*American Journal of Traffic and Transportation Engineering*
2024, Vol. 9, No. 4, pp. 63-66
https://doi.org/10.11648/j.ajtte.20240904.11

Methodology Article

# Problems of Development of Transport and Road Transport Infrastructure of Andijan City

**Khayrullo Baynazarov*, Sotvoldiyev Xasanboy**

Department of Vehicle Engineering, Andijan Machine-Building Institute, Andijan, Uzbekistan

## Abstract

As a result of the acceleration of the urbanization process, the increase of megalopolis cities, and the growth of the population, the demand and need for public transport is increasing every year. This, in turn, requires improving the quality of public transport service, improving its culture, adapting it to today's times and conditions. The President of the Republic of Uzbekistan told the officials of the field to fundamentally reform public transport, to develop public transport in the districts and cities of our country, to meet the needs of the regions, to organize transport infrastructure, to take a scientific approach to transport and logistics issues, in particular, to study foreign experience, to hire modern personnel for the field. set the tasks of training and recruitment. Public transport is essential for ensuring equitable access to transportation, reducing traffic congestion, protecting the environment, promoting social interactions, shaping urban development, and providing economic benefits. It is crucial to invest in and prioritize the development of high-quality public transport systems to address our transportation needs sustainably and improve the quality of life for individuals and communities. This article presents tasks on improving the public transport system in Andijan agro-development are presented.

## Keywords

Accessibility, Bus, Train, Subway, Stations, Peak Hours, Public Transportation System, Public Transport Infrastructure

## 1. Introduction

Every year, there is a greater need and demand for public transportation due to the acceleration of urbanization, the rise in megalopolis cities, and population expansion. This calls for enhancing the standard of public transportation services, modernizing their culture, and making necessary adjustments to fit the needs of the times.

In current civilization, public transportation is essential for a number of reasons:

1. Accessibility: Regardless of one's mobility or economic level, public transportation offers a method of transit for everybody. It guarantees that those who lack the means or are unable to drive have a dependable means of transportation, enhancing their access to jobs, healthcare, education, and other necessities.
2. Traffic reduction: The number of automobiles on the road decreases as more people utilize public transportation. By doing this, traffic congestion and its related issues—such as longer travel times, air pollution, and accidents—are lessened. In metropolitan regions, traffic congestion may be considerably reduced with an efficient public transportation system.
3. Environmental advantages: Using public transportation

*Corresponding author: avtodoroj2012@gmail.com (Khayrullo Baynazarov)

**Received:** 4 March 2024; **Accepted:** 18 March 2024; **Published:** 15 August 2024

is usually less harmful to the environment than driving a private vehicle. To sum up, public transportation is critical for guaranteeing fair access to transportation, lowering traffic, safeguarding the environment, encouraging social contacts, directing urban growth, and generating economic advantages. To meet our transportation demands sustainably and raise the standard of living for both individuals and communities, it is imperative that we prioritize and invest in the development of high-quality public transit networks.

## 2. Literature Review

For millions of people globally, public transportation provides an effective and environmentally friendly form of transportation, making it essential in today's metropolitan settings. The purpose of this study is to examine the most recent scientific research on a range of topics related to public transportation, such as its effects on the environment, customer happiness, health advantages, and ability to reduce the use of private vehicles. Through an assessment of the literature, this study aims to offer a thorough overview of the advantages and difficulties related to public transportation systems.

The effectiveness and public acceptance of public transportation systems depend heavily on an understanding of user pleasure. Many studies have looked at a variety of characteristics that affect user satisfaction, such as accessibility, safety, comfort, dependability, and journey time. The results indicate that taking action on these areas has a favorable effect on user happiness and raises riding rates. Additionally, research highlights the significance of efficient communication, cost-effectiveness, and ease of use in molding the opinions of users toward public transportation systems. Using public transportation has been associated with other health advantages as well. Because it is sometimes necessary to walk to and from public transportation terminals, studies show that those who regularly utilize public transportation have greater levels of physical activity. When compared to the usage of private vehicles, public transportation is also linked to a decrease in traffic-related injuries and deaths. According to this field's research, encouraging the use of public transportation can lead to better public health results. The ability of public transportation to lessen the use of private vehicles and the resulting traffic congestion on the roads is a crucial feature. A successful public transportation network is positively correlated with fewer journeys in private vehicles, according to a number of researches looking at how public transportation affects travel behavior. Public transportation's capacity to reduce the use of private vehicles is contingent upon a number of criteria, including accessibility, price, availability, and service quality. Although there are many advantages to public transportation, there are a few drawbacks that should be noted. These include problems with finance and funding, opposition to change, difficulties with design and execution, and guaranteeing fair access to transportation services. Subsequent investigations need to concentrate on pinpointing inventive approaches to tackle these obstacles and augment the durability and efficiency of public transportation networks. The scientific literature on public transportation is extensive and covers a wide variety of topics, including operations, planning, design, efficiency, sustainability, and the effect on urban surroundings.

Analysis shows that a number of problems related to the effective use of public transport today await their scientific solution [1-5]. In particular, renewing the fleet of vehicles serving the population and increasing their use, establishing a reasonable balance between passenger transportation costs and car usage indicators, preventing unjustified increases in public transport tariffs. Important issues such as not eating are among these. Ceder, A.'s work [6] provides a comprehensive overview of public transport planning and management, including various modeling techniques, case studies and current practices. Hall, D.'s research [7] focuses on various aspects of public transport, including planning, management and operation, and sustainable transport solutions. A discussion of various aspects of transportation systems, including the management, control, and planning of public transportation, is covered in scientific works Hensher, D. A., & Button, K. (Eds.) [8]. Litman, T. [9] his comprehensive research report analyzes the economic, social, and environmental benefits and costs of public transportation, providing valuable insights for decision makers. A review article by Cervero, R. [10] focuses on transit-oriented development and co-development in the context of public transportation systems, highlighting the benefits and challenges associated with these concepts. You can use these sources as a jumping off point to explore the scholarly literature on public transportation. Furthermore, scholarly repositories such as Science Direct, JSTOR, and Google Scholar can assist you in locating more focused research papers and articles on this subject.

## 3. Materials and Methods

This study uses experimental and analytical approaches. Planning the development of all types of transport infrastructures that provide movement within the boundaries of the Andijan agromerization territory requires solving the following tasks:

1. Implementation of transport activities on highways of regional, intercity and local importance, planning of events ensuring the priority of public transport traffic on the roads;
2. Development of scheme projects for improving traffic organization according to the principle of "Corridor planning" of roads with high demand for public transport traffic. Developing and justifying the coordinated management of intersections included in the Corridor Planning Project, including traffic light phases that include crosswalks:

A. Temur street, A. Navoi branch street, Babur branch street, Babur branch street, (New Market Area), Yu. Otabekov street, B. Mashrab street, Cholpon branch street, Mustaqillik Street, Sanoatchi street.

3. Planning activities for the construction, reconstruction and use of transport links, railway stations, bus stations and other facilities that ensure the operation of the transport system:

Development of a proposal for the construction of a bus stop and a parking lot at the entrance to Andijan city at the beginning of Bogishamol Street, Mustaqillik Street and New Roundabout Street (post 36 and 80 meters), where:

1) Taking into account the flow of passengers entering the Andijan bus station from the regions:
2) Revision of routes operated by the branch station;
3) Formation of a network of routes connecting the branch station with all parts of the city;
4) Ensure safe entry and exit of buses to the station, as well as safe passage of pedestrians to the opposite side of the road, taking into account the landing sites of passengers of light vehicles.
5) To develop a proposal to safely connect the territory with the road network in Ham, the area of the territory that will be needed taking into account the load on the road network from the newly added and compacted areas to the city, taking into account public transport-types and containment parking.

4. Digitization of the address map of points of road traffic accidents by 2021-2022, planning, identification of flights and development of solutions aimed at ensuring the safety of all participants in the settlement on identified flights, agreement with the road Control Department of the Traffic Safety Department of the Public Safety service of the Regional Internal Affairs Department in accordance with the established procedure. (Including the intersection of Alisher Navoi branch and Milliy tiklanish streets, at the intersection of national revival Street and Amir Temur streets, at the intersection of national revival and Baburshok streets, at the intersection of Yusuf Otabekov and Baburshok streets, at the junction of Baburshokh and I. Karimov increase the security of the settlement at the intersection of streets as well as at hotspots of other road Transport events).
5. To create conditions for the provision of services of the complex system of public transport (CSPT) to the residents of the region. Achieving this goal requires solving the following tasks:
   1) To determine the level of use of public transport in the daily routine of the population in the city of Andijan and develop proposals to bring it to a minimum of two times before 2030;
   2) Development of proposals for the formation of unified tariff zones covering regions with daily arrivals to the city of Andijan and the development and implementation of tariffs that provide benefits in the transition from transport to transport;
   3) Revision and evolution of the existing network of routes consisting of 9 routes in Andijan based on the needs of the population demand;
   4) Development of a proposal for the harmonization of intra-urban, suburban and inter-territorial routes, in which the requirement is to consider according to the parameters of the route scheme, interval, capacity of the traffic composition, depending on the needs;
   5) Development of requirements for vehicle sizes, passenger capacity required by studying the condition of roads of urban passenger transport (UPT) routes in general use to the general plan of transport;
6. Development of a based network of Public Transport for daily arrivals to Andijan and routes coming from all districts with high passenger flow.
7. To consider the network of existing routes operating from transport nodes connecting districts with the Regional Center and develop proposals to optimize their activities and build new stops.
8. Taking into account the “Tourist Center”, this is planned to be built in the revision of the city’s passenger transport routes, in this:
   1) development of proposals for the development of a progonosis load falling on road infrastructure from the Andijan city complex, transport transition link and parking, introduction, directions connecting the complex with tourist facilities;
   2) development of proposals to provide quality transport service to the passenger flow arriving at the Andijan “tourist center”, providing priority for the participants of the event in the sequence of walking, cycling, public transport and personal transport.
9. Creating convenient public transport routes for passengers arriving at 7 higher education institutions located in Andijan, optimizing existing ones in this:
   1) convenient public transport route for Andijan Mechine-Building Institute;
   2) convenient public transport route for Andijan State University;
   3) convenient public transport route for Andijan State Medical Institute;
   4) development of a proposal for the introduction of bus-minibus routes connecting to streets with major transport arteries from higher education institutions, as well as the infrastructure of velotransport.
10. The creation of a network of roads bypassing the city for trucks passing through the city of Andijan is the development of a network of routes bypassing the city for the flow of trucks through the M-373 highway and new roundabouts.
11. The production of separate lanes for thermal facilities under construction in Andijan city to integrate service trucks on the timetable, road infrastructure and environmental impact:

1) for trucks providing service for the construction of "Andijan city" complex;
2) for trucks providing service for the construction of Andijan tourist center;
3) development of routes for trucks serving residential and non-residential facilities.

12. Preventing traffic jams on the main roads entering the city, including Navoiishhokh, Boburshokh, A. Temur, Milliy Tiksilhan, Yu. Otabekov, Uzbekistan, Bogi-shamol, Shokhi Zinda, Osh Street and B. Mashrab Street increase the permeability of the skin.
13. Limit the speed of movement of vehicles, parking and ensure priority of pedestrians around tourism facilities.
14. Reviewing the condition of existing parking lots in the city, making proposals for expanding or reducing them, building new ones. Also, develop proposals to reduce the use of private cars and build parking lots outside the city by ensuring the priority of public transport at points of high tourism and other passenger traffic.
15. Development of proposals for the creation of infra-structure for bicycle transport connecting the electric car and public transport network.
16. Development of recommendations on reducing the impact of vehicles on the environment. In this:
    1) development of proposals and measures to reduce atmospheric emissions by 30% by 2030;
    2) developing recommendations for increasing the share of electric buses in the public transport fleet;
    3) development of proposals to reduce the use of private cars in the city.
17. Study the feasibility of creating metro and tram transport infrastructure in the city of Andijan until 2030 and develop justified proposals.
18. Development of requirements for traffic organization projects and schemes for regional, intercity and local highways, as well as infrastructure elements of other types of transport aimed at achieving the goals of the transport master plan.

## 4. Conclusion

In conclusion, the demand and need for public transport is increasing every year as a result of the growth of the popula-tion, the growth of megapolis cities, the development of a urbanization. This, in turn, entails improving the quality of transportation service to the population, raising the culture, adapting to today's era and conditions.

As mentioned above, the president of the Republic of Uz-bekistan stressed the need for a radical reform of public transport to the officials of the transport sector, the develop-ment of public transport in districts and cities of the country, the satisfaction of the needs of the regions, the organization of transport infrastructure, a scientific approach. transport and logistics issues, in particular, determine the tasks of studying foreign experience, attracting modern personnel to the field, training and selection of personnel. It is important to ensure the rational use of public transport, reduce congestion, protect the environment, promote social interactions, develop the city, and bring economic benefits. It is a priority to invest in the development of high-quality public transport systems to sus-tainably meet our transport needs and improve the quality of life for people and communities.

## Author Contributions

**Khayrullo Baynazarov:** Conceptualization, Resources, Software, Formal Analysis, Funding acquisition, Validation, Methodology, Writing – original draft, Project administration, Writing – review & editing.

**Sotvoldiyev Xasanboy:** Data curation, Supervision, In-vestigation, Visualization.

## Conflicts of Interest

The authors declare no conflicts of interest.

## References

[1] Singh Hooda & Sehrawat. Sustainable Development and Pub-lic Transport in Haryana Space and Culture, India 2023, 11: 2.

[2] Diana Henezi, Agoston Winkler The Role of Public Transport in Transport Safety and Public Safety The Eurasia Proceedings of Science, Technology, Engineering & Mathematics (EP-STEM), 2023 Volume 23, Pages 505-512.

[3] Gao T.: No traffic jam, no congestion, very convenient trans-portation --the Enlightenment of Hong Kong Public Transport to the Mainland. Traffic and Transport (06), 15 (2012).

[4] Chen RDH.: Hong Kong: the combination of public transpor-tation and transportation. China's highway (14), 30 (2018).

[5] Stańczak J., Barski A., Sęp K., Owsiński J. W. (2016), The Prob-lem of Distribution of Park-and-Ride Car Parks in Warsaw, In-ternational Journal of Information and Management Sciences, 27 (2016), https://doi.org/10.6186/IJIMS.2016.27.2.6 pp. 179-190

[6] Ceder, A. (2018). Public Transportation Planning and Man-agement: Modeling, Practice, and Behavior. CRC Press.

[7] Hall, D. (2016). Public Transport: Its Planning, Management, and Operation. Routledge.

[8] Hensher, D. A., & Button, K. (Eds.). (2003). Handbook of Transport Systems and Traffic Control (Volume 3). Elsevier Science.

[9] Litman, T. (2020). Evaluating Public Transit Benefits and Costs. Victoria Transport Policy Institute.

[10] Cervero, R. (2013). Transit-Oriented Development and Joint Development in the United States: A Literature Review. Uni-versity of California Transportation Center.