

Interview with Vinay Kumar Singh

“NCRTC has followed a commuter-first approach”



Vinay Kumar Singh
Managing Director,
National Capital Region Transport
Corporation

A one-of-its-kind initiative, the regional rapid transit systems (RRTS) will transform regional connectivity in the country. The Delhi-Ghaziabad-Meerut RRTS project, being implemented by the National Capital Region Transport Corporation (NCRTC), has achieved key milestones in construction, deployment of advanced technologies, among other areas. In an interview with *Indian Infrastructure*, Vinay Kumar Singh, managing director, NCRTC, shares his views on the project's progress, implementation timelines and the way forward...

What has been the progress on the Delhi-Meerut RRTS project so far?

NCRTC is implementing India's first regional rail project. The 82 km long corridor connecting Delhi, Ghaziabad and Meerut has 25 stations. In a unique proposition, we are also providing metro services on the RRTS infrastructure within Meerut.

The corridor's 17 km long priority section between Sahibabad and Duhai depot is ready for commissioning within four years of the start of construction. We received approval from the Ministry of Railways and the Commissioner for Metro Rail Safety on June 26, 2023 for commencing revenue services. It is the country's first railway system to open, with a maximum operational speed of 160 kmph.

Construction in stretches beyond the priority section is also progressing rapidly. We have already completed tunnelling for the underground section of the corridor. I am confident that we will be able to complete this entire corridor much before the targeted timeline of June 2025.

What measures are being taken to enhance system safety and passenger experience?

The RRTS project has its own specific safety protocols and standards, in addition to complying with the general rules mandated by the regulatory authorities. The system has undergone rigorous safety assessments during the design, planning and execution phases by international independent safety assessors. The system has incorporated the most advanced signalling systems - automatic train control systems and train protection systems - along with safety mechanisms such as robust fire-fighting systems to minimise risks.

The system operations will be monitored through a centralised operation control centre to ensure safe, seamless and all-weather commute. Given the high-speed nature of train operations, all RRTS stations are equipped with platform screen doors (PSDs) for passenger safety.

Maintenance and operational procedures are developed with inputs from the international operator to ensure safe and reliable operations. Specific training programmes have been implemented to equip the workforce with the necessary skills and knowledge related to operation, maintenance and emergency safety procedures.

Features such as designated spaces for stretchers/wheelchairs in the train, spacious lifts at stations and stations accessible for the elderly and differently abled will ensure universal accessibility. The RAPIDX train sets will provide features such as comfortable 2x2 transverse seats, overhead luggage racks, device charging points, and one premium class coach in each train.

What are the key challenges being faced? How are you addressing them?

Broadly speaking, there are two key elements that have played a key role in ensuring the timely implementation of the RRTS: first, the early identification and mitigation of risks and second, leveraging digital tools in project management.

NCRTC is implementing this project in multiple states, engaging with numerous stakeholders. The complexity of the project requires obtaining multiple approvals and NOCs before starting construction. The corridor is being built in a densely developed urban envi-

“The RRTS system has incorporated the most advanced signalling systems and safety mechanisms to minimise risks.”

ronment, resulting in land availability challenges. To mitigate this risk, at the planning stage itself, we strategically reviewed and modified the alignment to minimise the land footprint by utilising the right of way of the state highway and land owned by the government or its agencies.

As a risk mitigation strategy, we also decided to undertake all enabling works such as utility shifting and road widening, through the respective utility owners as deposit works or through independent contracts, much before on-boarding the main civil contractor. This helped in minimising the risk of time and cost overruns.

The extensive use of techniques such as pre-casting also helped in speedy execution. The majority of construction is being done at the median of a heavily operational highway. Pre-casting has helped minimise in-situ construction, reduce the need for manpower, materials and machines, mitigate pollution and minimise inconvenience.

From the project's beginning, NCRTC has followed a "commuter-first" approach, prioritising the needs and comfort of commuters over ease of construction. For example, our decision to locate the Anand Vihar RRTS station near existing infrastructure such as the railway station, interstate bus terminal (ISBT) and metro stations with two metro lines created construction-related difficulties (including tunnelling in close proximity to the existing foundation of the metro infrastructure). However, we successfully addressed the challenges through proper design, meticulous planning, and tech-driven execution.

What has been the role of technology and digital solutions in project implementation?

RRTS is an entirely new project with no precedents in the country. Several technologies and practices are being adopted for the first time. Despite using these first-of-its-kind technologies, we have prioritised the Make in India ini-

tiative. We implemented interoperability among the three priority RRTS corridors to enable seamless commuter movement. This was made possible through the adoption of Hybrid Level 3 technology of the European Train Control System (ETCS). This deployment combines the latest ETCS Standard, interlocking, PSDs and automatic train operation over LTE radio, a first-of-its-kind integration in the world.

NCRTC has selected precast ballastless slab track technology (Austrian technology by Porr) to accommodate speeds of up to 180 kmph. This high-performance, low maintenance technology is also new in the country. We have purchased its intellectual property rights for future RRTS corridors.

At the early stage of project implementation, we have adopted a common data environment (CDE), an electronic platform for all communication and documentation. All our communication with designers, contractors, suppliers, etc. takes place on this platform. In addition to collaborative work, this platform serves as a single source of truth.

An advanced 3D designing technology, building information modelling (BIM), has helped in accelerating construction. The coordination time has reduced and the quality of drawings has improved owing to a better interface and visualisation. All the assets of the project, including stations, viaduct, depot and RSS buildings of the Delhi-Ghaziabad-Meerut corridor, are on the BIM platform. The models are now being populated with additional data required for asset management by respective contractors, and integrated with the asset management software for O&M handover.

In the initial stage, we also developed an in-house project monitoring and management tool called SPEED. With decentralised data capture at more than 100 points in the field, SPEED provides in-depth insights into project implementation. It also offers dashboards for

higher management reviews.

What are the steps being taken to ensure multimodal integration?

We are creating a huge network of networks by integrating RRTS stations with railway stations, ISBTs/bus depots, airports and metro stations, wherever possible. This is in line with the government's Gati Shakti Master Plan. This integration requires the creation of well-designed interchanges and terminals that allow seamless transitions across modes, saving travel time and improving the overall commuting experience. As previously mentioned, we have strategically planned for interoperability between all three priority corridors of Phase I. NCRTC has also taken the initiative of providing last-mile alternatives such as bicycles and ride-sharing services.

We have adopted an open loop, National Common Mobility Card (NCMC)-compliant automatic fare collection (AFC) system for Delhi-Meerut RAPIDX services from the very first day. It will enable commuters to move seamlessly from one transit mode to another. In addition, AFC will offer QR code-based ticketing, which includes digital QR codes generated via the RAPIDX Connect Mobile Application or paper QR-based tickets generated via ticket vending machines (TVMs) at the stations. These TVMs are UPI-enabled and also equipped with a credit/debit/prepaid card reader.

What are NCRTC's future plans and timelines?

Out of the eight identified RRTS corridors, three are prioritised for implementation in Phase I: Delhi-Ghaziabad-Meerut, Delhi-Gurugram-SNB-Alwar, and Delhi-Panipat. The 82 km long Delhi-Ghaziabad-Meerut RRTS corridor will be fully operational by June 2025.

For the Delhi-SNB RRTS corridor, the detailed project report (DPR) has been approved by the concerned state governments and we have completed almost all pre-construction works. We are now awaiting approval from the central government. The DPR of the Delhi-Panipat RRTS corridor has been approved by the Haryana government and is under active consideration by the Government of NCT of Delhi for its approval. ▀

"We are creating a huge network of networks by integrating RRTS stations with railway stations, interstate bus terminals/bus depots, airports and metro stations."