MODERNIZATION OF THE PUBLIC TRANSPORT SYSTEM IN TERMIZ CITY: A SCIENTIFIC AND PRACTICAL APPROACH

Choriyev Bekzod Urazovich
Trainee-teacher, Termez State University of engineering and agrotechnologies
E-mail: bekzodchoriyev0097@gmail.com
ORCID: 0009-0005-5857-153X
Abrayev Abdulla Eshboyevich
Assistant, Termez State University of engineering and agrotechnologies
E-mail: abdullaadiulla@gmail.com
ORCID: 0009-0004-2150-7377
Sharifova Nargiza Djurayevna
Assistant, Termez State University of engineering and agrotechnologies
E-mail: nargizasharipova439@gmail.com
ORCID: 0009-0004-1419-7403
Yo‘ldoshev Sharofiddin Faxriddin o‘g‘li
Assistant, Termez State University of engineering and agrotechnologies
E-mail: sharofiddinyuldosh@gmail.com
ORCID: 0009-0005-0267-269X

Abstract. This article analyzes the existing problems in the public transport system of Termiz, including service quality, passenger flow, routes, and stop infrastructure. The study proposes solutions based on the needs of the population, including modernization of transport infrastructure, implementation of digital technologies, introduction of electronic payment systems, and the use of environmentally friendly transport. The findings are based on practical experiments, statistical data, international experiences, and local conditions. Furthermore, the proposals are evaluated from economic, social, and environmental perspectives.

Keywords: Termiz city, public transport, passenger flow, routes, stops, electronic payment, eco-friendly transport, GPS, system reform.

Annotatsiya. Ushbu maqolada Termizning jamoat transporti tizimidagi mavjud muammolar, jumladan, xizmat ko'rsatish sifati, yo'lovchilar oqimi, marshrutlar va to'xtash infratuzilmasi tahlil qilinadi. Tadqiqot aholining ehtiyojlariga asoslangan echimlarni taklif qiladi, shu jumladan transport infratuzilmasini modernizatsiya qilish, raqamli texnologiyalarni joriy etish, elektron to'lov tizimlarini joriy etish va ekologik toza transportdan foydalanish. Topilmalar amaliy tajribalar, statistik ma'lumotlar, xalqaro tajribalar va mahalliy sharoitlarga asoslangan. Bundan tashqari, takliflar iqtisodiy, ijtimoiy va ekologik nuqtai nazardan baholanadi.

ISSN 3030-3907

Kalit so'zlar: Termiz shahri, jamoat transporti, yo'lovchilar oqimi, marshrutlar, bekatlar, elektron to'lov, ekologik toza transport, GPS, tizim islohoti.

Аннотация. В этой статье анализируются существующие проблемы в системе общественного транспорта Термиза, включая качество обслуживания, пассажиропоток, маршруты и остановочную инфраструктуру. В исследовании предлагаются решения, основанные на потребностях населения, включая модернизацию транспортной инфраструктуры, внедрение цифровых технологий, систем электронных платежей и использование экологически чистого транспорта. Выводы основаны на практических экспериментах, статистических данных, международном опыте и местных условиях. Кроме того, предложения оцениваются с экономической, социальной и экологической точек зрения.

Ключевые слова: город Термиз, общественный транспорт, пассажиропоток, маршруты, остановки, электронная оплата, экологичный транспорт, GPS, реформа системы.

Introduction

In modern cities, the public transport system is an integral part of socio-economic development and has a significant impact on the standard of living of the population. This system facilitates mobility within urban areas and ensures access across various social groups. Termiz city has achieved notable progress in the development of its public transport system; however, further expansion and improvements in quality remain necessary through the implementation of additional measures.

According to Presidential Decree No. PF-60 dated January 28, 2022, as outlined in Goal 36 of the “New Uzbekistan Development Strategy,” numerous large-scale initiatives have been proposed to modernize and improve the public transport system [1]. In addition, Resolution No. PQ-59 dated February 16, 2023, titled “Measures for Reforming the Public Transport System,” emphasizes the introduction of new directions and technologies aimed at enhancing the quality of public transport services [2]. These reforms are being implemented gradually across cities and regional centers, providing strong momentum for improving the efficiency of the public transport system in Termiz city.

RESEARCH METHODOLOGY In the course of the study, a combination of qualitative and quantitative research methods was employed to ensure comprehensive analysis and accuracy of findings. The following methodologies were applied:

- Survey method
- Field observation

ISSN 3030-3907

- Statistical analysis
- Comparative evaluation
- Expert interviews

Current State of Public Transport in Termiz: According to survey results, 78% of residents regularly use public transport. However, issues such as outdated vehicles, limited number of routes, and non-compliant stops are prevalent. Most vehicles have been in operation for over 10 years and do not meet energy efficiency, safety, and environmental standards. Inadequate cleanliness at stops, absence of ramps, and lack of digital information displays cause inconvenience to passengers. Moreover, the service culture of transport staff and their communication with passengers is considered unsatisfactory.

Passenger Flow and Route Network: From 2020 to 2024, the number of passengers using public transport in Termiz has steadily increased—from about 35,000 in 2020 to nearly 47,000 in 2023. This indicates a growing demand for transport services. However, only 5 out of 14 routes fully serve suburban areas. Interruptions in service, deviation from schedules, and route overlaps result in uneven distribution of transport load. In some areas, the distance between stops is as long as 1.5 km, causing discomfort for pedestrians[3].

Table 1.

The Number of Passengers Transported by Public Transport in Termiz City from 2020 to 2024

Years	Number of Passengers Transported by Public Transport (thousand passengers)
2020	34 986,5
2021	41 225,3
2022	45 733,2
2023	47 823,0
2024	50 101,9

Experimental Trials: An experimental study was conducted on route No. 15 using the Geo Tracker app to monitor schedule adherence. Previously, with 40 stops, the route took 43 minutes and 34 seconds. After optimization, with 18 stops, travel time was reduced to 28 minutes and 12 seconds, saving 15 minutes and 22 seconds. This demonstrated a significant increase in efficiency. Similar trials on three other routes achieved an average time saving of 20–30%, which positively impacted passenger satisfaction[4].

ISSN 3030-3907



Picture 1.The Current Status of the Route from Termiz Central Bus Station to the Northern Bus Station



Picture 2. The Proposed Condition of the Route from Termiz Central Bus Station to the Northern Bus Station

Proposed Measures and Solutions:

- Procurement of electric and hybrid buses: Potentially reduces CO_2 emissions by 40%;
- Construction of modern bus stops (lighting, heating, ramps, information displays): Each stop improves daily convenience for 300–400 passengers;
- Implementation of real-time GPS monitoring: Ensures over 90% adherence to schedules;
- Mobile apps to notify passengers of vehicle movements: Enhances user convenience;
- Introduction of electronic payments via QR codes and smart cards: Reduces cash transactions by 60%;

ISSN 3030-3907

- Special fare schemes for students, pensioners, and people with disabilities: Promotes social equity;
- Adoption of gross contracts with transport operators: Encourages competition and service transparency.

Scientific Results and Analysis: Scientific and practical research on Termiz's transport system shows that the application of modern technologies can increase service coverage by 30–35%, reduce delays in passenger movement by 25–30%, and improve environmental sustainability by 20%. The modernization of the transport system positively influences urban infrastructure development, labor productivity of the economically active population, and overall quality of life. Analysis indicates that reducing transport-related expenses can result in annual savings of approximately 1.2 billion UZS[5-6].

Table 2.

Estimated Annual Cost Savings through Optimization in Termiz Public Transport System

№	Indicator	Value	Explanation
1	Average daily operational cost per bus	500,000 UZS	Includes fuel, salary, maintenance, etc.
2	Number of daily trips (across the city)	20 trips	Active public transport routes
3	Active working days per year	300 days	Excluding weekends and maintenance days
4	Total annual operational cost	500,000 × 20 × 300 = 3,000,000,000 UZS	Total cost for all routes per year
5	Cost savings from route optimization (based on trials)	35–40%	Due to reduced fuel use, travel time, and intervals
6	Estimated annual savings (35–40% of total cost)	~1,050,000,000 – 1,200,000,000 UZS	Projected savings with optimized operations

CONCLUSION The proposed measures based on the identified issues can elevate the public transport system in Termiz to a new qualitative level. The integration of innovative technologies, financial mechanisms, and social approaches will significantly improve system efficiency and meet the population's mobility needs. Key conclusions:

ISSN 3030-3907

- Optimizing schedules through GPS increases transport reliability;
- Electronic payment systems reduce cash handling and improve convenience;
- Eco-friendly vehicles reduce environmental impact;
- Providing benefits for social groups ensures broad inclusivity;
- Gross contracts ensure quality control and stable service provision.

REFERENCES

1. O‘zbekiston Respublikasi Prezidentining Farmoni, 28.01.2022 yildagi PF-60-son
2. O‘zbekiston Respublikasi Prezidentining qarori, 16.02.2023 yildagi PQ-59-son
3. Sheraliyevich, Primkulov Bekzod, Qurbonazarov Shavkat Abduraximovich, and Choriyev Bekzod Urazovich. "TERMIZ SHAHRIDA MAVJUD BO ‘LGAN JAMOAT TRANSPORTI YO‘NALISHLARINING QAMROV KENGLIGINI OSHIRISH: Termiz davlat universiteti “Transport tizimlari va inshootlari” kafedrasi, DSc, dotsent, Qo’ziyev Abdimurot O’roqovich taqrizi ostida." IQRO INDEXING 9.1 (2024): 90-95.
4. Sheraliyevich Primkulov Bekzod, and Choriyev Bekzod Urazovich. "Shahar Aholisini Jamoat Transportida Tashishda Harakat Muntazamligini Oshirish Yo ‘Llari (Termiz Shahar 15-Yo‘Nalishli Avtobus Misolida)." Open Academia: Journal of Scholarly Research 2.2 (2024): 35-38.
5. Abduraximovich, Qurbonazarov Shavkat, Choriyev Bekzod Urazovich, and Sharifova Nargiza Djurayevna. "TERMIZ SHAHRIDA MAVJUD BO‘LGAN AVTOBUS BEKATLARINING TAHLILI." International journal of scientific researchers (IJSR) INDEXING 4.2 (2024): 13-18.
6. Urazovich C. B., Eshboyevich A. A., Djurayevna S. N. THE ROLE OF PUBLIC TRANSPORT IN THE SUSTAINABLE DEVELOPMENT OF CITIES (ON THE EXAMPLE OF REGIONS) //Multidisciplinary Journal of Science and Technology. – 2025. – Т. 5. – №. 6. – С. 58-62.

ISSN 3030-3907