BACKGROUNDERS
Press Information Bureau
Government of India

India's High-Speed Rail Future:

Building a Standardised Path for Expansion

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Fast, Reliable and Connected Rail Travel

India is nearing completion of its **first bullet train corridor – the Mumbai-Ahmedabad High Speed Rail (MAHSR)**. In doing so, it is shaping the future of high-speed rail in India. These trains have a design speed of upto 350 km per hour – much faster than the Vande Bharat trains that have a design speed of 180 km/hour.

Based on the MAHSR project, a standardised template is being developed for upcoming bullet train corridors across the country. The approach aims to implement proven engineering designs, construction methods, and operational practices. It will improve efficiency and accelerate project execution. The MAHSR project is thus laying the foundation for a transformation.

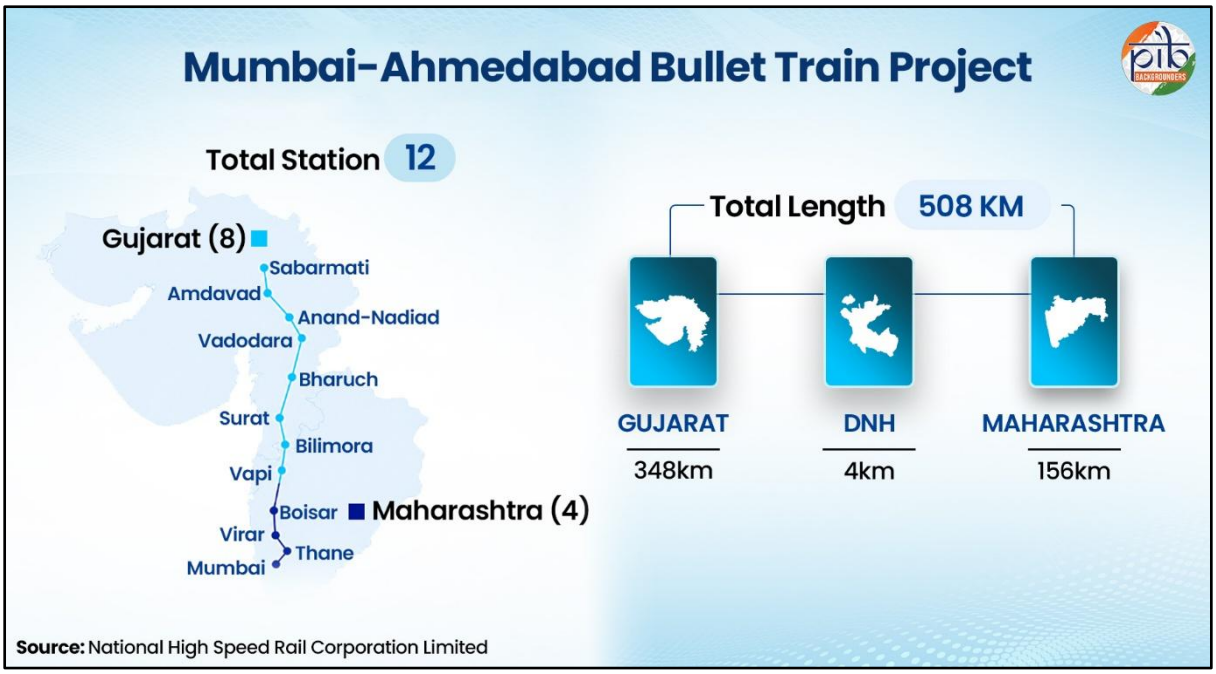
Unified designs, components, and maintenance procedures will simplify spare-part management, training, and procurement across the network. Future high-speed rail corridors will follow a replicable construction philosophy. Foundations will be designed according to the exact soil characteristics of the spot. The remaining subsystems will follow **common engineering standards**. These include piers, viaducts, tracks, station structures, overhead electrification, and signalling systems. This approach will support faster construction across future corridors. It will **improve quality** and **reduce costs** across future high-speed rail corridors.

Under the **Make in India** and **Aatmanirbhar Bharat** initiatives, Indian Railways is promoting indigenous high-speed rail manufacturing. This aims to reduce dependence on imported systems and components. Integral Coach Factory (ICF), in collaboration with Bharat Earth Movers Limited (BEML), is designing and manufacturing indigenous 280 kmph high-speed train sets. The tooling, testing and production ecosystem for future high-speed rail projects is also being developed in the country. Indian companies are increasingly manufacturing specialised components, construction equipment and slab-track systems required for high-speed rail. Aditya, a newly inaugurated specialised complex in Bengaluru, is designed for the development of B-28 coaches. Research by IITs, specialised training and the adoption of Japanese engineering practices are strengthening India's high-speed rail capabilities. This is further strengthening localisation.

Mumbai–Ahmedabad High-Speed Rail Corridor

The Mumbai–Ahmedabad High-Speed Rail (MAHSR) corridor marks India's entry into the era of high-speed rail. As the country's first dedicated bullet train corridor, it introduces advanced technologies and world-class safety standards.

- The corridor will connect Mumbai and Ahmedabad in about **1 hour 58 minutes**.
- It covers a total length of approximately **508 kilometres**.
- **12 stations** have been planned along the route.
- The **first high-speed rail service** is expected to commence in **August 2027**. The first section to open will be from Surat to Vapi.
- The corridor has a design speed of **350 kmph** and an operational speed of **320 kmph**. It is supported by advanced rolling stock, signalling, and train control systems.



Technical Features and Systems of MAHSR

The MAHSR Project is being developed using **Japanese Shinkansen technology** and operational practices. The corridor incorporates advanced systems for traction, electrification, track infrastructure, and operations. Key technical components include:

- **Overhead Electrification (OHE):** More than 20,000 OHE masts are planned across the corridor. The 2×25 kV overhead traction system is based on Shinkansen-style OHE cantilever designs.
- **Traction and Power Supply:** The project comprises 12 traction substations, 2 depot traction substations, and 16 distribution substations.
- **Track System:** J-Slab ballastless track technology is being introduced in India for the first time.
- **Track Construction Bases:** Dedicated Track Construction Bases are being developed. These are for the storage and handling of rails, track slabs, machinery, and other equipment.
- **Rolling Stock Depots:** Three depots are being constructed at Sabarmati and Surat in Gujarat, and at Thane in Maharashtra.

Seven High-Speed Rail Corridors

India is expanding its high-speed rail vision beyond the Mumbai-Ahmedabad corridor**. Seven high-speed rail corridors**, covering nearly 4,000 kilometres, have been identified for future development. The proposed network is expected to attract investments of around **₹16 lakh crore**.

The proposed seven high-speed rail corridors are strategically distributed across different regions of the country:

Routes	Travel Time
Delhi–Varanasi	3 hours 50 minutes
Varanasi–Patna–Siliguri	2 hours 55 minutes
Chennai–Bengaluru	1 hour 13 minutes
Bengaluru–Hyderabad	2 hours
Chennai–Hyderabad	2 hours 55 minutes
Mumbai–Pune	48 minutes
Pune–Hyderabad	1 hour 55 minutes

Towards a National High-Speed Rail Network

The Mumbai–Ahmedabad High-Speed Rail project represents a significant step in India's transportation journey. It is creating the knowledge, capabilities and industrial ecosystem needed for future expansion. India is drawing on the experience gained through this landmark corridor. It is establishing a scalable approach for future high-speed rail expansion. This approach can support upcoming high-speed rail routes across the country. As new corridors are developed, this foundation will help enhance connectivity. It will also help reduce travel times and contribute to long-term economic growth.

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