

Thane Borivali Tunnel Nayak TBM Excavation Imminent

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Mumbai's ambitious Thane–Borivali twin tunnel project is poised to enter a critical phase, with the first tunnel boring machine (TBM), designated 'Nayak', expected to commence excavation in September, project sources indicate. The development marks a significant step in addressing Mumbai's chronic traffic congestion and promises a transformative impact on suburban connectivity.

Currently under assembly, the 13.34-metre diameter single-shield TBM represents one of the largest deployed for urban tunnelling in India. Engineers report that over 800 of the machine's 1,000-plus components have already been installed, reflecting the precision and scale required for this infrastructural milestone. The TBM has been supplied by Herrenknecht AG, a German tunnelling equipment manufacturer, with core

components sourced from its facility in Germany and assembly taking place locally in Chennai.

The project, implemented by the Mumbai Metropolitan Region Development Authority (MMRDA) and executed by Megha Engineering and Infrastructure Ltd, engages a joint venture of Hill International and Tata Consulting Engineers for consultancy. Officials note that special measures are being taken for sections passing beneath the ecologically sensitive Sanjay Gandhi National Park. Given the complex forest terrain and the potential presence of hidden water bodies, protocols for water seepage mitigation and soil stabilisation are being incorporated, mirroring safety systems employed in international metro projects beneath riverbeds. Safety and operational efficiency are central to the TBM's design. Automated debris removal, emergency response modules, and real-time monitoring systems will reduce manual intervention, while navigation technologies are expected to maintain high excavation precision. Following assembly, the TBM will undergo a 15–20 day trial period before full-scale excavation begins.

Once operational, the twin tunnel is projected to drastically reduce travel times between Thane and Borivali, cutting the current 1–1.5 hour commute by road to approximately 15 minutes. Each tunnel is designed to accommodate two traffic lanes and an emergency lane, with cross-passages at 300-metre intervals to enhance safety and emergency access. The second TBM for the project is still in transit, with assembly scheduled to begin only after Nayak is lowered into the shaft. Authorities cite space and cost constraints as the reason for sequential deployment of the massive machinery. Urban planners highlight that beyond travel efficiency, the project reflects a broader emphasis on sustainable infrastructure, including reduced vehicular emissions by facilitating faster, smoother road traffic.

Once completed, the twin tunnel is expected to ease congestion, improve air quality, and contribute to more equitable urban mobility across the Mumbai metropolitan region.

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