

## **Planning of the Underground Metro in the City of Samarkand**

**Beknazarov M. B.**

*Senior teacher (SamSACU)*

**Boynazarov M. M., Uroqov Og'abek**

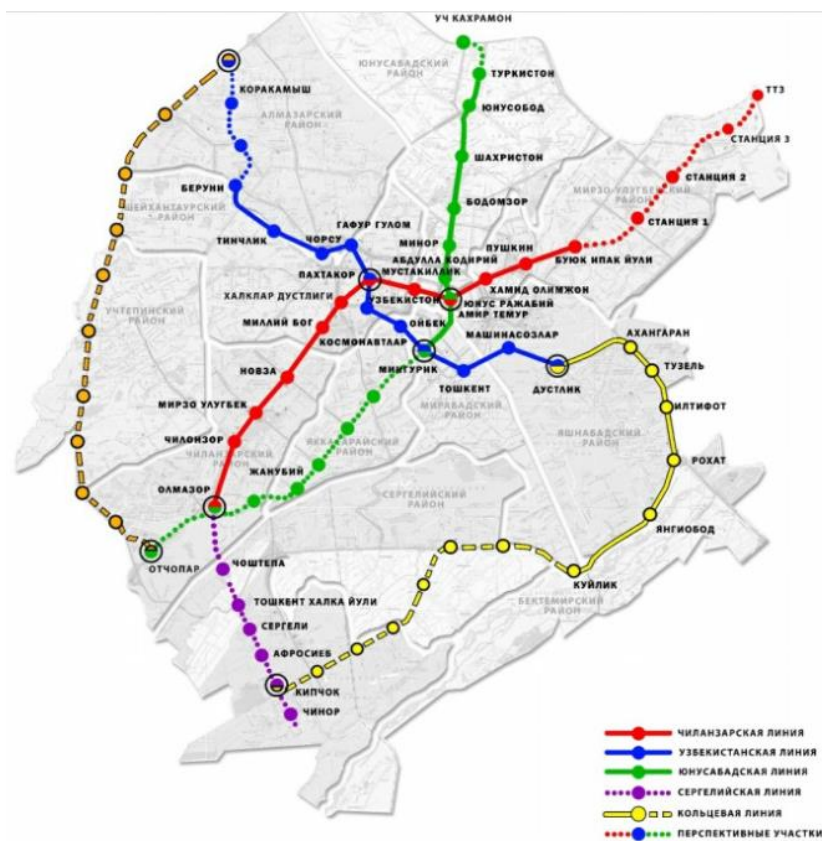
*Student (SamSACU)*

**Abstract:** it is planned to annex the surrounding areas in order to include the city of Samarkand among the Million cities. Currently, a project has been developed on this. Under these projects, the city of Samarkand is divided into five regions. The transport sector is the most important sector in every developed city. In this regard, the issue of planning the underground metro in the city of New Samarkand should be considered in the future. This article will talk about the planning of the underground metro in the city of Samarkand.

**Keywords:** Metro, City of Samarkand, Metropolitan, Transport Sector.

A type of high-speed electric rail transport intended for the transportation of a large number of passengers. Equipped with reliable security systems. Metropolitan roads can be located above ground, surface and underground. Metropolitan roads are determined taking into account the development plans of the city, passenger flows, the location of residential areas, production, trade and recreation centers, as well as the engineering and geological conditions of the city. Metropolitan surface roads are passed over flyovers. Wagons moving on the ground travel at a height determined by the topography of the place and the location of city buildings. Such roads were built in the cities of New York, Chicago, Boston, Philadelphia (USA), Hamburg (Germany) at the beginning of the 20th century. However, later, due to the development of cities, the metro was built mostly underground. Placement of the subway on the surface of the ground is carried out in deep grooves on the edges of streets and roads, in sparsely populated parts of the city, usually in order to later turn them into underground roads. The difference between the above-ground Metropolitans and the ordinary railways is the way they are supplied with electricity. The most common method is to place metropolitans underground (in tunnels), which are divided into shallow (5-10 m deep) and deep (10-60 m) types. Metropolises are built in open and closed ways, depending on whether they are shallow or deep. The essence of the open method: the construction walls of the station or walking tunnel are restored, waterproofed and buried with soil in pits, which are fixed using piles or piles (later, anchors and nails). The essence of the closed method: tunnel construction works are carried out without opening the surface of the earth, in the same way as in tunneling in the mountains, or using special iron shields. Constructions of station tunnels built in the open way (on shallow metro lines) have a frame frame with columns in 2 and 3 spans, and can be made of large prefabricated reinforced concrete elements or have a single-domed appearance, which can be reconstructed from solid reinforced concrete. Constructions of pedestrian tunnels built in this way usually have a rectangular cross-section and are reconstructed from individual precast concrete elements (foundation, wall and ceiling slabs) or volumetric sections. The world's first subway In the middle of the 19th century, the population of the capital of England was 2 million people, and getting from one district to

another caused great problems. In 1855, an official decision was made to build underground railway transport in the city. The company that undertook this work was Metropolitan Railwaj. It should be said that the construction of the subway has radically changed the appearance of the English capital. Routes were laid in trenches, tunnels with a depth of 10 meters were dug, rails were installed, and the top was covered with brick. The metro is 3600 meters long and has 7 stations. The opening of this means of transportation was opened by the Prince of Wales, the future king of the country, Edward VII. He became the first passenger of the subway.

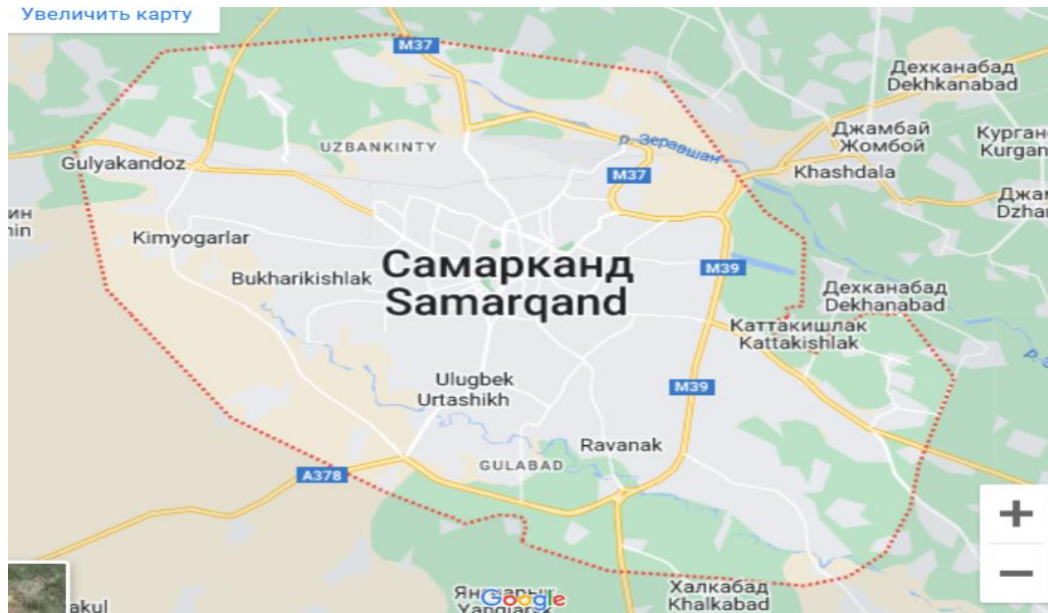


**Figure 1. Tashkent metro scheme**

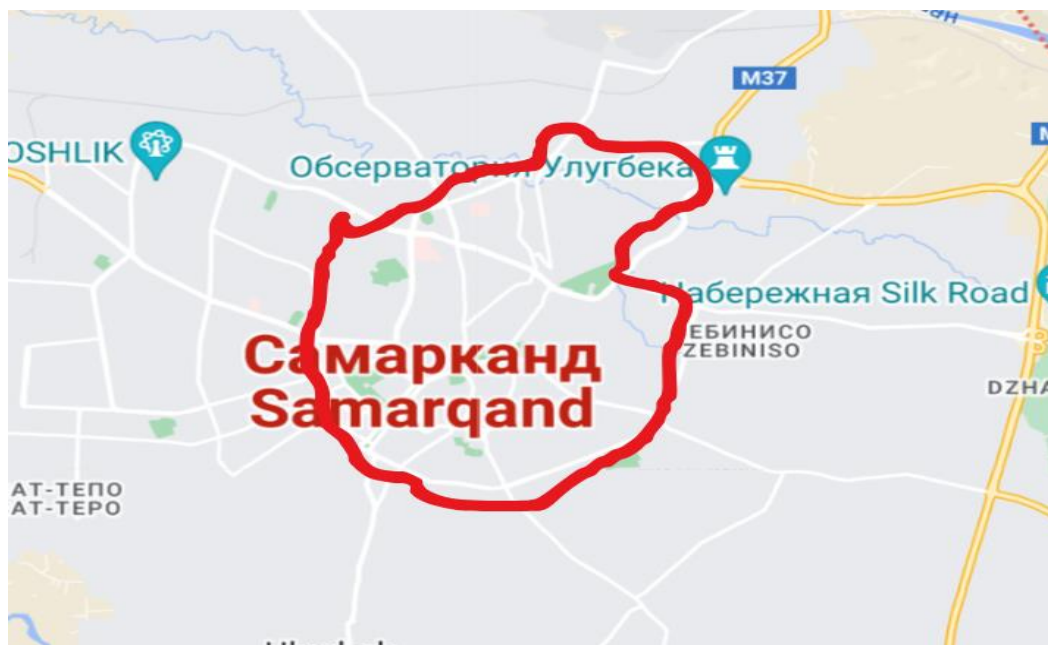
The station constructions, which are built in a closed way (in deep, and in some cases, shallow subway tracks), have a single-dome, 3-dome cross-section, and are constructed of precast and integral reinforced concrete, steel and cast iron. Constructions of walking tunnels built in this way are assembled from separate prefabricated reinforced concrete and cast iron tubing (blocks) in a circular cross-section or built from solid reinforced concrete. Admittedly, the first metro was not a sight worth seeing. The subway trains ran on coal, so the faces and clothes of the passengers became black. Breathing underground has become a big problem. But Londoners highly appreciated this tool, which is worth recognizing in terms of speed, even if it is not very convenient. On the first day of its use, 30,000 people visited it. In the first year, the metro transported a total of 9 million people to their destination, and in the following year, this indicator reached 12 million. The indicators gradually increased. Trains have evolved, and the appearance of the vehicle has also changed. By 1905, the subway was fully electrified. Today, 3 million people use the London Underground every day. This brings the annual figure to 1 billion. Tashkent is the largest city in Central Asia in terms of population. In the 70s of the last century, when the population of Tashkent exceeded 1.5 million people, transportation problems arose and the first metro in Central Asia was built. This is the first radial route - the Chilonzor route, which connects the new large district of the capital with the city center. Along with the population growth, the demand for new metro lines also increased. In the late 80s, the Uzbekistan route was built, and in the early 2000s, the Yunusabad route was built. Thus, the basis of the development scheme was formed with the main directions of the city leading to large parking areas. Even now, many plans have been developed in order to include the population of Samarkand among

the million cities. Including, as the population of Samarkand increases, so do the problems in the city. In order to prevent this, we set ourselves the goal of planning an underground subway in the city of Samarkand in the future. In the city of Samarkand, there is no benefit in planning for the old city area, because there are buildings and structures included in the UNESCO list in the old city area. We can plan this project in the city of Samarkand, which is under construction. It is planned to include the big ring road of the city of Samarkand. Nowadays, one of the biggest problems in the city of Samarkand is the transport sector. And the underground subway helps to solve 70% of these

problems.



2-figure Samarkand city.



3-figure Old town area

Without touching the old city area of the city of Samarkand, an underground subway will be planned in a circle around it, and several additional routes will be planned. As the population increases, it is considered one of the shakhas that provides great support in the field of transport in the city. Although the construction of the underground subway is quite laborious, the benefits will be great later.

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