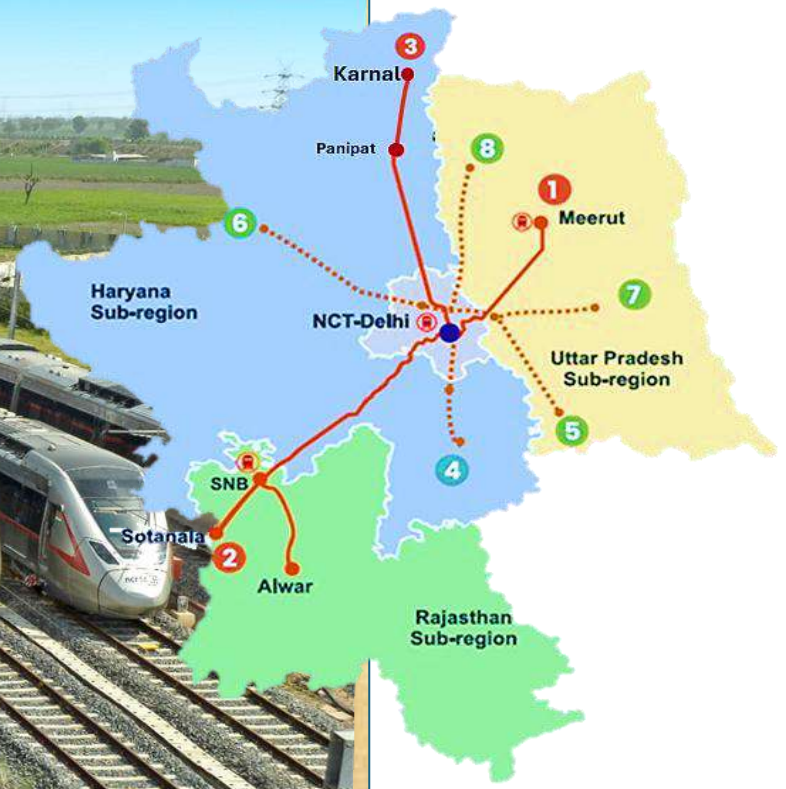
NAMO BHARAT



AMDA
18 th Nov 2025

Mass Rapid Transit and Social Impact

SP Mahi CE Infra & Land

ncrtc

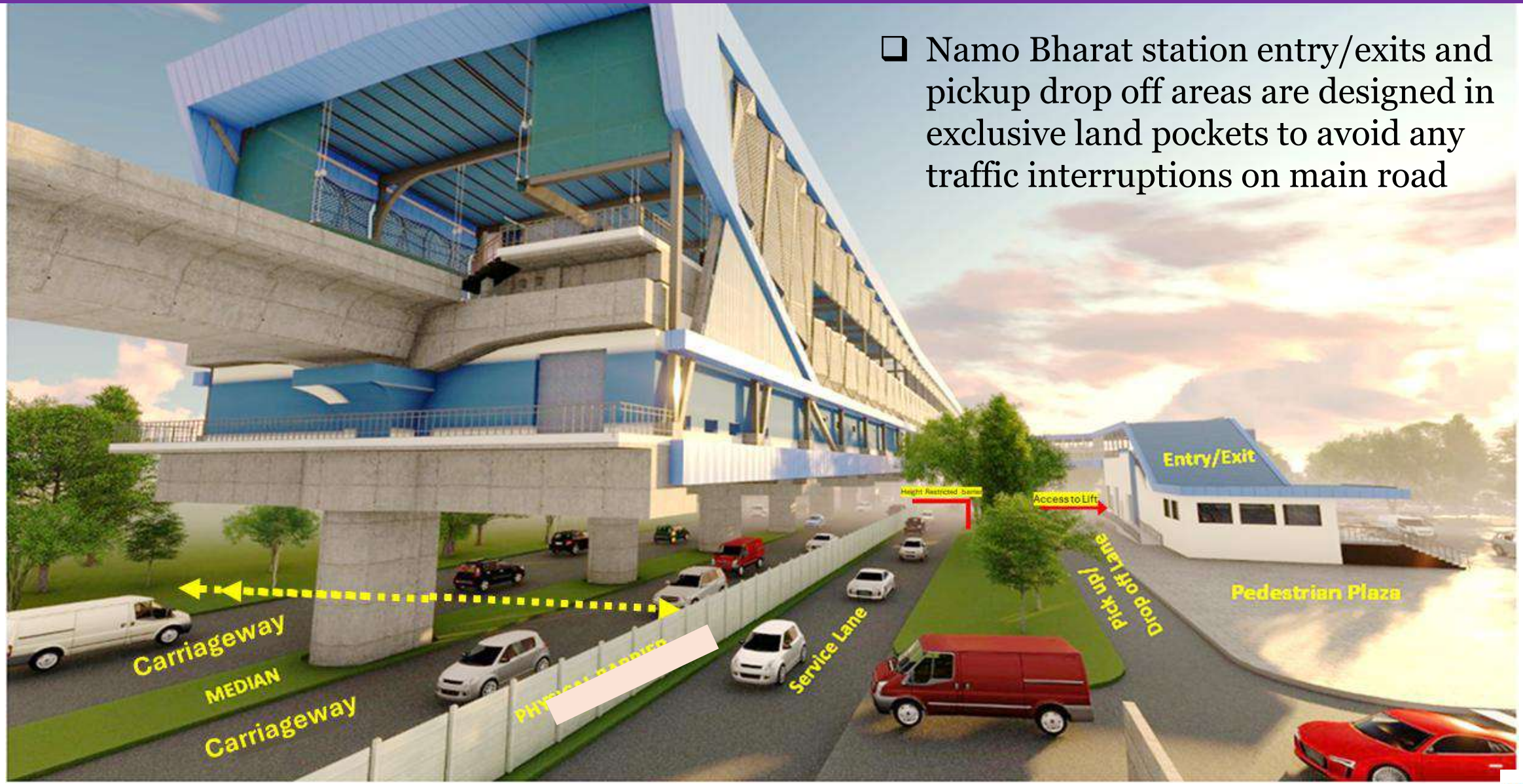
Provision of Pickup/ Drop off areas and Parking areas at Namo Bharat Stations

- About **8000 parking spaces** are provisioned in Namo Bharat stations for 2 wheelers & cars

Sahibabad
Namo Bharat Station

Segregated Namo Bharat Station Entry/Exit away from Main Road

- Namo Bharat station entry/exits and pickup drop off areas are designed in exclusive land pockets to avoid any traffic interruptions on main road



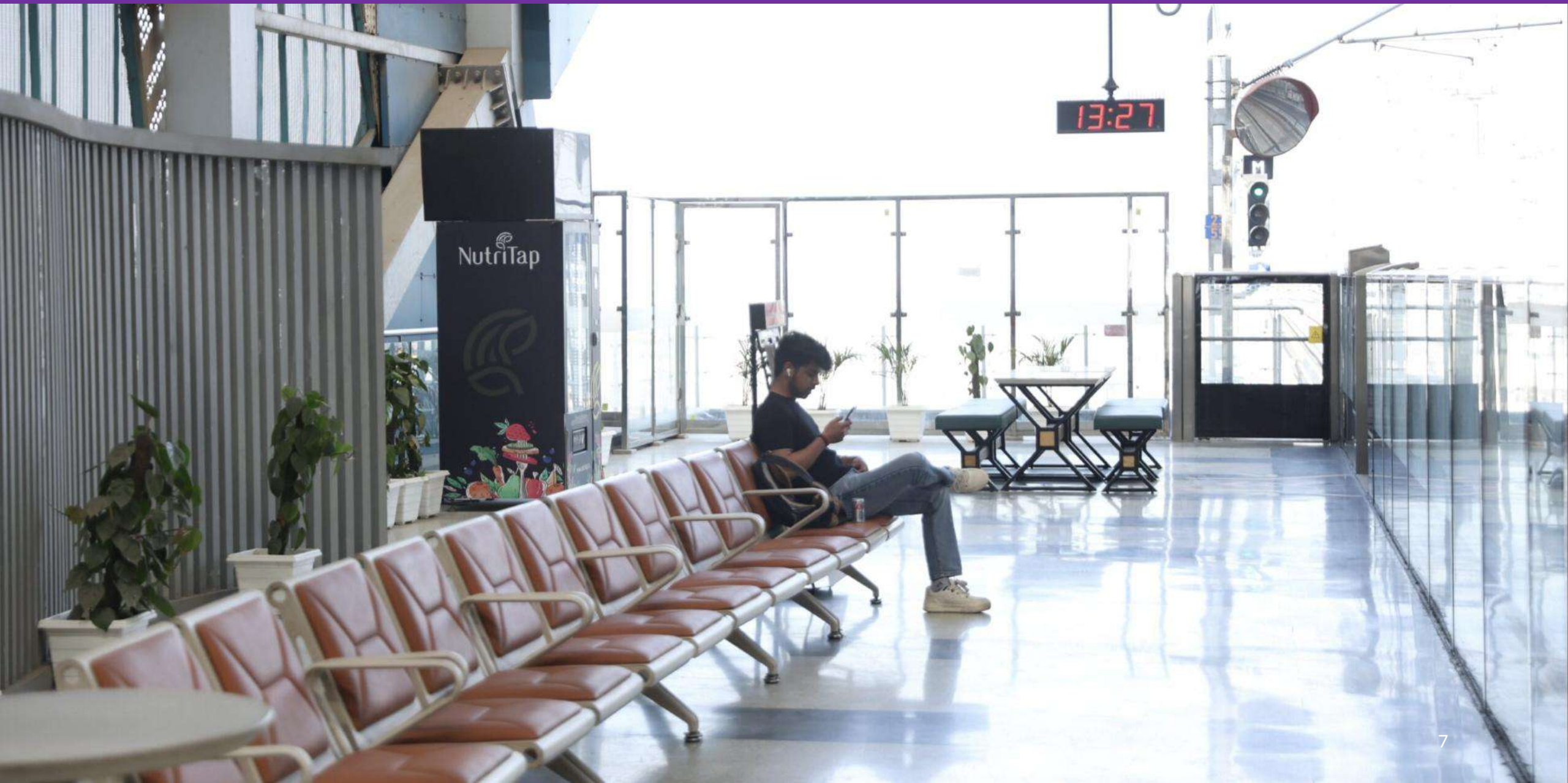
4

Namo Bharat Train crossing Eastern Peripheral Expressway (EPE)

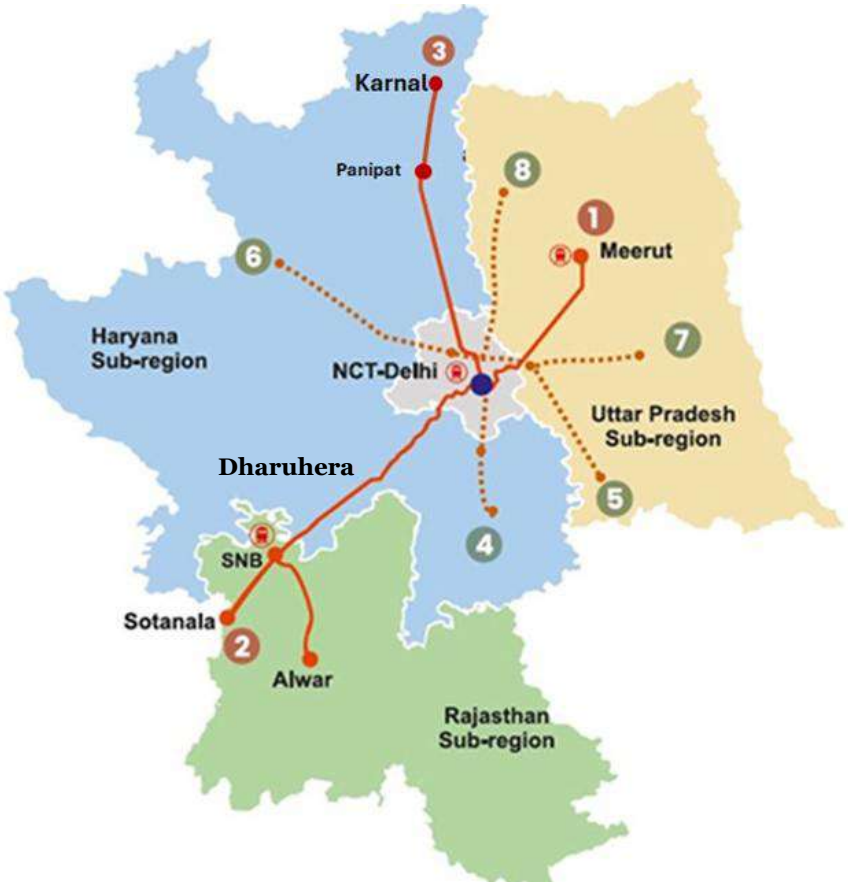
Women Playing an Important Role in Namo Bharat

More than 35% of Operation & Maintenance staff are women

Premium Lounge



Namo Bharat in National Capital Region



1. Delhi-Ghaziabad-Meerut
2. Delhi-Gurgaon-Rewari-Alwar
3. Delhi-Sonipat-Panipat
4. Delhi-Faridabad-Ballabgarh-Palwal
5. Ghaziabad-Khurja
6. Delhi-Bahadurgarh-Rohtak
7. Ghaziabad-Hapur
8. Delhi-Shahdra-Baraut

Eight Namo Bharat corridors identified in **Functional Plan of Transport for NCR (2032)** out of which three corridors prioritised in Phase-I

Phase-I: 3 Namo Bharat corridors

Parameters	Delhi (SKK) – Meerut	Delhi (SKK) – Panipat – Karnal	Delhi (SKK) – Gurugram – Bawal
Total Length (Km)	82.15	136.30	93.12
Estimated travel time (min)	60	90	67
No. of total stations	25	17	13

The three Namo Bharat corridors (Phase-I) are included in **the National Infrastructure Pipeline (NIP)**

What is RRTS & What will it offer to its users?

RRTS – Rail based high speed, high capacity, comfortable and safe commuter service connecting regional nodes.
It will help in **reducing Road Congestion, Energy Consumption and Pollution**

Design speed of 180 kmph (Delhi to Meerut in less than an hour)

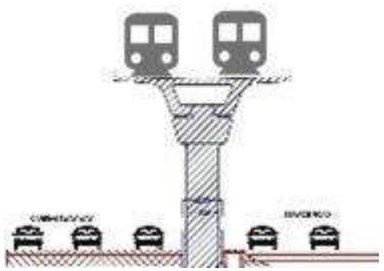
Train every ~5-10 min. & serving traffic nodes every 5-10 kms

Interoperable Corridors & Multimodal Integration

Universal Access – Dedicated Women Coach

High capacity, comfortable journey, airline seating

Weatherproof – rains, fog



Reduced Land use for high throughput

Commuter friendly information system

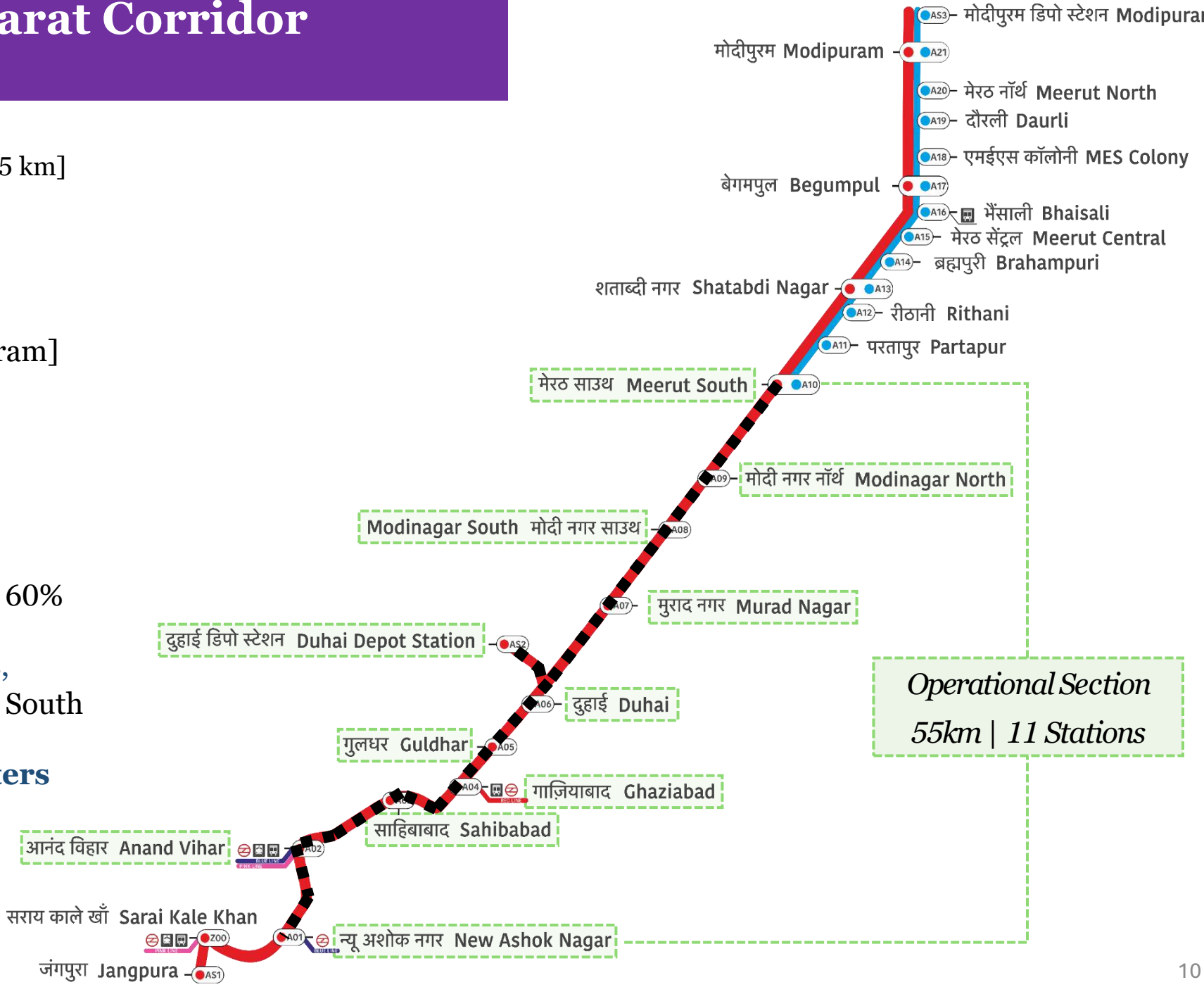
RRTS trains will travel at 3 times the average speed of Metro

Delhi-Meerut Namo Bharat Corridor

Project at a glance

- **Corridor Length: ~82.15 km**
  [Elevated: ~70 km & Underground: ~12.15 km]
  - Delhi: 13.50 km
  - U.P.: 68.65 km
- **Integration with Meerut Metro**
  - 23km [Meerut South to Modipuram]
  - 13 Stations (9 MRTS & 4 Namo Bharat+MRTS)
- **Project Financing**
  - Center – 20% | State – 20% | Multilateral Lending Agencies – 60%
- **55km under revenue operations,** between New Ashok Nagar to Meerut South
- **Served over 18 million Commuters** since October 2023

Project completion within sanctioned Timelines & Cost.



Delhi-Meerut RRTS corridor - Milestones

Mar 2019
Project approved

Jun 2019
Construction started

Oct 2023
17 Km opened with 5 Stations

Jan 2025
55 kM Operational 11 stations

July 2025
All major work Completed

Oct 2025
1.8 Cr Boardings (cum.)

Flag-off of Namo Bharat train by Hon'ble Prime Minister in October 2023

Inauguration of additional sections of RRTS by Hon'ble PM

RRTS projects are significantly different from Metro Rail

RRTS will be **the FASTEST, the most COMFORTABLE, most RELIABLE &** **the SAFEST** mode of travel in NCR

Parameter	RRTS- Delhi-Meerut	Metro System
Mobility Focus	Regional – multi-city, multi-state	Local, intra-city
Design Speed	180 kmph	80-90 kmph
Average Speed	~100 kmph	35 kmph
Signalling – Technology	ETCS Level II – First Time in India	CBTC – standard system
Elevated Civil Structure	Heavier due to higher dynamic load	Standard
Underground Tunnel diameter	6.5 m	5.8 or lower
Rolling Stock - Baggage Space	Provided, resulting in increased height	Not provided
No of Coaches	9 coach	3 to 9-coach

Broad System Parameters of RRTS – Delhi-Meerut

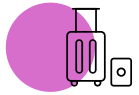
Parameters	System Specifications
Track Gauge	Standard Gauge- 1435 mm
Axle Load	17 T
Rolling stock	3.2 m wide 23 m long, stainless steel
Traction Power	25 KV, 50Hz OHE
Automatic Fare collection	Printed QR Based Ticket/ Contactless Smart Card – NCMC / Open Loop
No. of Doors on each side and Door width	3 Nos., 1.4m wide
Seating arrangement	2 X 2 transverse type seating
Platform Screen Doors	Yes
Accommodation Class	Standard and Premium
Accessibility	Priority seating; Reserved coach for women, Stretcher/Wheel chair access
Emergency Passenger evacuation	Side evacuation

Design speed of 180 kmph

Precast slab track

Signaling – ETCS Level 2 over LTE

- With ATO and PSD integration
- Fully inter-operable
- Beneficial in extension of lines



Provision for luggage space

First-of-its-kind initiatives

Signalling

- **Globally first time -** ETCS Level 2 over LTE backbone, integrated with ATO and Platform Screen Doors (PSD)
- PSD, hitherto imported, designed, manufactured & installed in India for 1st time obviating need for import

Track & Rolling Stock

- **Track: Introduced ballast less precast** slab-track technology through Indian contractors
- **Rolling Stock: 1st in India to be certified for180/160 kmph**; design/ operating speed of 100% designed & manufactured in India

Interoperability

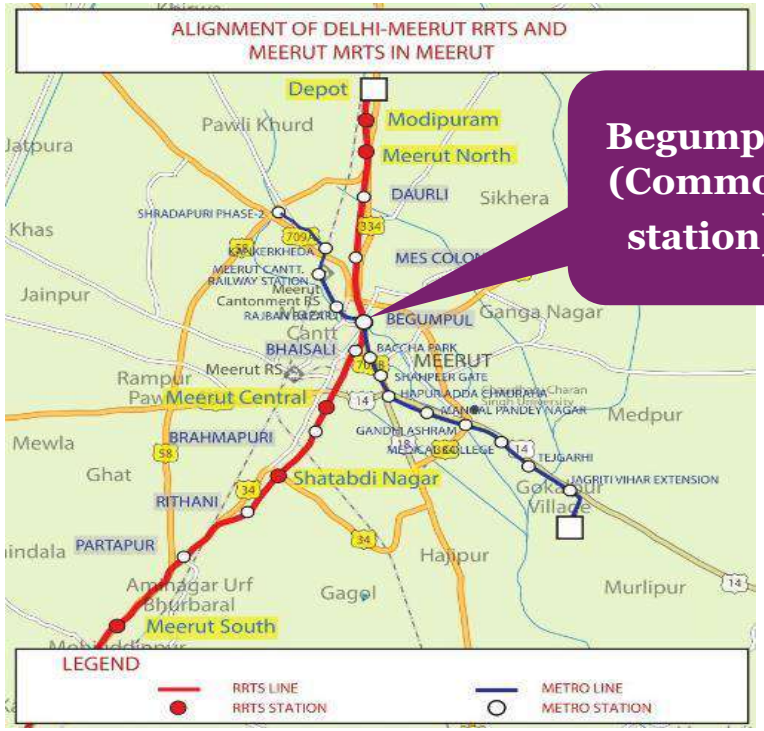
- All metro lines in India are standalone; **Namo Bharat brought concept of interoperability** for seamless running of trains across corridors
- Standardization across corridors; vendor agnostic procurement enabled for future extensions

Integration of metro on Namo Bharat

- **Metro services will run on Namo Bharat infrastructure** in Meerut - 1st such initiative in India
- Saving ~Rs. 6350 crore (USD 799 Mn) of public exchequer

1 USD equals INR 79.50

Integration of Metro Services in Meerut on RRTS Infrastructure

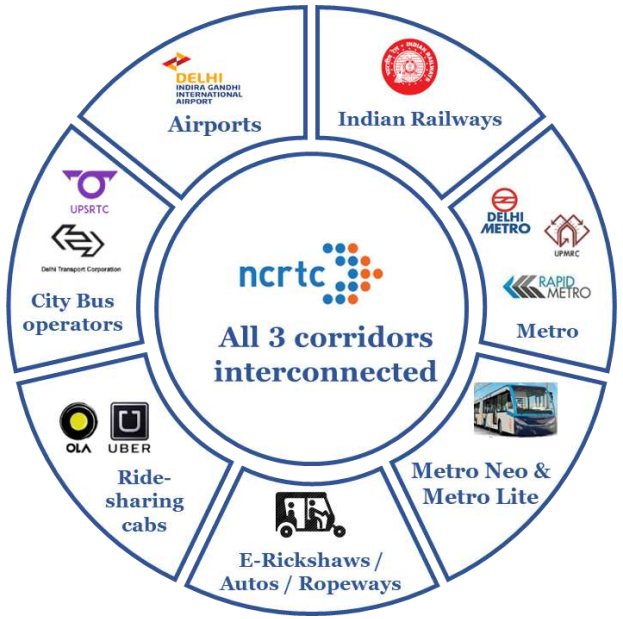


Begumpul (Common station)

Outcomes

- Savings in capital costs ~ **₹. 6,350 Crores**
- Synergies between RRTS and Metro in Meerut
- Better utilization of resources & no competition for ridership
- In conformity with New Metro Policy to join City Centre to City Centre by RRTS
- In line with scheme in Delhi and other places
- Win-Win situation

Multimodal Integration



1. All three prioritized corridors will converge at Sarai Kale Khan
2. Three prioritized corridors will be interoperable providing seamless movement
3. Multimodal integration (MMI) with various modes of public transport
4. Local transit services on Namo Bharat infrastructure over 23 Km with 13 stations in Meerut

Modes	Namo Bharat integration at
Metro Rail Systems	**Delhi Metro (9 metro lines):** SKK, New Ashok Nagar, Anand Vihar, Ghaziabad (Shaheed Sthal – New Bus Adda), INA (Dilli Haat), Munirka, Aerocity, Indraprastha, Kashmere Gate, Burari X-ing, Kundli **Meerut Metro [Planned]**: Begumpul **Gurgaon Rapid Metro:** Cyber city, Hero Honda Chowk **Bawal Metro [Planned]**: Kherki Daula, Panchgaon
Airport	**Indira Gandhi International Airport:** Aerocity [through Shuttle]
Indian Railways	Hazrat Nizamuddin & Anand Vihar
ISBTs	Sarai Kale Khan, Kashmere Gate, Anand Vihar, Panchgaon, Panipat
Other Bus Terminal /Depot	Kaushambi Bus Depot, Sahibabad Bus Adda, Ghaziabad New Bus Adda, Muradnagar Bus Stand, Bhaisali Bus Adda, Bawal, Gannur, Panipat Bus Stand
Roads	Ring Road, Eastern Peripheral Expressway, Western Peripheral Expressway, Delhi-Meerut Expressway, Southern Peripheral Road

Green Energy Initiatives

- **5.5 MWp solar capacity out of 15 MWp installed** will generate about 62 lakh units per annum & reduce 5700 tonnes CO_2 annually.
- NCRTC has set an ambitious target of sourcing **60% of its energy requirement** from renewable sources.
- **Regenerative braking feature** in rolling stock would result in energy savings of upto **30% at equipment level.**
- **Regeneration in lifts** installed at stations would result in energy **savings of 22%.**

110 MW Captive Solar Power Plant - first of its kind initiative by a transit agency

Solar in Track

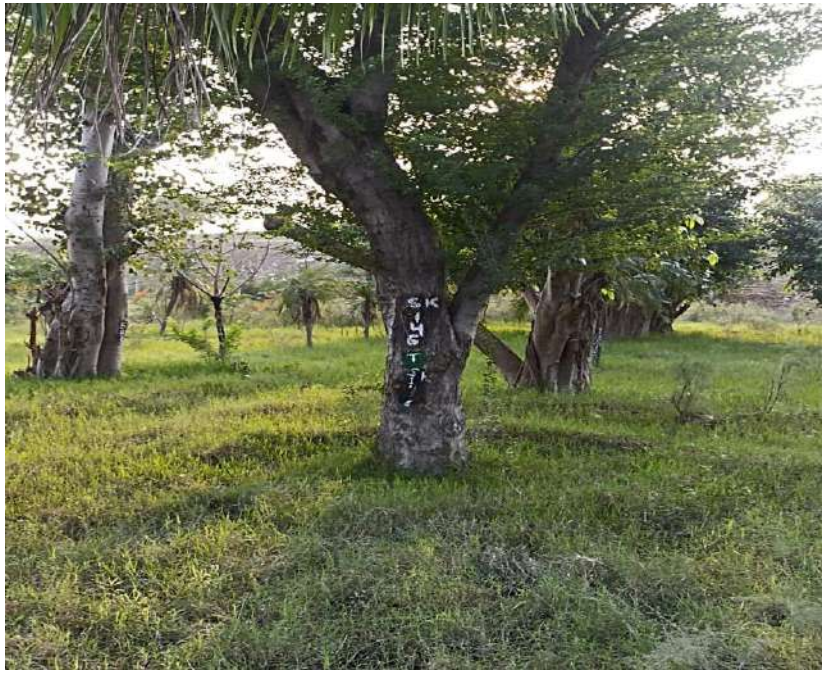
Rainwater Harvesting

- **DUHAI Depot:** 02 No's
  - POND-1: Capacity of 13 lakh litres approx (24 x 25 x 2.20 mtr average) with 03 nos RWH, each 30 mts deep.
  - POND-2: Capacity of 22 lakh litres approx (49 x 18 x 2.50 mtr average) with 04 nos RWH, each 30 mts deep.
- **Rainwater Harvesting has also been done throughout along the viaduct and at all the Stations.**

S. N.	Location	Pits (No's)
1	P06- Elevated Section (Delhi)	3
2	P9A-Staff Quarter (Delhi)	4
3	P01-Elevated Section (U.P)	16
4	P02- Elevated Section (U.P)	150
5	P03 (Lot 1)- Elevated Section (U.P)	242
6	P03 (Lot 2)- Elevated Section (U.P)	238
7	P05A-Depot (U.P)	16
8	P07- Elevated Section (U.P)	197
	Total	**866**

Tree Transplantation

Location	No's
NTPC Badarpur	656
Mayur Vihar	1,335
Yamuna Khadar	
Tajpur Pahadi	
By Forest Department, UP	120
Thesis Office Bhaisali & Main Ganga Canal at Mile 81Km	183
Total	**2,294**



Focus on Aatmanirbhar Bharat

Make in India

Strategic Focus on absorption of new technologies

Delhi – Meerut Corridor implementation achieving ~92.5% local content

Rolling Stock - Designed for 180 kmph;

100% trainsets being manufactured at Savli, Vadodara

Signalling & Telecommunication - Globally first deployment of ETCS Level 2 Hybrid Level 3 over LTE backbone

- Package kept out of ADB funding to incorporate MII guidelines, 50% min. local content

Indigenisation of PSD - Collaboration with BEL

Joint Development of half height Platform Screen Door (PSD) system with BEL – first PSD installed at Duhai Depot station

Enhancing private sector participation - OpEx optimization

1 Operations & maintenance

- Comprehensive 12-year O&M contract awarded to Deutsch Bahn India
- First of its kind contract in the country – in line with Metro Rail Policy 2017
- Predictability of long-term costs, managerial efficiencies and entrepreneurial spirit
- Now being followed by peer organisations in the country

2 Procurement and maintenance of Rolling stock

- Supply bundled with 15-year maintenance – awarded to Alstom India
- Optimised life cycle cost with efficient maintenance – predictability of long-term cost
- Leveraging OEM capability – learning best practices of maintenance
- Now being followed by peer organisations in the country

3 Implementation of AFC system

- Open loop system - National Common Mobility Card (NCMC)
- Unbundled into two contracts - system integrator and financial institution
- PPP Hybrid Annuity Model adopted
- Two level AFC gates for enabling access to premium class coach

Leveraging Technology for on-time delivery of project

Project Planning & Monitoring Tools

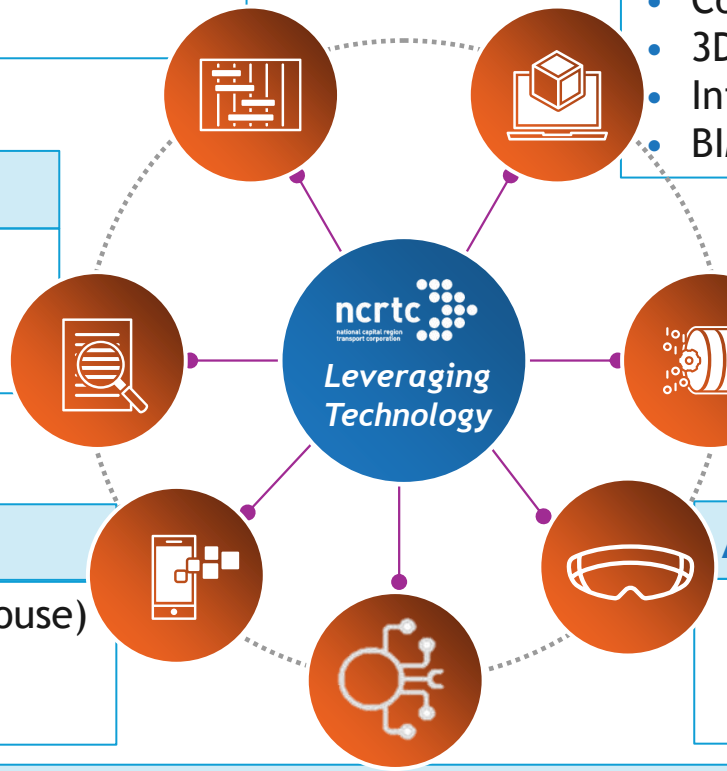
- Primavera P6
- SPEED (In-House)

Documentation

- CCTV/ PTZ Cameras
- Time Lapsed Video
- UAV (Drone)

Mobile Applications

- Employee attendance (Gati App) (In-house)
- Quality Control (QC) App (In-house)
- RRTS Connect, Way-Finder



Building Information Modeling (BIM) & GIS with CDE

- Collaborative design
- 3D visualization
- Integration with GIS
- BIM enabled Electronic Document Management System

Track Alignment & Simulation

- Open Rail
- Open Track

Advance Uses of BIM

- Augmented/Virtual Reality (AR/VR)
- Real-time visualizations
- Simulations

Others

- CORS Continuously Operating Reference Mobile Applications Stations
- AMS (Asset Management System)

SPEED® is an enhanced and comprehensive customizable project tool

Systematic Program Evaluation for Efficient Delivery (SPEED)

Important project aspects covered - Pre-construction, Construction, Cost, Meetings, Quality & Safety, etc.

Integration with 3rd party applications like **CDE, Power-BI, Primavera, etc.**

Can be **customized** for Buildings, Railways, Highways or any other infrastructure project

Ease of **usability and accessibility - Mobile friendly** user-interface

Ease of working - Can be used effectively by **minimum training**

Caters to project owner's perspective for large infrastructure projects

CDE – Common Data Environment

Project Monitoring

Key Modules – SPEED

- Pre-construction
- Construction
- Cost Monitoring
- Review Meeting
- Weekly/Monthly Progress
- Quality Control / Safety Status
- Employee Self Service (ESS)
- Dashboard
- 4D BIM
- Mobile Application

Hon'ble PM experiencing Technology demonstration

Common Data Environment (Wrench)

- **All submissions can be reviewed through browser-based window allowing BIM model review also**

BIM Vs Actual

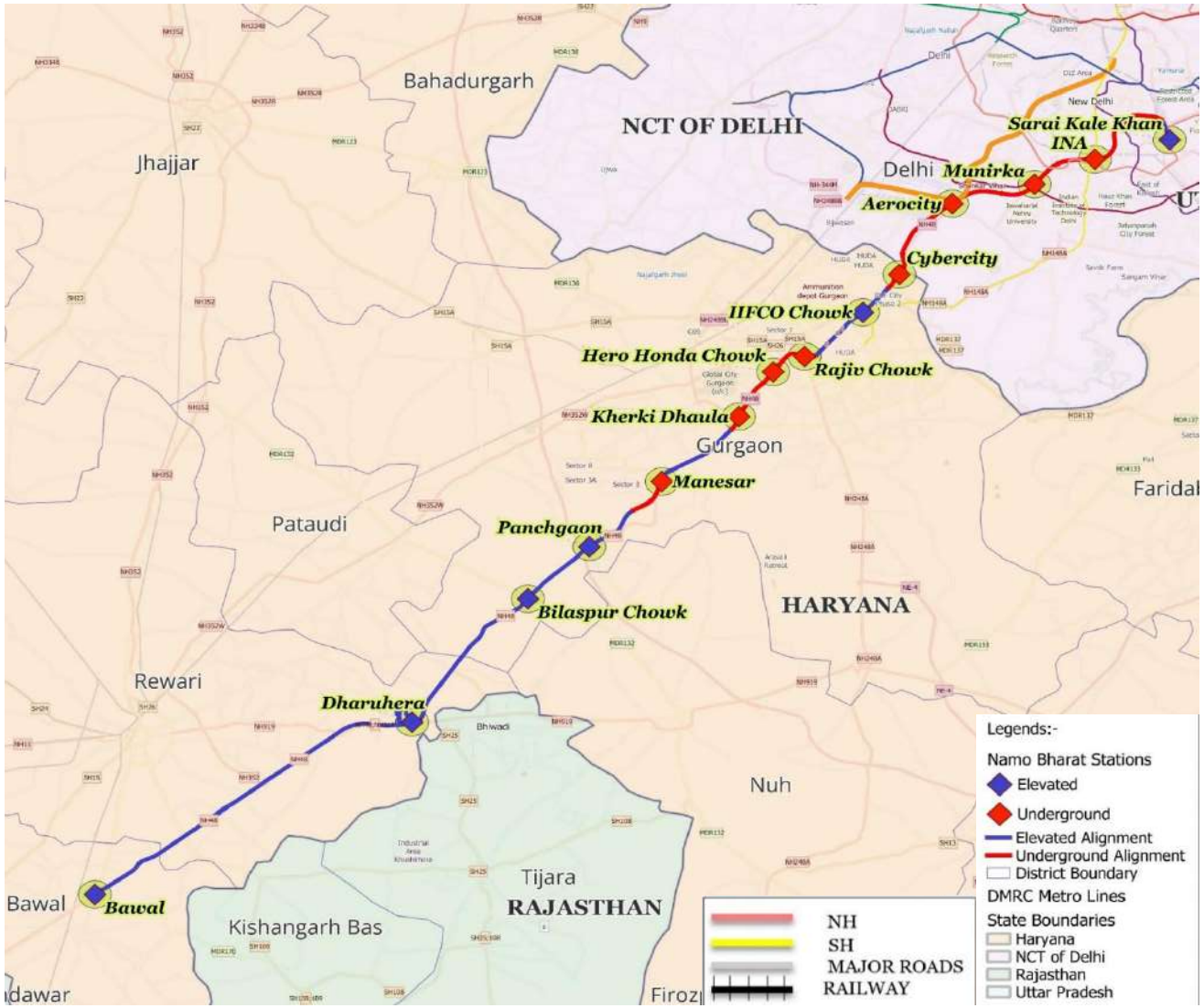
BIM Representation

Actual Site

Delhi – Gurugram – Bawal Namo Bharat corridor (93.12Km | Rs. 32,327.08 Cr.)

	Total	Delhi	Haryana
Total Length (km)	**93.12**	**21.98**	**71.14**
Underground (km)	37.87	21.53	16.34
Elevated (km)	55.25	0.45	54.80
No. of Stations (excl. SKK*)	**13** (+ 2 Futr. Stn.) (Elev.: 6 | UG: 7)	**3** (Elev.: 0 | UG: 3)	**10** (+ 2 Futr. Stn.) (Elev. 6 | UG: 4)
Estimated Travel Time	67 min (between Sarai Kale Khan & Bawal)		

SN	Station Name	Elev. / UG	Inter Station (km)	State
0	Sarai Kale Khan#	Elev.	-	Delhi
1	INA	UG	7.71	Delhi
2	Munirka	UG	4.39	Delhi
3	Aerocity	UG	5.54	Delhi
4	Cybercity	UG	6.48	Haryana
5	IFFCO Chowk	Elev.	3.55	Haryana
6	Rajiv Chowk	UG	4.98	Haryana
7	Hero Honda Chowk	Elev.	2.58	Haryana
8	Kherki Daula	UG	3.89	Haryana
9	Manesar	UG	6.9	Haryana
10	Panchgaon	Elev.	6.71	Haryana
11	Bilaspur Chowk	Elev.	5.34	Haryana
12	Dharuhera	Elev.	11.77	Haryana
F1	MBIR*	Elev.	7.66	Haryana
F2	Rewari*	Elev.	8.05	Haryana
13	Bawal	Elev.	8	Haryana



** Future Stations (F) | # Existing station in Delhi-Meerut Namo Bharat corridor*

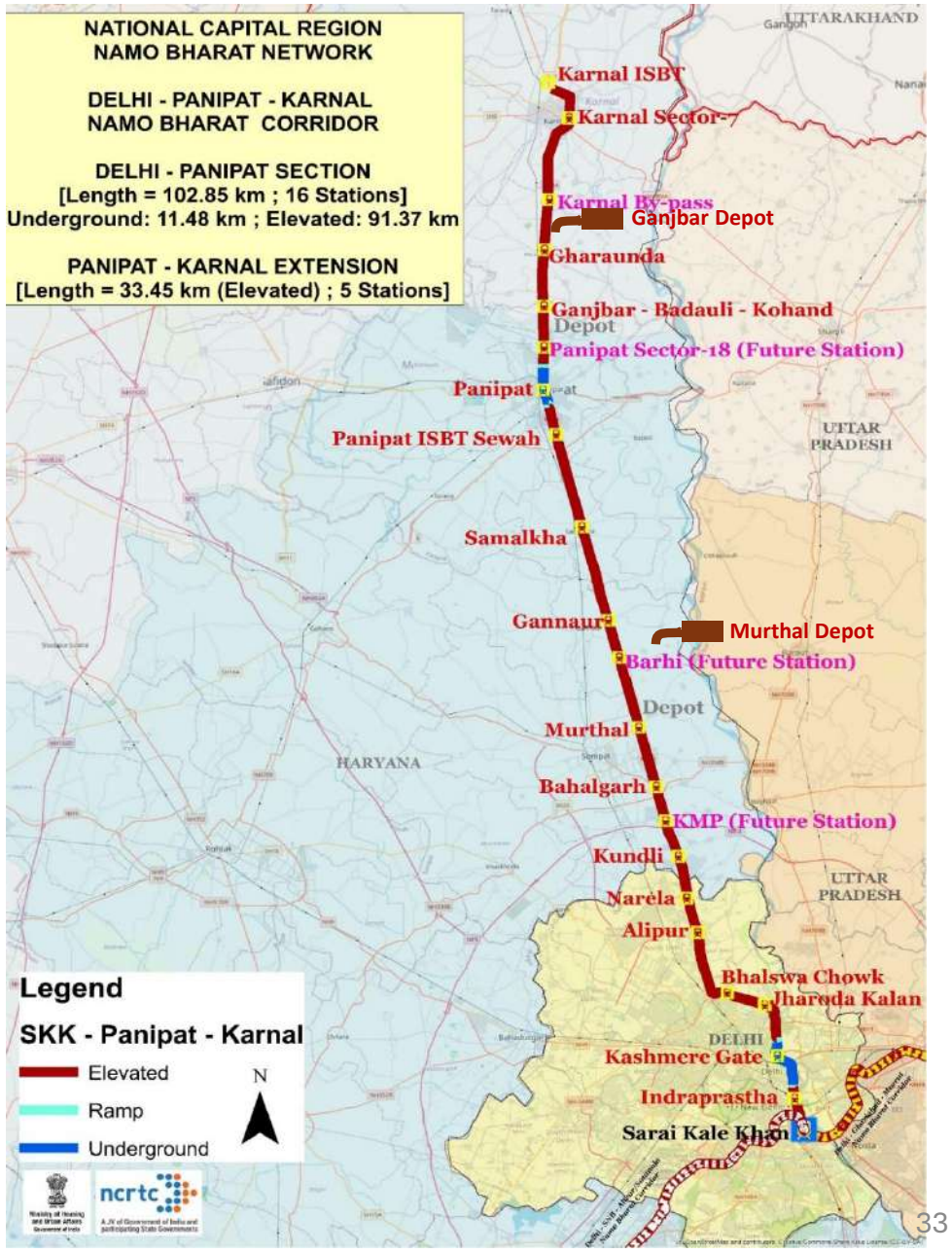
Delhi – Karnal Namo Bharat corridor (136.30Km | Rs. 33,051.15 Cr.)

	Total	Delhi	Haryana
Total Length (km)	**136.30**	**36.15**	**100.15**
Elevated (km)	124.82	29.65	95.17
Underground (km)	11.48	6.50	4.98
No. of total stations (excl. SKK#)	**17** (+4 Future) (Elev. 15 | UG: 2)	**6** (Elev. 5 | UG: 1)	**11** (+4 Future) (Elev. 10 | UG: 1)
Estimated travel time	~ 90 min (avg. speed 90 kmph)		

SN	Station Name	Inter-station	State
-	Sarai Kale Khan #	-	Delhi
1	Indraprastha	3.78	Delhi
2	Kashmere Gate (U/G)	6.19	Delhi
3	Jharoda Majra	6.94	Delhi
4	Bhalswa	4.38	Delhi
5	Alipur	9.25	Delhi
6	Narela	3.71	Delhi
7	Kundli	5.62	Haryana
F1	KMP *	4.57	Haryana
8	Bahalgarh	3.96	Haryana
9	Murthal	7.48	Haryana

SN	Station Name	Inter-station	State
F2	Barhi *	8.71	Haryana
10	Ganaur	4.41	Haryana
11	Samalkha	12.04	Haryana
12	Panipat ISBT Sewah	11.11	Haryana
13	Panipat (U/G)	5.60	Haryana
F3	Panipat Sector-18 *	5.07	Haryana
14	Ganjbar-Badauli-Kohand	5.18	Haryana
15	Gharaunda	6.43	Haryana
F4	Karnal By-pass *	6.41	Haryana
16	Karnal Sector-7	9.93	Haryana
17	Karnal new ISBT	5.56	Haryana

** Future Stations (F) | # Sarai Kale Khan – existing station in Delhi-Meerut Namo Bharat corridor*



Social Impact - Empowering masses through access: inclusive growth

Healthcare

- *Better access to best of national hospitals (AIIMS)*
- *Reliable and comfortable transportation of patients*

Education

- *Better access to education institutions*
- *Safe transit for students*
- *Fast transit from Delhi – better faculty*

Employment

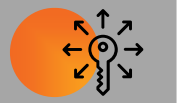
- *Better access to business centers of NCR*
- *Larger workforce availability for the employers*
- *Supporting women employment – safer transit*

Leisure

- *Better access to best of entertainment hubs/ shopping malls*
- *Faster transit enables frequent leisure trips from sub-urban nodes*

Social Impact - Social and Environmental benefits

Universal Access



- *Ensuring access to specially abled, old and children*
- *Dedicated coach for women*

Reduced Pollution

- *Reduced vehicle operating costs – reduced fuel consumption – reduced carbon emission*

Reduced congestion & higher safety

- *Reduced vehicles on road – reduced road congestion*
- *4 to 6 lane conversion of roads*
- *Safer rail based transit - reduced road accidents*

Minimal Displacement

- *Minimal ground footprint – lesser land acquisition – minimal displacement*

Social Impact - Economic Benefits

Better urban agglomeration

- *Connecting sub-urban nodes - controlled urban sprawl*

Enhanced labour productivity

- *Travel time savings as high as 60%-70%*
- *Reliability – no travel time buffer*
- *Increased productivity*

Employment

- *Direct job creation – passenger and non passenger services*
- *5x - Induced job creation*

Polycentric economic development

- *Enabling development in sub-urban nodes*
- *More livelihood opportunities*

Community Empowerment Activities

Enabling women towards economic empowerment through employability skills trainings – **driver training**

Empowering physically and mentally and providing sense of safe mobility – **self-defense training to students**

Empowering persons with disability and enhancing their mobility –**public transit awareness to specially-abled students**

Community awareness drives to disseminate information about Namo Bharat and its potential benefits – **gender sensitization to bus drivers & workshop for transgenders**

Co Working Space at Ghaziabad

Functions of Municipalities

- **Maintenance of Local roads, street lighting, and drainage**
- **Public health centers and sanitation**
- **Regulation of markets and trade licenses**
- **Small-scale urban planning and housing projects**
- **Collection of local taxes and**

Social Impact

PM’s appreciation and futuristic vision on Urban Mobility

गति से प्रगति

Thank you

National Capital Region Transport Corporation, GatiShakti Bhawan,
INA, New Delhi – 110023
Website: ncrtc.in

Environmental challenges encountered

Challenges

- Minimising the harmful impact on Environment by construction
- Imposition of heavy penalties by Govt. and even Stoppage of work during the Grab Period of NGT in the months of Oct- Dec'22 due to rise in AQI levels in Delhi NCR particularly at Anand Vihar - leading to delay in project timeline

Solutions

- For reducing the emissions due to the use of Diesel Gensets, electric substations have been setup at site for major works such as TBM tunneling operations, site office functioning etc
- Erection of high barricades around the work sites in residential and commercial areas to act as breaking wall
- Deployment of Anti-Smog Guns and mechanical broomer at all work sites
- Ensuring Wheel wash facility at all work sites
- Regular safety inspection of the dumpers for any leakage and covering of the muck dumpers with tarpaulin
- Disposal of C&D waste at designated C&D waste processing plant etc