Kolkata approach
The approach viaduct on the Kolkata side is similar to Howrah viaduct except that it bifurcates into a dual carriageway in each direction and has at-grade ramps to allow for the interchange between Beltline expressway and the NH 32 road, providing access to local traffic. About 0.5 km of at-grade roads have been constructed to meet with the existing traffic dispersion system.

In addition, one rail under bridge was constructed by the same technique of Push jack method, to cross the Sealdah-Dankuni railway embankment near Dakshineswar, when opened to traffic, this will relieve the people of Kolkata and its northern suburbs of endless traffic jams and will usher in an era of growth and prosperity. Trade and commerce will also touch new heights with faster transportation of goods and services.

L&T, India’s largest engineering, construction and technology major is the builder of this new landmark project. Innovative techniques employed by L&T enhanced the quality and minimized the construction time.

Howrah approach
The bridge has a 360m viaduct with dual three-lane carriageway forming part of the approach on the Howrah side. This viaduct is supported on elegant piers resting on pile foundation. Tall piers of 10 m height were cast in single pour to avoid construction joints as well as enhance the aesthetics of the exposed concrete finish. The superstructure was built with precast box segments with external post tensioning and erected with dry joints between segments.

In addition, the project involved construction of 3.5 km of approaches on high embankment with ground improvement by pre-loading and stage construction to allow for ground settlement; one rail over bridge across the Howrah-Burdwan railway line and rail under bridges across the railway embankment of Salt撰写 which was supported on elegant piers.

The Precast RCC boxes were pushed through the embankment by jack pushing technique. A single point toll plaza with 16 booths are built on the Howrah side, almost at the Western end, installed with Electronic Traffic & Transport Management (ETTM) facilities for fast and reliable collection of toll.
The Second Vivekananda Bridge, the fourth crossing across river Hooghly is another significant development in the Country's long list of major river crossings. This landmark project built adjacent to the existing Bally Bridge near Dakshineswar in Kolkata will create a high speed corridor for road transport linking NH2/NH6 on Howrah side with NH-34 on Kolkata side through the Belghoria Expressway. The construction using state-of-the-art techniques has been completed in just over 36 months and the project is likely to be dedicated to the Nation shortly.

While crowning the Golden Quadrilateral at Kolkata, this bridge will also realise the dream of the Government of West Bengal and the people of Kolkata by setting up another intercity corridor in the face of increasing traffic volume. This Rs.640 crore mega project is executed under Build Operate and Transfer (BOT) basis. SECOND VIVEKANANDA BRIDGE TOLLWAY COMPANY (SVBTC) are the Concessionaire for the project. Set up under NHAI, SVBTC is a joint venture of Pacific Alliance (USA) – Stradec Group (Philippines) forming the PASGIC Group and LARSEN & TOUBRO LIMITED. They hold an equity of 67% and 33% respectively.

National Highways Authority of India (NHAI), New Delhi has allotted a 30 year concession period to SVBTC to finance, design, build, operate and maintain the new bridge including the approaches. While L&T was assigned the EPC Contract for the turnkey design and construction of the main bridge, approach viaducts and roads on both Kolkata side and Howrah side, the design and supervision responsibility was entrusted to a combine of M/s.Consulting Engineering Services Pvt Ltd., (CES) of New Delhi and M/s.Parsons Brinckerhoff (PB) of USA. PB further requisitioned the services of M/s.International Bridge Technologies (IBT) of USA for the superstructure design of the Extra Dosed Cable Stayed Bridge.

The Project extends over a length of 6.0 km with the main bridge of 880m of dual 3 lane carriageway. Approach viaducts of 1.2 km (maximum) and at-grade roads of about 4.0 km for approaches on both banks as well as for connectors / ramps.

The superstructure of the main bridge consists of single box girder with inclined webs and internal stiffening slabs. A single plane of cables passing over 14m high pylons provide the additional support and enhance the aesthetics of the bridge, apart from giving it an elegant ribbon like structure of constant depth. The bridge pylons are founded on deep well foundation, with the pile cap located on the river bed. Construction of well sinking involved various modern techniques, such as:

- Water jetting, which reduced the cutting shoe resistance up to 60%.
- Air jetting, which reduced the frictional resistance to 50% in-between outer periphery of well and surrounding earth.
- Conventional Kent ledge to provide additional sinking effort.

Precast segmental construction with internal post-tensioning was adopted for the construction of the bridge superstructure. Precast match cast segments were erected by balanced cantilever technique and glued to each other using epoxy.

The Fourth Crossing Across River Hooghly