

STAGES OF DEVELOPMENT OF THE ROAD NETWORK IN SAMARKAND CITY: FROM ANCIENT SILK ROAD TO MODERN MASTER PLANS

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Abstract This article explores the historical evolution and contemporary modernization of the road and transport infrastructure in Samarkand, one of the world's oldest inhabited cities. By analyzing its development across distinct historical stages—ranging from its role as a central hub on the Great Silk Road to the implementation of the 2026 modernization programs—the study highlights how the city's unique geography and cultural heritage have shaped its urban mobility. Special attention is given to current challenges, including the rapid increase in the automobile fleet, environmental concerns regarding the Zerafshan River, and the integration of modern public transport such as the tram system. The research concludes by examining the "Master Plan" developed to redistribute traffic flows through ring roads and relief-based engineering solutions, ensuring the preservation of Samarkand's UNESCO World Heritage status while meeting 21st-century infrastructure demands.

Keywords: Samarkand, road network, urban development, Great Silk Road, infrastructure modernization, Master Plan, public transport.

Introduction

Samarkand has historically served as a strategic crossroad, connecting China, India, and the Mediterranean through Central Asian trade routes. As a city recognized by UNESCO as a "Crossroad of Cultures," its road network is not merely a functional utility but a reflection of centuries of architectural and political transitions. The development of Samarkand's transport corridors can be divided into several critical stages: the ancient and medieval Silk Road era, the urban expansion of the 19th-century "Russian Samarkand," the post-Soviet modernization, and the current strategic shift toward sustainable, high-capacity infrastructure.

The Ancient and Medieval Foundation: The Silk Road Era

The primary stage of Samarkand's road development was dictated by its role in the Great Silk Road. During this period, the road network was designed to facilitate large-scale international caravans. Roads were not only means of travel but were integrated into the city's defense and commerce systems.

1. **Strategic Connectivity:** Samarkand functioned as the heart of a multi-branched trade route that linked the East and the West.

2. **Timurid Spatial Organization:** Under the Timurids, the city's internal spatial organization reached its peak, with architectural ensembles like the Registan influencing the convergence of major thoroughfares.

The roads of this era were constructed using manual labor and local materials, yet many routes established during this time remain the foundational arteries of the modern city.

The 19th Century and the "New City" (Russian Samarkand)

With the advent of the 19th century, Samarkand underwent a radical structural change known as the "Russian Samarkand" period. This stage introduced a planned, grid-like street network that stood in contrast to the organic, winding alleys of the "Old City".

- **Infrastructure Expansion:** This period saw the introduction of wider boulevards designed for colonial administration and modern logistics.
- **Segmented Development:** The dual nature of the city—the Old and the New—created unique challenges for modern transport planners who must now bridge these two distinct urban fabrics while preserving historical integrity.

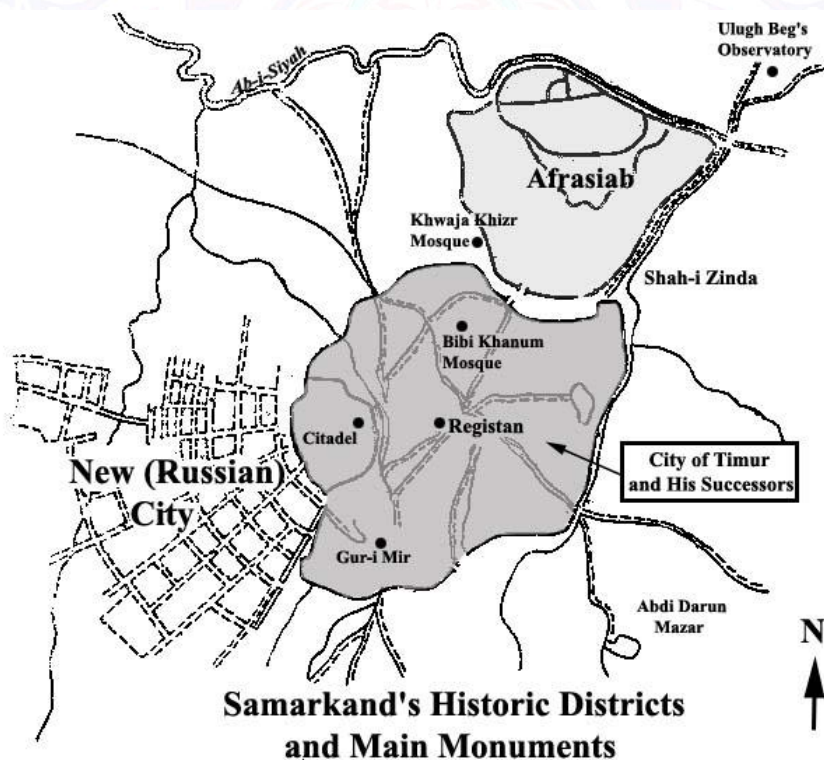


Figure 1. Historical map of Samarkand city

Current Infrastructure and Urban Challenges

In the post-independence era, Samarkand has faced significant pressure due to rapid urbanization and a dramatic increase in the private automobile fleet. Current research identifies several critical bottlenecks in the road network:

1. **Traffic Overload:** Many central thoroughfares are heavily overloaded, particularly in the directions of Samarkand-Motrid, Karshi, and Amankutan.

2. **Environmental Degradation:** The lag in infrastructure development has led to increased pollution, negatively impacting the ecology of the Zerafshan River.
3. **Inefficient Street Density:** The pace of road expansion has not kept up with the increase in vehicles, requiring an optimization of the existing street-road network for regulated traffic movement.

To mitigate these issues, the city reintroduced the **Samarkand Tram system** on March 29, 2017. Managed by Uzbek Railways, the tram system provides a sustainable alternative to fossil-fuel-based transport and helps preserve the historic atmosphere of the city center.

The Strategic Future: The Master Plan and 2026 Program

Looking toward 2026, the Samarkand region is set to undergo a massive modernization program focusing on roads, electricity, and water. The primary goal is to redistribute traffic away from the historical center.

- **The Small Ring Road:** A key project in the General Plan involves constructing a sector of the small ring road from Yu. Gagarin Street toward the northeast to Dagbitskaya Street, which will exit at the bridge over the Siab River.
- **Relief-Based Engineering:** Due to Samarkand's complex topography, planners are proposing the construction of underground passages and tunnels, similar to those in Tashkent, to divert traffic below the surface near Registan and Dagbitskaya.
- **New Entrances:** To unload the city center, a "second entrance" is being completed through Chupan-Ata to Sadriiddin Ayni via the Shabad road, which will include modern interchanges to facilitate access to the Ulugbek Observatory and other landmarks.



Figure 2. Map of Samarkand City (1875–1882)

Technological Innovations in Road Construction

Modern Samarkand utilizes international standards for its new highways, distinguishing between different categories based on traffic intensity and design speed.

1. **Category I and II Roads:** These highways are designed for speeds up to 150 km/h, featuring multiple traffic lanes and safety separation strips.
2. **Infrastructure Elements:** Current projects emphasize high-quality drainage systems, including longitudinal ditches and culverts, to prevent water damage to the roadbed, a lesson learned from ancient Roman road engineering cited in regional textbooks.

Conclusion

The road network of Samarkand is at a historical turning point. Transitioning from the ancient pathways of the Silk Road to a modernized metropolis requires a delicate balance between engineering innovation and heritage preservation. The ongoing Master Plan, featuring ring roads and underground traffic diversions, represents a sophisticated approach to managing modern mobility in a world-renowned historical environment. As Samarkand moves toward its 2026 modernization goals, the integration of high-capacity public transport and relief-optimized road design will be essential for its sustainable development.

References

1. Sodiqov, I. S., et al. (2021). *Avtomobil yo'llarini rivojlanish tarixi va aloqa yo'llari (History of the Development of Roads and Communication Routes)*. Book 2. Tashkent: "Transport" Publishing.
2. Salokhiddinova, D. Z., Kayumov, K. I., & Fozilova, Z. K. (2023). *Samarqand shahri qurilishining muammolari va ularning yechimlari (Problems of Samarkand City Construction and Their Solutions)*. Central Asian Studies Publishing.
3. Aga Khan Trust for Culture. (1996). *Planning for the Historic City of Samarkand*. Geneva.
4. UNESCO World Heritage List. *Samarkand – Crossroad of Cultures*.
5. Wikipedia. (2026). *Trams in Samarkand*.
6. President of the Republic of Uzbekistan. (2026). *Progress of transport infrastructure projects reviewed*. President.uz..
7. Podrobno.uz. (2026). *Yangi yo'llar, chiroq va suv: 2026-yilda Samarqand viloyatida keng ko'lamli dastur boshlanadi*.
8. Fozilova, Z. Q. (2020). *Samarqand shahrining bosh rejalari tahlili (Analysis of the General Plans of Samarkand)*. Studencheskiy Vestnik, Moscow..
9. Kayumov, H., & Israyilov, E. (2022). *Historical Cities of Uzbekistan: Perceptions of Monuments and Architecture*. Academicia Globe.
10. Sodiqov, J. I. (2012). *Avtomobil yo'llarining loyiha vazifalarini asoslab beruvchi ma'lumotlarning haqiqiylikini oshirish ushlari*. Dissertation, Tashkent.