

# An Interview with NCRTC MD Vinay Kumar Singh: 'Comfort of Commuters over Ease of Construction'

By [Arun Kumar Das](#)-Saturday, September 2, 2023 12:39 PM IST



NCRTC MD Vinay Kumar Singh

*Vinay Kumar Singh, Managing Director of the National Capital Region Transport Corporation (NCRTC) speaks to Swarajya about his approach towards executing the Rapid Rail Transit System (RRTS) Project, employment of modern tech, significance of RRTS, and future innovations in the rail sector.*

**Swarajya:** What are the major challenges in executing the RRTS project? What has been your approach?

**Vinay Kumar Singh:** From the beginning, NCRTC has prioritised the needs and comfort of commuters over the ease of construction, following a 'commuter-first' approach. Despite numerous challenges, we have remained committed to this principle.

A good example of this strategy is the decision to locate an RRTS station near existing infrastructure such as the Indian Railway Station, ISBTs, and Metro Station

with two Metro lines. This decision created difficulties, including tunnelling in close proximity to the existing foundation of the Metro infrastructure.

Another challenge arises from the fact that NCRTC is implementing this project in multiple states, which means engaging with numerous stakeholders. The complexity of the project requires obtaining multiple approvals and NOCs even before starting construction on the ground. Additionally, in the densely developed urban environment where the corridor is being built, NCRTC faced several challenges including the availability of land.

However, 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 (ROW) of the State Highway and available land owned by the government or its agencies.

I am glad that within four years of starting the construction of this first-of-its-kind project, we received approval from the Ministry of Railways and the Commissioner for Metro Rail Safety (CMRS) in June 2023. This 17-kilometre-long Priority Section of the Delhi-Ghaziabad-Meerut RRTS corridor is the country's first railway system to be opened for operations along its entire length, with a maximum operational speed of 160 kmph.

**S: How do you position your service compared to the existing metro, bus, and railways services?**

**VKS:** In comparison to existing metro, bus, and railways services, the RRTS service is positioned differently. RRTS is designed as a high-speed, high-frequency, and high-throughput rail-based system specifically for regional or inter-city commutes with longer travel lengths, typically 50 km or 100 km.

The distances between RRTS stations are around 5-7 km, which is significantly longer compared to Metro systems, where the distances are around 1-1.5 km. This makes RRTS a distinct product that caters to the specific requirements of regional commutes.

Unlike traditional railways, RRTS does not operate on a fixed timetable or require a seat reservation. Instead, it is a high-frequency urban commuter service on customised alignment with trains available every 5 - 15 minutes, and the

frequency can be increased if needed. In contrast, even modern railway services like Vande Bharat, which have similar speeds, serve a different purpose as they cover much longer inter-city distances and operate timetabled with services once or twice a day only on existing infrastructure.

It's important to note that existing urban transit systems such as Metro and Bus systems will complement the RAPIDX services by acting as feeders for commuters' journeys.

### **S: What are the modern technologies being introduced in the RAPIDX services?**

**VKS:** RRTS, which will bring in India's first regional rail, is an entirely new project with no precedents in the country. To make this project feasible and to provide the best quality services to commuters, it was imperative to opt for technologies and practices that are being adopted for the first time in the country.

Despite using these first-of-its-kind technologies, we have prioritised the Make in India (MII) initiative. Modern RRTS trainsets with a design speed of 180 kilometre per hour are being manufactured in Savli, Gujarat. In order to enable seamless commuter movement without train changes, we implemented interoperability among the three priority RRTS corridors.

This was made possible through the adoption of hybrid Level 3 technology of the European Train Control System (ETCS), a highly advanced signalling and train control system. This deployment combines the latest ETCS Standard, Interlocking, Platform Screen Door (PSD), and Automatic Train Operation (ATO) over Long-Term Evolution (LTE) radio, a first-of-its-kind integration in the world. This is also being implemented under MII guidelines.

Furthermore, the contract conditions were designed to be vendor agnostic, thereby creating more competition, leading to competitive pricing and easy availability of parts in the future.

For the track technology suitable for a speed of 180 Kmph, NCRTC has selected precast ballastless slab track technology (Austrian technology by M/s Porr). This high-performance, low-maintenance ballastless track technology is also new in the country. We adopted an innovative approach to getting this technology by

purchasing its intellectual property rights (IPR) which allowed domestic contractors in the installation.

Moreover, this strategy ensured that advanced technology was available to the Indian industry for future projects. In addition, Platform Screen Doors (PSDs) have been designed and developed indigenously for the first time in the country by NCRTC and a complete set has been installed at one platform in the priority section. This obviates the need for importing PSDs, predominantly being done from China.

**S: The RRTS project is being implemented for the first time in India. The speed and efficiency with which NCRTC is progressing under your able leadership are commendable. Please share some insights.**

**VKS:** The answer to this question is very close to my heart as this is something I have focussed upon personally since inception. Broadly speaking there have been two key elements in ensuring timely implementation of RRTS. First, early identification and mitigation of risks and second leveraging digital tools in project management.

As a risk mitigation strategy, we decided to take up all enabling works such as utility shifting, road widening etc. through the respective utility owners as deposit works or through independent contracts much before on-boarding the main civil contractor, to ensure encumbrance free ready-to-construct ROW to civil contractors. This helped in minimising the risk of time and cost overrun.

Extensive use of techniques like pre-casting has also helped us in achieving this speed of execution. The majority of the RRTS construction is being done at the median of a heavily operational highway. Pre-casting helped us in minimizing the in-situ construction, resulting in the reduced deployment of manpower, materials, and machines thereby minimising air and noise pollution at the sites. It also helped in ensuring quality control as well as minimising inconvenience to the people.

Further, talking about the technologies leveraged in project implementation, in a very early stage we adopted Common Data Environment (CDE), which is an electronic platform where all communication and documentation moves. So, all NCRTC's communication with the Designers, Contractors, Suppliers etc., takes

place on this platform. In addition to collaborative working this platform also works as a single source of truth.

A high-advanced 3D designing technology, BIM – Building Information Modelling has helped to accelerate the construction of the Delhi-Ghaziabad-Meerut RRTS Project. The BIM platform has reduced time in coordination and improved the quality of drawings through better interface and visualisation.

All the assets (such as stations, viaduct, depot, and RSS buildings) of the Delhi-Ghaziabad-Meerut corridor are on the BIM platform and fully coordinated drawings extracted from BIM models are available. Construction is ongoing based on these drawings. The BIM models are now being populated with additional data required for Asset management by respective contractors. These models are being integrated with the Asset Management software for O&M handover.

In a very initial stage, we 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 for a deep dive into the project implementation and at the same time has dashboards for higher management reviews. We are also supporting our peer organisations including Bangalore Metro (BMRCL) and Haryana Rail Infrastructure Development Corporation (HRIDC) with the implementation of SPEED for their projects.

**S:** With the experience gained by your organisation in the field of inter-city rapid transit, are you looking to share this knowledge with your industry peers?

**VKS:** In the last few years, while implementing the first RRTS corridor, we have gained expertise and developed innovative solutions required for such large-scale infrastructure projects.

Since the beginning of the project, we have been documenting in detail all our strategies, processes, and protocols. These would prove to be very helpful for the replication of similar projects across the country. NCRTC is keen on sharing the knowledge gained and expertise with other organizations for the implementation of such complex and large-scale transport infrastructure projects in future.

We are in fact already working with Bangalore Metro and Haryana Rail Infrastructure Development Corporation (HRIDC) to support them in adopting

and implementing our project monitoring technology tool SPEED. Asian Development Bank (ADB) and World Bank are also closely working with NCRTC to see how they can leverage NCRTC's innovation and expertise for other projects being funded by them in the country and across the globe.