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Mumbai- Ahmedabad Bullet Train Corridor India's First Bullet Train Project



The Mumbai – Ahmedabad High-Speed Rail (MAHSR Bullet Train) project is a 508.17 km under-construction high-speed rail line which will connect Mumbai with Ahmedabad through 12 stations. The estimated cost of the project is INR 1,08,000 Cr (USD 17 billion) and is being executed with Official Loan Development (ODA) Loan assistance from Japan International Cooperation Agency (JICA).

Current Status

Significant progress has been achieved on the Bullet Train project, with several milestones being reached. More than 165 km of viaduct has been completed for the project. The work on Maharashtra stretch has also picked up pace. All civil contracts for the corridor in Gujarat and Maharashtra have been successfully awarded, alongside depot and electrical packages. Union Railways Minister Ashwini Vaishnaw shared the status of land acquisition on X, saying that the entire 1390 hectares of land

required for the project has been acquired in Gujarat, Dadra and Nagar Haveli, and in Maharashtra. Crucial contracts, notably the Thane Depot agreement, have been signed, marking a significant step forward for the project.

Work has started for India's first 7 km undersea rail tunnel, which is a part of the 21 km-long tunnel between the Bandra Kurla Complex and Shilphata in Maharashtra, and excavation works for the construction of

Mumbai Bullet Train station has also begun. Mumbai Bullet Train station in Gujarat i.e. Vapi, Bilimora, Surat, Bharuch, Anand, Vadodara, Ahmedabad, & Sabarmati, and in Maharashtra i.e. Virar, Thane & Mumbai are in various stages of construction.

Gujarat has witnessed substantial infrastructure development, including the completion of extensive bridges and tunnels. The first steel bridge, spanning 70 meters and weighing 673 MT, was launched





across NH 53 in Surat. Another 100 m long "Make in India" steel bridge has been launched over Indian Railways tracks near Nadiad, Gujarat. A notable achievement is the laying of first Reinforced Concrete (RC) track bed. The bullet train project will have J-slab track system based on the Japanese Shinkansen track system. This is for the first time, the J-slab ballastless track system is being used in India in Surat and Anand.

Construction Methodologies & Technologies

The Bullet Train project is being built using a variety of advanced construction methodologies and techniques, some of which are mentioned below:

Full Span Launching Method (FSLM): This is a new and advanced technique in India. In order to expedite the viaduct construction, the Full Span Girder Launching method is being used, besides the segmental launching method. Indigenous equipment and machinery such as straddle carrier, girder launcher and transporter are also being used which are designed and manufactured in India. The technology is about 10 times faster than the conventional segment launching technology and has provided a new dimension to the construction industry.

New Austrian Tunneling Method (NATM): This method is being used to construct the seven mountain tunnels along the Mumbai-Ahmedabad High Speed Rail corridor. NATM excavates the tunnel in stages, allowing for precise alignment crucial for the bullet train's high speeds. It prioritizes safety and has been successfully implemented in the first completed 350-meter-long tunnel in Valsad, Gujarat.

Japanese Shinkansen technology: To achieve a safe and efficient high-speed rail network, the Mumbai-Ahmedabad Bullet

Train project is incorporating Japanese Shinkansen technology in two keyways: first, the trains themselves will be based on the E5 Series Shinkansen, inheriting its high speeds, aerodynamic noise reduction, and advanced safety systems. Second, Japan is transferring expertise in building and maintaining the infrastructure, sharing successful Shinkansen construction methods and operational know-how. By leveraging Shinkansen technology, the Mumbai-Ahmedabad project aspires to replicate Japan's Bullet Train reputation for speed, safety, and reliability.



100 m long "Make in India" steel bridge launched at Nadiad, Gujarat