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The Strategic Importance of Tashkent Metropolitan Transport in The Context of Urbanization

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Abstract: The experience of developed countries in the world shows that the increased importance of transport services in the economic and social development of a country increases the transport mobility of the population and creates a solid foundation for the sustainable development of the economy. Currently, public transport is distinguished from other sectors by a highly competitive environment.

Keywords: Developed countries, competitive environment, public transport.

Introduction: The experience of developed countries in the world shows that the increased importance of transport services in the economic and social development of a country increases the transport mobility of the population and creates a solid foundation for the sustainable development of the economy. Currently, public transport is distinguished from other sectors by a highly competitive environment. Due to strong competition, it is necessary to focus on meeting consumer demand in terms of the quality of services provided by public transport, including the Tashkent metro, in the transport system, the modern transport market in general, the types of services, and the convenience of using passenger transport services. Improving the methodology for increasing the economic efficiency of passenger transport activities in metropolitan transport means not only ensuring the efficient operation of transport systems, but also having a positive impact on the economy as a whole. Currently, research and development work is being carried out in metropolitan transport on the introduction of digital payment systems, management of rolling stock using artificial intelligence, equipping it with interactive navigation windows, establishing electricity generation

at enterprises operating in metropolitan transport, introducing new types of stops, and organizing rolling stock overhauls using fully localized spare parts.

Metropolitan transport in Uzbekistan is very important for the economy, as it creates the opportunity to transport a large number of passengers quickly and at low prices. This, especially for the business environment of cities, serves to save time and reduce costs. The Development Strategy for the Development of Uzbekistan indicates as goal 36 "Developing a unified transport system that seamlessly connects all types of transport, creating the opportunity to get to and from the destination based on daily transport services between major cities. According to it, the task is set to integrate the network of surface passenger transport routes with the metro, modernize the infrastructure, and purchase 14 new rolling stock (metro trains). Based on the implementation of the above tasks, it will be possible to develop and effectively implement the metro in the country.

METHODS

After gaining independence, Uzbekistan chose its own unique and appropriate path of development and renewal in the economic, socio-political, ideological and spiritual spheres. Sustainable development of the country's economy, achieving sustainable economic growth rates, ensuring the competitiveness of our national products in the world market, and increasing the standard of living and well-being of our people are among the most priority tasks today. The President of the Republic of Uzbekistan Sh.M.Mirziyoyev emphasizes the following points in his reports on this issue: "Today, analyzing the consistent progress of our country on the path of sustainable development, we have every reason to say that decisive steps were taken to implement fundamentally important reforms last year. The main goal of these reforms is to ensure a decent standard and quality of life for the population. This policy aimed at rapid and sustainable development will be unconditionally continued in the future."

In order to more clearly understand the economic essence of localization, it is necessary to study it in connection with the national economy. The production of national products, that is, supporting local manufacturers producing import-substituting products, is a pressing issue today.

If we pay attention to the financing of localization of the Tashkent Metro State Enterprise, we can see the financing of the modernization of metro cars that have reached the end of their service life by 15 years from the budget, and the financing of the construction of new routes and stations in the metro from the republican and other funds.

As the legal basis for the modernization of metro cars that have reached the end of their service life by 15 years and the financing of localization of the construction of new routes and stations in the metro, we can see the following resolutions and orders.

Brief description of the Tashkent Metro - The Tashkent Metro has been operating since November 7, 1977. Currently, the length of the metro is 71 km, ranking 4th among the CIS countries. The metro has a total of 50 stations (17 on the "Chilonzor" route, 11 on the "Uzbekistan" route, 8 on the "Yunusobod" route, 14 on the "30th Anniversary of Uzbekistan Independence" route).

RESULTS AND DISCUSSION

The increase in the number of permanent residents of Tashkent and the number of daily commuters entering the city in recent years is also increasing the demand for public transport services. In 2016, the number of permanent residents of Tashkent was 2.4 million people, and by the end of 2021 it was 2.7 million people (Figure 1.6). The number of daily socially active residents increased from 1.7 million in 2016 to 2.0 million. In addition, the number of daily socially active residents entering from other regions was 1.4 million people at the end of 2021. As a result, a daily mobile socially active population of 3.4 million is emerging in the city.

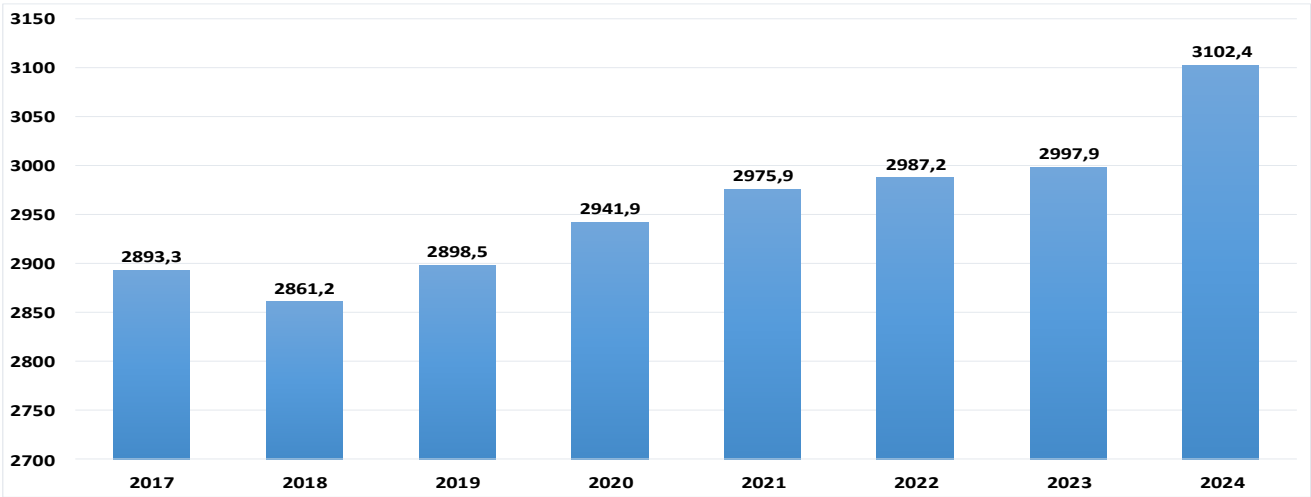


Figure 1. Dynamics of population change in Tashkent city (thousands of people)

If we analyze the population of Tashkent by age group, and 40 to 49 will be larger (Figure 2). we can see that in 2023, the population aged 8 to 15

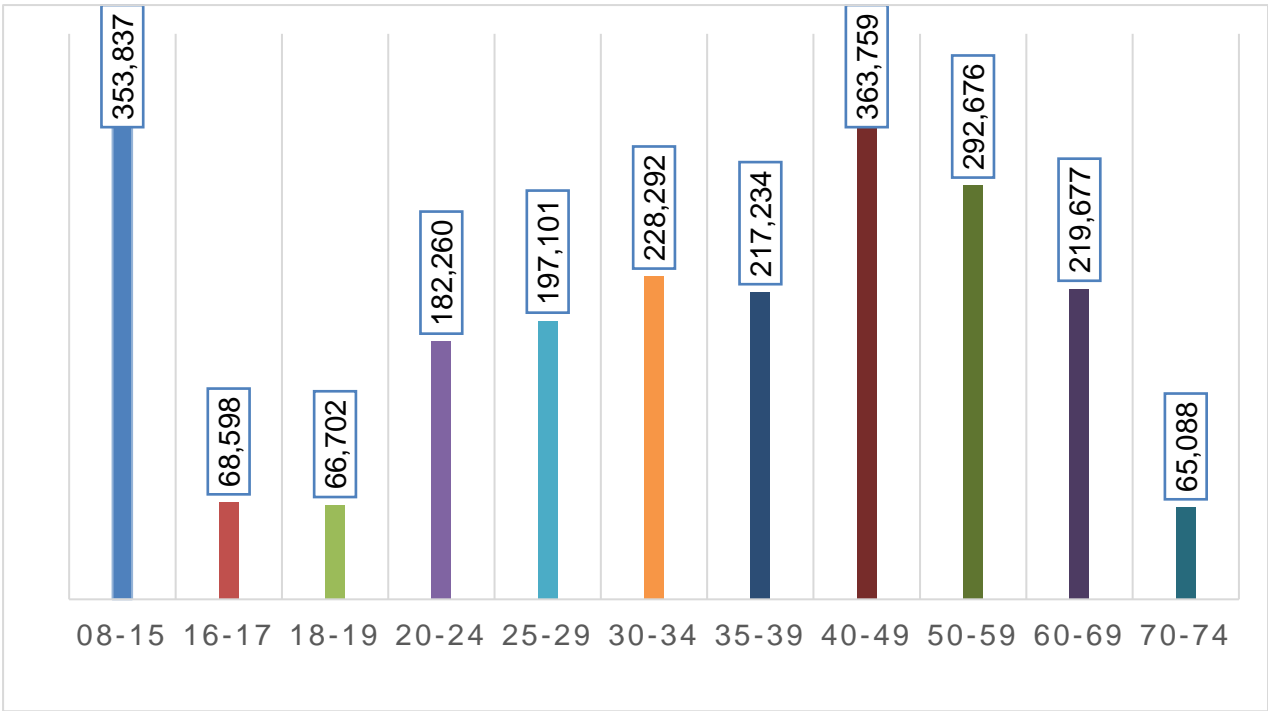


Figure 2. Tashkent city population by age group (2023)

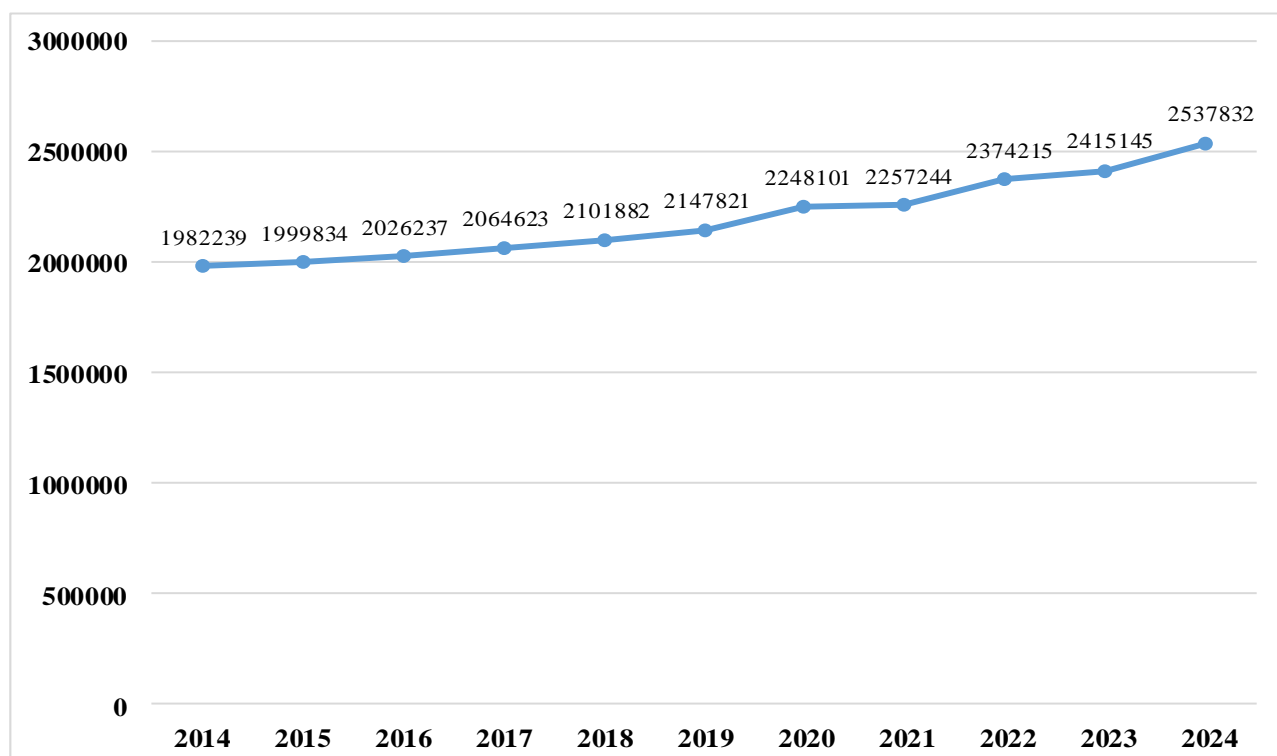


Figure 3. Dynamics of changes in the population of Tashkent city from 8 to 74 years old

The fact that more than two million people use personal vehicles indicates that there is an opportunity to attract even more consumers as a result of the proper organization of marketing activities by the metro.

There are many objects that create the mobility of this population. In particular, there are 105,603 enterprises

and organizations of various types in Tashkent. The fact that the population visits these objects for work, study and recreation indicates the high mobility of the population and its need for transport.

There is no traffic jam in the morning on weekends, but on Saturdays and Sundays at 19:30 the roads are blocked by 6 points.

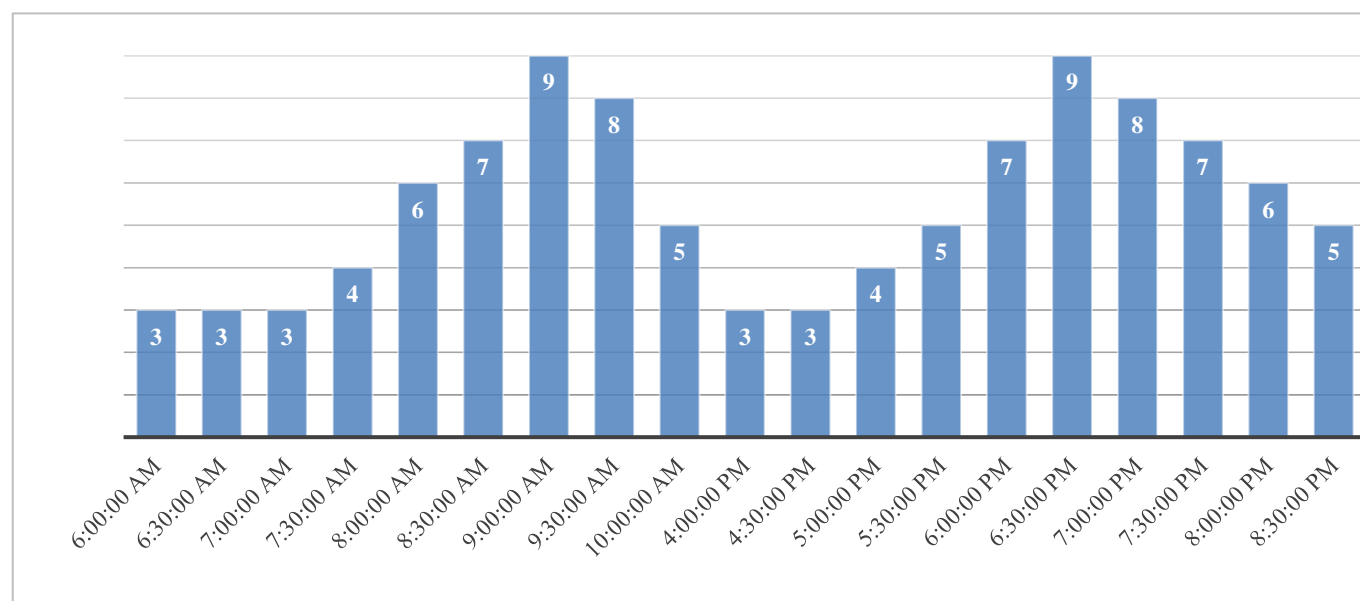


Figure 4. Traffic jams in Tashkent (hourly, points)

Considering that workplaces are in the city center and

residential areas are on the outskirts of the city, it takes

an average of 30-35 minutes to travel a distance of 10 km between 08:00 and 10:00 in the morning.

The main traffic jams in Tashkent occur on Shikotlar Street, around the "Megaplanet" complex in Yunusabad district, at the intersection in front of the Ministry of Internal Affairs, Navoi Street, Abay Street, streets around the Almazar khokimiyat, and roads around the "Xalklar dostligi" square.

Based on the above data, the correlation-regression analysis of the number of permanent residents of

Tashkent, the number of potential passengers, the number of passengers transported in the metro, and the income of the population looks like this.

It was found that there is a high correlation between the number of permanent residents, the number of potential passengers, and the number of passengers transported in the metro.

As a result of the two-factor regression analysis of these indicators, the following model was identified:

$$Y = -340.23 + 0.269 \cdot X_1 + 0.186 \cdot X_2. \quad (1.1)$$

If we assume that other indicators remain unchanged, it was found that a 1% increase in the number of permanent residents increases the number of passengers transported in the metro by 0.26%, and a 1% increase in the number of mobile residents increases the number of passengers transported in the metro by 0.19%. This is not a sufficient indicator to positively change the current traffic jams and the speed of public transport in the city. Therefore, it is necessary to increase the demand for metropolitan services from the city population, using the experience of large cities. To achieve this goal, it is necessary to further increase the attractiveness of metropolitan services and further intensify their marketing and PR activities.

If we forecast the volume of passenger transportation in the metro in relation to population growth based on data for 2014-2024 (Figure 3),

it was determined that by 2026 the annual passenger transportation volume will be 1,563,431 people. Information about the transport system in Tashkent and its analysis reveal interesting points regarding the movement and transport usage habits of the city's population. It is known that the city's population is mainly inclined to use private vehicles, which forms the demand for the metro and other public transport networks. More effective organization of the metro's marketing activities creates a great opportunity to attract the attention of the population, especially those using private transport. Traffic jams in Tashkent,

especially in areas close to the city center, create a good opportunity to increase the use of metro services. The distance between workplaces in the city center and residential areas on the outskirts and traffic jams can direct people to fast and convenient means of transport, that is, the metro. Also, the forecast of the number of passengers transported by the Tashkent metro shows the analysis related to the growth of the permanent and mobile population in the city. If the population increases, the volume of use of metro services will also increase, but for this it is necessary to increase the attractiveness of the metro. Strengthening marketing and PR activities, improving service quality, and creating new directions can be important steps on this path.

CONCLUSION

The results of the study show that metropolitan transport is an important component of the effective development of urban infrastructure and modernization of the transport system in the context of urbanization. The Tashkent metro directly affects the city's economy, increases the mobility of the workforce, ensures environmental sustainability, and serves to reduce congestion in the urban road transport system.

The analysis shows that the demand for the city's population and public transport is increasing. During 2016-2021, the permanent population of Tashkent increased from 2.4 million to 2.7 million, which requires further development of the passenger transport system. By creating an integrated public transport system in Tashkent and providing the metro with digital management tools, it is possible to increase the efficiency of passenger service. The main advantages of the metropolitan transport system are:

Reducing traffic congestion in the city center;

Transportation of passengers with high comfort and safety;

Reducing air pollution as an environmentally friendly means of transport;

Increasing the socio-economic activity of the population and creating new jobs.

It is also important to improve marketing strategies, build new stations, develop attractive tariff systems, and widely introduce digital payment systems to popularize metro services. The results of the regression analysis show that, along with the increase in the population, systematic measures are needed to increase the use of metro services.

Therefore, the development of the metro system should be included in the state's long-term transport strategy as one of the main directions of urban infrastructure. In the future, expanding metro services, introducing new technologies, and switching to environmentally friendly

vehicles will remain important directions in the transport sector.

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