average distance traveled by passengers.

D.S. Samaylov recommended the average weighted density of the transport network in the range of 1.5-2.5 km/km2 depending on the size of the city [1-4].

Transport network density - the ratio of the length of public transport routes (lines) to the population center (Figure 1) (km / km2)

$$\delta = \frac{L_{UM}}{S_3}$$

L_{UM}- route length km; S_3- square construction area [1];

Table 1.

Transport tappogu density values

Population, thousand people	500-1000	250-500	100-250	50-100
Optimum density system	2.3-2.6	2.0-2.3	1.7-2.0	1.4-1.6

If the population of Namangan city as of October 1, 2022 is taken to be 673,800 people, the optimal density of the transport network is equal to 2.5. The average length of the route is determined by the size of the city and the average distance covered by the commuters.

$$L_{o'rt}=3/4*L_{um}$$

According to the method [1], the total length of the bus route "No. 21 small district1-Jahon bazar" in the city of Namangan is 19.8 km.

$$L_{o'rt}=3/4*19.8=14.85 \text{ km}$$

Based on the results of public transport movement in the direction of the city center, we can fill in the 2nd table below.

Table 2.

The cost of communication with the city center.

№	Izox ratsam	Population	Walking distance	*Ni _((+i)*(T + TJ*

	between border	Ni-(i+1)	to the city center is	2
	zones, min.	a thousand	average	
1	1-10	7,1	5	35,5
2	10-20	135,4	15	2031
3	20-30	153,2	25	3830
4	30-40	9,7	35	339
Total:		305,4		6235,5

According to the obtained results, we determine the difficulty of communication with the city center by the following expression.

$$T_{o'rt} = \frac{6235.5}{305.4} = 20.4\,\text{min}$$

$t_{o'rt}$- pedestrians in the center of the city

$$t_{o'rt} = \frac{60 * L_{um}}{V_n} = 60$$

Efficiency coefficient

$$E = \frac{40}{20.2} = 2$$

The speed of movement of the population is determined according to:

$$V_{xt} = \frac{60 * 2.0}{20.4} = 7.0 km / soat$$

In addition, it is necessary to provide for parking and exiting areas and sheds at bus stops. It is necessary to make the width of the parking spaces equal to the main strip of the road section, and the length depending on the number of buses stopping at one time, but at least 10 meters.

Exit platforms at bus stops should be raised by 0.2 meters from the surface of the parking areas. The surface of the exit platforms should be at least 10x2 meters in size, and the access platforms to the sheds should have a cover. The nearest edge of the parking lot should be at least 3 meters from the edge of the parking area. The curbstone at the bus stops shall be placed without moving the edge of the parking strip and the adjacent speed change strip section. Sidewalks and sidewalks should be designed in the direction of the main flow of pedestrians from the exit platform to existing street sidewalks or sidewalks, if

they are not available, at least side view is ensured [5-11].

The basis for measuring the quality of transport services is the system of established standards of transport quality. Passengers often judge the quality of service (especially in urban and rural areas) by the total time spent on the trip. Building norms and rules for planning cities, settlements and rural settlements (ShNK 2.05.02-07) provide for certain requirements for the design of transport systems. The time of moving from the place of residence to the place of work and other public transportation (one-way) should not exceed 40 minutes for 80 percent of commuters in large cities, and 30 minutes in other settlements. However, the analysis of the performance of passenger transport systems in different cities of Uzbekistan showed that the total time spent on trips exceeds this standard by 20-40% [12].

Placement of bus stops outside residential areas on straight sections of the road or on curved sections of class I and II roads with a radius of at least 1000 m, class III roads with a radius of at least 600 m, and class IV roads with a radius of at least 400 m and with a maximum slope of 40% must In this case, the standard of visibility in the appropriate category of roads should be ensured [13].

The pedestrian approach distance from the place of residence or work to the nearest stop of any type of urban passenger transport should not exceed 500 m. The density of the Rtr transrort network should be between 1.5 - 2 km/km2

According to the decision of the Senate of the Oliy Majlis of the Republic of Uzbekistan dated September 13, 2022, on changing the borders of Turakurgan district of Namangan region and Davlatabad district of Namangan city, Namangan city, a new residential area will be established on the land area transferred to Davlatabad district of Namangan city. A project on the organization of public transport (PT) routesisgiven (Figures1).

Figure 1. Newly opened JT route with planned area

In addition, one of the main factors mentioned above is the infrastructure in order to implement the project of increasing the traffic flow in the city of Namangan, i.e., the traffic flow in the existing streets of Namangan city, N. Namangoni, South Roundabout Street, Kosonsoy Street, A. Navoi Street, Firvonsoy Street and Davlatabad District. the project of re-improving the intersections, organizing an additional lane, arranging the pedestrian lane, using smart traffic lights, organizing a non-stop right-hand lane at the intersections, organizing additional roads parallel to the central streets, organizing parking lots around the main objects on the central streets, underground and scientific-practical research works such as organization of pedestrian crossings were conducted.

Many researches related to the analysis of the development of the transport system and its place in the development of the country's economy have been carried out by foreign and domestic scientists, in which the formation of the rules of transport and the research of its management methods are also important for other sectors of the economy. In the conditions of city renovation, with the development of existing constructions, transport service network, the tasks of developing certain functions of the city will appear, the necessary opportunities for the residents of the city and its surroundings will appear by

placing new institutions in the transport links. [1,2,3]

In conclusion, based on the obtained results, we can see that the level of movement of the population (use of public transport) is small. Based on this, it is possible to implement the project of establishing new residential areas in the city of Namangan and establishing new routes for highways and public transport in 2024.

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