

ANALYSIS OF THE STATE OF PUBLIC TRANSPORT IN ANDIJAN

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Abstract. Existing public transport facilities cannot meet the demand in developing countries for several reasons, such as poor quality of public transport passenger traffic, poorly maintained roads and other infrastructure facilities. In modern society, due to the continuous growth of the urban development network and the competition for limited space, places of residence, study and work are far away in daily life, and recreation, shopping and other social activities are of great importance. Most of the world's large transport demand in cities can be met only with a high-quality public transport system. Requirements for bus, rail, underground and tram systems are characterized by reliability and efficiency as key factors. This article examines and analyzes the current state of public transport in Andijan.

INTRODUCTION

Transport is the basis of city life. It is one of the variables that determine the shape and financial development of the city. The mobility and convenience of the transportation system affects the sphere of social and monetary mobility in developing countries, the shape and size of urban communities, and the lifestyle and pace. Due to several issues such as the level of urbanization and population growth, the development of cities, the distribution of convenience and activity, the demand for motor vehicles has increased.

Public transport is a system of transport for passengers by group travel systems available for use by the public unlike private transport, typically managed on a schedule, operated on established routes, and that charge a posted fee for each trip [1, 2]. "The Encyclopædia Britannica" specifies that public transportation is within urban areas [3]. Examples of public transport include city buses, trolleybuses, trams (or light rail) and passenger trains, rapid transit (metro / subway / underground, etc.) and ferries. Public transport between cities is dominated by airlines, coaches, and intercity rail. High speed rail networks are being developed in many parts of the world. Most public transport systems run along fixed routes with set embarkation / disembarkation points to a prearranged timetable, with the most frequent services running to a headway. Urban public transit differs distinctly among Asia, North America, and Europe. In Asia, profit-driven, privately owned and publicly traded mass transit and real estate conglomerates predominantly operate public transit systems. In North America, municipal transit authorities most commonly run mass transit operations. In Europe, both state-owned and private companies predominantly operate mass transit systems [4, 5]. In recent years, some high-wealth cities have seen a decline in public transport usage. A number of sources attribute this trend to the rise in popularity of remote work, ride-sharing services, and car loans being relatively cheap across many countries. Major cities such as Toronto, Paris, Chicago, and London have seen this decline and have attempted to intervene by cutting fares and encouraging new modes of transportation, such as e-scooters and e-bikes [6]. Because of the reduced emissions and other environmental impacts of using public transportation over private transportation, many experts have pointed to an increased investment in public transit as an important climate change mitigation tactic [7].

MATERIALS AND METHODS

Although transport investigation has traditionally focused on the movement of goods and individuals to tackle mobility issues, researchers, planners, and policymakers are increasingly interested in integrating land use and transport systems to enhance accessibility, thereby contributing to the well-being of individuals. Public transportation plays a crucial role in



providing access to opportunities, particularly for marginalized populations [8]. Accessibility is fundamental to the economic and social development of cities. Therefore, investments in urban transport systems are essential to achieve accessibility. Numerous cities are grappling with inadequate funding from central governments and a reduction of finances, particularly during times of austerity [9]. Transport and mobility are the two constituents of cities that need to be planned sustainably. Consequently, urbanized growth has led to a higher number of motorized vehicles, and there has been a considerable increase in traffic volume in recent years. The existing road capacity and level of service do not fully cater to commuters' present traffic and transportation needs. Urban transportation concerns hamper the growth of sustainable transportation systems across the country [10].

Results and discussion

While public transportation has traditionally focused on the movement of goods and individuals to solve mobility problems, researchers, planners, and policy makers are increasingly interested in integrating land use and transportation systems to improve accessibility. There by contributing to human well-being. Public transport plays a crucial role in ensuring access to opportunities, especially for marginalized populations. Convenience is the key to the economic and social development of cities. Therefore, investments in urban transport systems are necessary to achieve accessibility. Many cities are struggling with inadequate funding and financial cuts from central governments, especially in times of austerity. Transport and mobility are two components of cities that need to be planned sustainably. Consequently, urbanized growth has led to an increase in motorized vehicles, and traffic volumes have increased significantly in recent years. The existing road capacity and level of service do not fully meet the current transport and transportation needs of passengers. Urban transportation challenges are hindering the growth of sustainable transportation systems across the country.

Today, traffic jams in the city of Andijan cannot be solved only by widening the roads and building new overpasses. Currently, it is necessary to focus on the priority of public transport, to increase its attractiveness, to ensure the preference of public transport over private transport, which creates a convenient and safe destination for everyone.

The President of the Republic of Uzbekistan instructed the field officials to implement a fundamental reform of public transportation, develop public transportation in our nation's cities and districts, meet regional needs, organize transportation infrastructure, approach transportation and logistics issues scientifically—particularly by studying other countries' experiences—and employ modern personnel. assign the recruitment and training tasks [11].

Ensuring the prudent use of public transportation is crucial for reducing traffic, safeguarding the environment, encouraging social connections, developing the city, and generating economic benefits. Developing top-notch public transportation networks is a top priority in order to meet our transportation needs in a sustainable manner and enhance the standard of living for individuals and communities [11].

Urban and suburban passenger transport is the most important part of market infrastructure. Its stable and effective operation has a great impact on the social environment of cities and the country as a whole. Therefore, a new approach to this issue is necessary in market conditions. We can conclude from the objections and opinions of the population that the issue of managing marketing activities in the passenger transport system is currently not sufficiently covered. Various business entities participate in the organization of transport services to the population, which requires certain efforts to coordinate their interests, and the activity and development of passenger transport forces research into the formation of a marketing management system. Before improving marketing management, we should pay attention to the following types of service.

The city of Andijan is one of the most densely populated regions of Uzbekistan, and its population is growing every year. This makes the effective functioning of the city's transport



system and meeting the population's needs for public transport a pressing issue. Currently, buses, minibuses, and taxis operate as public passenger transport in the city of Andijan. However, the current situation is characterized by some problems and shortcomings. The public transport system in the city of Andijan partially meets the needs of the population. Buses and minibuses are the main means of transport, covering all parts of the city. However, most of the vehicles are old, and their technical condition does not meet the requirements. Also, the insufficient number of vehicles in densely populated areas often leads to traffic congestion and inconvenience for passengers.

In total, 126 public transport vehicles operate on 9 routes in the city of Andijan.

Stationary validators of the automated payment system (ATTO) have been fully implemented and are being used on 80 modern ZongTong buses operating on 4 routes in the city.

In order to develop the transport system and road transport infrastructure of the city of Andijan, to develop a transport master plan for the population that meets international requirements, work has begun in the prescribed manner by a working group approved by the deputy khokim of the region.

For the development of a master plan and a network of new routes, data were collected at designated intersections in city centers, bus stops, and highways to identify shortcomings in the existing road transport network.

In the city of Andijan, buses, minibuses, and taxis are the main passenger transport. The transport network has routes connecting the city center and large neighborhoods. They will operate on the city's central streets and main routes. However, the number of buses does not fully meet the needs of the population, especially in remote areas, where service is limited and insufficiently developed. There are not enough vehicles for areas where large enterprises or educational institutions are located.

Several important measures need to be taken to develop the public transport system in Andijan:

- Although taxi services are widespread among passengers, their cost is considered high for many. In addition, environmental safety issues in the city's public transport system are also relevant, as old vehicles pollute the air;

- It is necessary to modernize public transport and provide it with modern buses. This not only creates convenience for passengers, but also ensures environmental safety. The introduction of electric or gas-powered vehicles can reduce air pollution;

- The number of public transport vehicles is insufficient for the population density and daily demand. The shortage of vehicles is especially noticeable in the morning and evening hours. As a result, buses and minibuses are crowded, forcing people to travel to their destinations in unfavorable conditions;

- Current routes cover the main areas of the city, but there is a shortage of transport in remote and newly developing neighborhoods. In some cases, people have to walk long distances to reach bus stops;

- Traffic jams occur on some streets of the city, especially in the morning and evening. This not only slows down the movement of public transport, but also leads to a waste of time for passengers. The schedule and times of public transport are not constant, which creates inconvenience for passengers;

- Old vehicles often have engines with low fuel efficiency, which pollute the air. For the improvement of the city's ecological situation, it is necessary to switch to gas or electric vehicles;

- In some cases, the attitude of drivers towards passengers is not at the proper level. One of the problematic situations is the prolonged stopping of buses in parking lots or the non-compliance of drivers with safety regulations;

- There is no electronic payment system in public transport. Passengers mainly pay in cash, which sometimes causes inconvenience. In modern conditions, the introduction of electronic



payment can create convenience for passengers. The non-use of conductors during the implementation of the payment system leads to an increase in the number of complaints from passengers, inconvenience, and delays at bus stops;

- It is necessary to identify and compile a list of bus stops and taxi stops in Andijan, where the possibility of safe and unimpeded movement of passengers is not sufficiently organized;

- Information about 86 public transport stops and 9 bus routes should be digitized in conjunction with the geoinformation system;

- It is necessary to reconstruct the bus stops in the agglomeration area of the city of Andijan, taking into account taxi stops, the environment for safe and unimpeded movement of passengers, and the bus stops that have become unusable and unusable;

- There are many stations, but they do not meet modern requirements: there are no closed waiting areas, electronic schedules, and amenities;

- Transport routes in the agglomeration area are sometimes overcrowded. Traffic jams occur especially during peak hours of the day. There are not enough pedestrian walkways and safe crossings, which negatively affects safety. Many people need fast and convenient vehicles, but the existing infrastructure does not fully meet this need.

- It is necessary to modernize public transport and introduce environmentally friendly vehicles. The need for road repairs and expansion is very high. It is necessary to introduce modern bus stops and electronic systems. It is necessary to develop a program for the strategic development of urban and agglomeration transport infrastructure.

Taking into account the above problems and shortcomings, a re-inventory of urban routes for improving the public transport system in the Andijan city agglomeration was conducted. Practical work was carried out to organize new routes, taking into account the needs and wishes of the population.

To date, employees of the regional Transport Department and motor transport enterprises, in accordance with Chapter 6 of Appendix No. 1 to the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated March 18, 2023, No. 116, have conducted an experimental study of bus routes SHI-1, SHI-75, SHI-222 in the city of Andijan, and it is planned to form a register of newly introduced routes in the prescribed manner.

Passports, schemes, and schedules for the formed routes are being developed (Table 1).

Table 1

INFORMATION about the proposed bus routes in the city of Andijan						
№	Direction name	Distance	Required number of vehicles	of	Number of flights	Number of passengers
1	Akyar-Pistamozor (through Baburshah Street)	11,0	16		16	15360
2	Akyar-Pistamozor (via Saiguzar)	12,0	16		16	16640
3	Akyar-Pistamozor (via A. Fitrat Street)	13,0	16		16	16640
4	36-post-Gavz Bus Station (A.Navoi Avenue)	14,1	16		12	13440
5	36-post-Gavz Bus Station (Uzbekistan, via Nayman Street)	13,0	16		12	13440
6	Post 36-Bustan (via Old Town)	12,5	16		12	13440



7	36-post-Andijan (via Old City, Ayrilish)	24,0	20	8	18720
8	Ghauz AS-Clinic	15,7	24	10	19200
9	Gavz - AS Clinic (via ADU)	18,2	16	10	12800
10	Gavz AS-Yangi Andijan	15,6	22	18	52250
11	Gavz AS-Bo'ston (via Yangi Bozor)	11,2	16	16	15360
12	Bogishamol-Navroz MALL shopping complex	10,0	16	16	15360
13	Bogishamol-Gavz AS (Spare parts market, through Yangi bozor)	16,0	16	12	13440
14	Dalvarzin-New Andijan (Old City, Through Ayrilish)	18,0	20	10	17600
15	Pistamozor-Clinic (via Boburshoh Street)	10,0	20	18	23760
16	Wooden Bridge-Jahon Market (New Road)	18,0	25	10	22000
17	80 meters of street - World Market (Uzbekistan, via Nayman Street)	14,0	16	12	13440
18	Khrabek-Navruz MALL	15,0	16	12	13440
	TOTAL:	261,3	323	236	326330

Solving the problem of increasing the level of transport services to consumers is closely related to the quality of the services provided. The quality of passenger transport services is defined as the conformity of the consumer characteristics of the service with the market requirements, and the difference between two conditional values is evaluated by the passenger's requirements and actual parameters. This difference shows the level of passenger service quality. Among the most important parameters of the quality of passenger transport services are the following:

1. Security.

When providing services, the driver must ensure compliance with safety requirements for the life and health of citizens and the environment.

2. On time and speed.

The driver must carry out the transport in accordance with the established schedule, other requirements regarding the time and speed of vehicles stipulated in the transport contract:

3. Convenience, ethics and aesthetics.

When providing transport services, the driver must ensure compliance with the conditions of passenger service in the vehicle, as well as the requirements for initial, intermediate and final checkpoints:

- the number of passengers in the vehicle must be in accordance with the capacity standards specified in the transport contract (if provided for in the contract), as well as in the technical description of the vehicle:

- to the generally accepted standards of behavior of executive employees (politeness, kindness, speech culture, appearance) must observe:

- the rooms of motor vehicle salons, parking points, bus stops and passenger bus stations should be clean, aesthetic, illuminated, there should be no malfunctions that harm the health and property of passengers:



- vehicles, parking lots, bus stops and passengers registration and maintenance of bus stations, the appearance of employees should correspond to the generally accepted norms and corporate style of the executive:

- the temperature, air content and noise level in cars and stations must be in accordance with the established norms.

4. Complex.

In providing the service, the carrier must ensure the fulfillment of all components of the technological content of the service, as well as provide services related to the content and requirements specified in the transportation contract.

5. Information and Reliability.

In the process of service, the carrier, departure (arrival) of passenger vehicles, baggage, route, locations of fire extinguisher and first aid kit, locations of emergency exits and methods of their opening, communication with the executive must provide complete and reliable information about the methods.

Benefits of using public transport:

One advantage of public transportation is that it is a very efficient mode of transportation, which means that each vehicle can carry a large number of people.

Compared to cars, it is much more efficient because less emission are produced per passenger;

Public transport is also superior in terms of price, because there are many it is cheaper to transport people in one vehicle than if everyone uses their own car;

Another upside of public transport is that you can work while commuting to your workplace or university.

For example, if you work in a demanding job and you have to work long hours, you can work a little while commuting on public transport so that you can get out of the office in the evening.

So, public transportation can be a more efficient use of your time compared to sitting in our car and paying attention to traffic.

So, if you live in one of those busy cities, you can get to work and home faster by public transportation instead of using your car, which can spend more time with your family or friends.

Reducing public health problems Air pollution from the use of automobiles can have a significant negative impact on our health. High levels of air pollution increase the risk of lung and heart disease, which can significantly reduce life expectancy.

CONCLUSION

Numerous issues surfaced throughout the city of Andijan's public transportation system's growth and development. This article examines the effectiveness and user-friendliness of the city of Andijan's public transportation system. The following was shown by the analysis's findings:

- Status of the Public Transportation System In the city of Andijan, buses and minibuses are the primary forms of transportation, with the public transportation system serving as the primary means of transportation. To ensure that the system satisfies contemporary standards, the infrastructure must be improved.

- Vehicle obsolescence, road conditions, driver credentials, and passenger service quality are the system's primary issues. Additionally, there are issues with transportation planning and traffic safety.

- The essay offers some suggestions for enhancing the public transportation system. These include actions to upgrade driver qualifications, upgrade road infrastructure, buy new cars, and improve passenger services. Additionally taken into consideration were the issues of improving transportation planning and bolstering security procedures.



The goal of this analysis is to determine what needs to be done to enhance the effectiveness of the city of Andijan's public transportation system. The article's suggestions and fixes have the potential to significantly enhance the public transportation system.

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