

MARMARAY PROJECT - TURKEY

Istanbul is a city where historical and cultural values must be preserved and at the same time modern railway facilities have to be installed to decrease the environmental impact of public transportation and increase the capacity, reliability and comfort of the railway systems.

The Project provides an upgrading of the commuter rail system in Istanbul, connecting Halkalı on the European side to the Asian side with an uninterrupted, modern, high-capacity commuter rail system.



Railway tracks in both sides of Istanbul Strait will be connected to each other through a railway tunnel connection under the Istanbul Strait. The line goes underground at Yedikule, continues through the Yenikapı and Sirkeci new underground stations, passes under the Istanbul Strait, connects to the Üsküdar new underground station and emerges at Söğütluçesme.

The entire upgraded and new railway system will be approximately 76 km long. The main structures and systems; include the immersed tube tunnel, bored tunnels, cut-and-cover tunnels, at - grade structures, three new underground stations, 37 surface stations (renovation and upgrading), operations control centre, yards, workshops, maintenance facilities, upgrading of existing tracks including a new third track on ground, completely new electrical and mechanical systems and procurement of modern railway vehicles.

The idea of a railway tunnel under the Istanbul Strait was first raised in 1860. However, where the tunnel under the Istanbul Strait crosses the deepest parts of the Strait, the old-fashioned techniques would not allow the tunnel to be on or under the seabed, and therefore the design indicated a "floating" type of tunnel placed on pillars constructed on the seabed.



The technique that will be used in the Marmaray Project to cross the Istanbul Strait - the immersed tube tunnel technique - has been developed since late in the 19th century. The first immersed tube tunnel ever built was constructed in North America for sewer purposes in 1894. The first tunnels for traffic purposes constructed using this technique were also built in the United States. In Europe, Holland was the first country to adopt the technique, and the Maas Tunnel in Rotterdam was opened in 1942.

In 1999, a funding agreement between the Republic of Turkey and the Japanese Bank for International Cooperation (JBIC) was signed. This loan agreement forms the basis for the funding of the Istanbul Strait Crossing portion of the Project, which represents some 35% of the costs for the entire railway project.

The following figures give approximate information regarding the project:

Total length: 76.3 km
European side: 19.3 km
Asian side: 43.4 km
Immersed tube tunnel: 1.4 km
Bored tunnel: 9.8 km
Cut-and-cover and open cut: 2.4 km
Maximum Depth of immersed tube tunnel: 56 m
Number of stations:
Existing stations to be upgraded/rebuilt: 37
New underground stations: 3