

PAPER

## FACTORS AFFECTING THE MOVEMENT OF BUSES ON CITY STREETS

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### Abstract

This article aims to improve public transport safety on Alisher Navoi Street, prevent traffic accidents, and create comfortable conditions for passengers. It analyzes real traffic problems on the street and develops proposals and recommendations for the efficient and safe movement of vehicles.

**Key words:** buses, public transport, separate lane.

**Login:** Factors such as the condition of lanes allocated for public transport, speed indicators, quality of road infrastructure and location of barriers are studied and specific solutions are given for their improvement. If these recommendations are applied in practice, traffic jams on the streets will be reduced, the number of traffic accidents will decrease, and the speed and reliability of public transport will increase. In this regard, this article is of practical importance in improving the urban transport system.

**Research relevance:** Public transport is an affordable, convenient and environmentally friendly means of transport for a wide range of people, and its regularity and reliability determine the stability

of urban life. Therefore, it is of great importance to properly organize public transport, identify dangerous areas, eliminate existing transport infrastructure deficiencies and develop scientifically based measures to increase safety. For this reason

Experimental research was conducted on Alisher Navoi Street, one of the main streets in Tashkent, and scientifically based solutions to the factors that hinder the movement of public transport due to certain deficiencies in road infrastructure are recommended based on the analysis.

**Research results:** Alisher Navoi Street is one of the central highways of Tashkent and is considered one of the areas with high traffic density. The length of this street, the number of lanes and the presence

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of pedestrian crossings directly affect the formation of traffic flow in the area. The total length of the street is one of the important factors determining the travel time of vehicles and the level of traffic congestion. Also, the number of lanes is of great importance in ensuring the efficiency of traffic flow, improving public transport traffic and balancing the load on the roads. The indicators of the road and transport infrastructure of Alisher Navoi Street are presented in Table 1.

Road infrastructure indicators

Table 1

Estimated speed of movement in km/h	The traffic lane width, m	Bus lane width	Number of movement bands	Separator piece (bard)		The largest width of the sidewalk, m	Green area width, m	Latok	
				Width, m	Height, m			Width, m	Depth, m
60	2.80	2.85-3.55	5-10	0.80	0.30	4	4	0.70	0.50

Transport on Alisher Navoi StreetThe amount (intensity) of movement and the composition of movement were determined visually. Table 2, 3, 4, 5

Amount of movement

Traffic volume on Alisher Navoi Street between 1600-1700

Table 2

Countdown clock	Passenger cars	Trucks on lifting				Buses	Velomoto-transport	Total
		2t	2-5t	5-8t	Above 8t			
1600-1605	302	6		1		5	1	315
1605-1610	325	4	1			6		336
1610-1615	340	4	1			5		350
1615-1620	320	5		2		7		334
1620-1625	332	4	2			6		346
1625-1630	351	3				4		358
1630-1635	360	6				3	1	370
1635-1640	344	4	1		1	7		357
1640-1645	330	4				5		339
1645-1650	310	5				4		319
1650-1655	319	5	3		1	6		334
1655-1700	324	3				4	2	333
1600-1700 total	3957	50	8	3	2	62	4	4091

Table 3

Traffic volume on Alisher Navoi Street between 1700-1800

Countdown clock	Passenger cars	Trucks on lifting				Buses	Velomoto-transport	Total
		2t	2-5t	5-8t	Above 8t			
1700-1705	305	5	2			4		316
1705-1710	324	4				5		333
1710-1715	343	6			1	3		353
1715-1720	354	3		3		7	2	369
1720-1725	347	7				6		360
1725-1730	315	5	3			5		328
1730-1735	337	6				4		347
1735-1740	312	3				5		320
1740-1745	306	5	1	2	2	7		323
1745-1750	359	4				4		367
1750-1755	350	6				5	1	362
1755-1800	367	7	2			6		382
1700-1800 total	4019	61	8	5	3	51	3	4160

Table 4

Traffic volume on Alisher Navoi Street between 1800-1900

Countdown clock	Passenger cars	Trucks on lifting				Buses	Velomoto-transport	Total
		2t	2-5t	5-8t	Above 8t			
1800-1805	315	4	2			6		327
1805-1810	322	3				5		330
1810-1815	332	5				7		344
1815-1820	340	6	1			4		351
1820-1825	347	2				3		352
1825-1830	310	5	3			6		324
1830-1835	318	4				4		326
1835-1840	337	3		1		5		346
1840-1845	327	6	2			4		339
1845-1850	338	4			1	6		349
1850-1855	350	3	1	1		3		358
1855-1900	355	2	2		1	4		364
1800-1900 total	3991	47	11	2	2	57		4110

Table 5  
Traffic volume on Alisher Navoi Street between 1900-2000

Countdown clock	Passenger cars	Trucks on lifting				Buses	Velomoto-transport	Total
		2t	2-5t	5-8t	Above 8t			
1900-1905	310	4	3			5		322
1905-1910	343	5				4		352
1910-1915	324	3				6		333
1915-1920	336	6	2	2		3	1	350
1920-1925	353	4			1	4		362
1925-1930	344	6	1	1		5		357
1930-1935	342	3				7	2	354
1935-1940	327	5	2		1	6		341
1940-1945	339	4				4	2	349
1945-1950	351	6	3	2	2	5		369
1950-1955	345	5				3		353
1955-2000	349	4	4	1	2	5	1	364
1900-2000 total	4163	55	13	6	6	57	6	4306

Based on the visually obtained data, a diagram of the overall speed of vehicles was constructed (Figure 1).

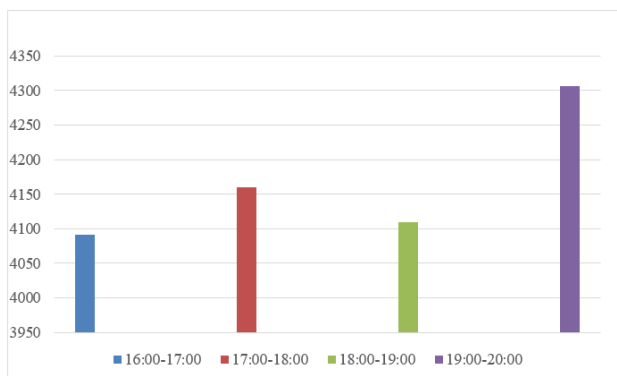


Figure 1. Analysis of total traffic intensity per hour

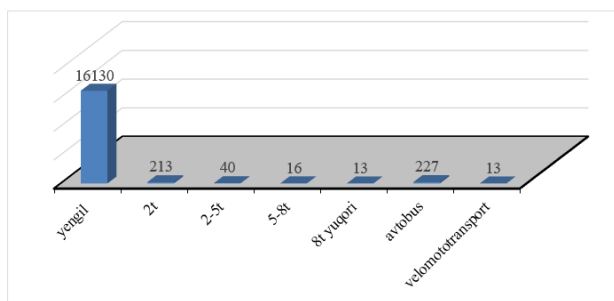


Figure 2. Total traffic flow over four hours

One of the factors affecting the movement of

public transport (buses) on Alisher Navoi Street is the branches of trees planted on the road infrastructure, which almost completely block the lanes reserved for buses. This indicates that it does not comply with normal traffic safety standards (Figure 3).



Figure 3

In this situation, traffic safety decreases and the risk of congestion increases, as buses operating in separate traffic lanes are forced to move along lane 1.1.

Table 6  
Statistical processing of vehicle speed.

Categories, km/h	Repetition, pcs.	Frequency, %	Accumulated frequency, %
25-30	3	2.5	2.5
30-35	11	9.17	11.67
35-40	10	8.33	20
40-45	16	13.33	33.33
45-50	14	11.67	45
50-55	16	13.33	58.33
55-60	8	6.67	65
60-65	10	8.33	73.33
65-70	18	15	88.33
70-75	7	5.83	94.16
75-80	2	1.67	95.83
80-85	5	4.17	100
	120	100	

The most frequent modal speed on Alisher Navoi Street is 65 km/h at a density of 15%, in addition, it is 40 km/h and 50 km/h at a density of 13.2%, which indicates that the most frequent speed on the observed section is 65 km/h (Figure 4).

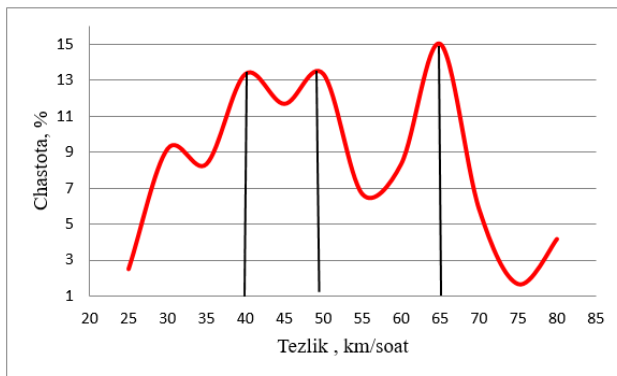


Figure 4

The 85% guaranteed speed is 63 km/h, which indicates the high capacity of Alisher Navoi Street.

Figure 5 shows a graph of the cumulative curvature of vehicles on Alisher Navoi Street.

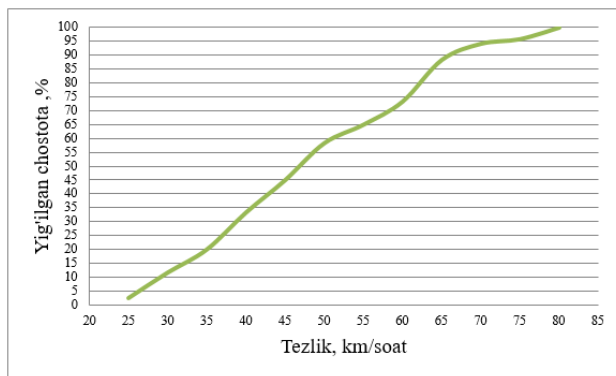


Figure 5

The following result was achieved by determining the range of vehicle speed variation.

$$R = V_{\max}^i - V_{\min}^i$$

$$R = 80 - 25 = 55 \text{ km/soat}$$

The variation range of 55 km/h indicates that the dynamic performance of the vehicles that make up the rolling stock varies depending on the type.

## Conclusion

The traffic load, traffic intensity and traffic flow of Alisher Navoi Street were statistically analyzed, and

it was found that the street has a high traffic density during daily hours, especially during rush hour. Based on the observations, it was found that the share of passenger cars is very high, which seriously affects the road's capacity and traffic congestion, and the road accidents that occurred on this street, their causes and the description of the traffic flow were studied. It was noted that factors such as population density, improperly organized entrances and exits, and unclear road signs directly affect the number of traffic accidents. Problems related to the speed of public transport, timetables and technical condition of vehicles were identified and the need to eliminate them was justified.

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