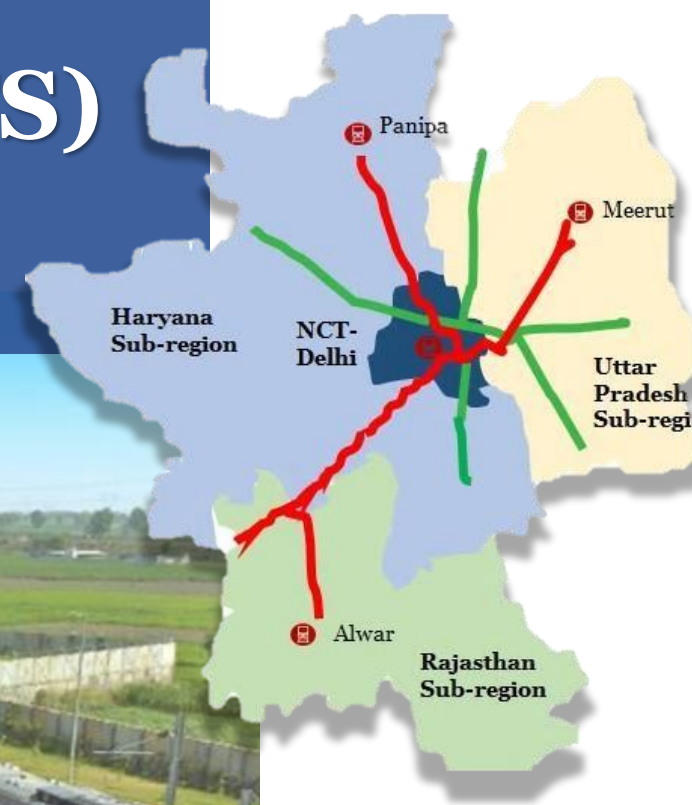


Regional Rapid Transit System (RRTS)

India's First Semi-High Speed Regional Rail



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ADB Business Opportunities Seminar (BOS)

Srishti Gupta
Lead (Strategy)



India's Transport Revolution

Driving Growth through Strategic Infrastructure Investments



Railways

Aviation

Roads

MRTS



Capex up by 76%
(2019-24)



Capex up by 60-70%
(2019-24)



Capex up by 273%
(2019-24)



Capex up by 80%
(2019-24)

- National Rail Plan (NRP) 2030
- Dedicated Freight Corridor (DFC)
- Mission Raftaar
- Atmanirbhar Bharat Package for Railways



UDAN Scheme

- Over 469 new air routes operationalized for regional connectivity



Bharatmala Project

- 83,677 km of highways
- Investments of INR 5.35 lakh crore

- Metro Rail Policy 2017
- National Urban Transport Policy (NUTP)
- Make in India for Metro Rail
- Green Urban Mobility Scheme



Regional Rapid Transit System (RRTS)

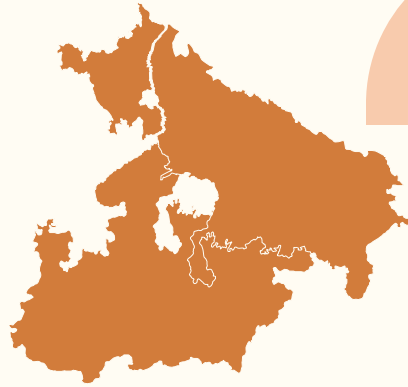
A strategic intervention to provide futuristic and commuter centric regional commute



National-level

(> 150 km)

- ✓ National Railways
- ✓ National Airlines
- ✓ High Speed Rail



Regional-level

(20-150 km)

- ✓ Passenger Trains
- ✓ Inter-state Buses
- ✓ RRTS (Semi-high Speed rail)



RRTS is perfectly poised



City-level

(10-25 km)

- ✓ Metro Rail Transit
- ✓ Bus Rapid Transit
- ✓ City Buses



Last Mile

(< 10 km)

- ✓ Autos / Shared Autos
- ✓ E-Rickshaws
- ✓ Feeder Buses

High Speed Rail & Semi-High Speed Rail are in nascent stages of implementation

✓ Implemented already

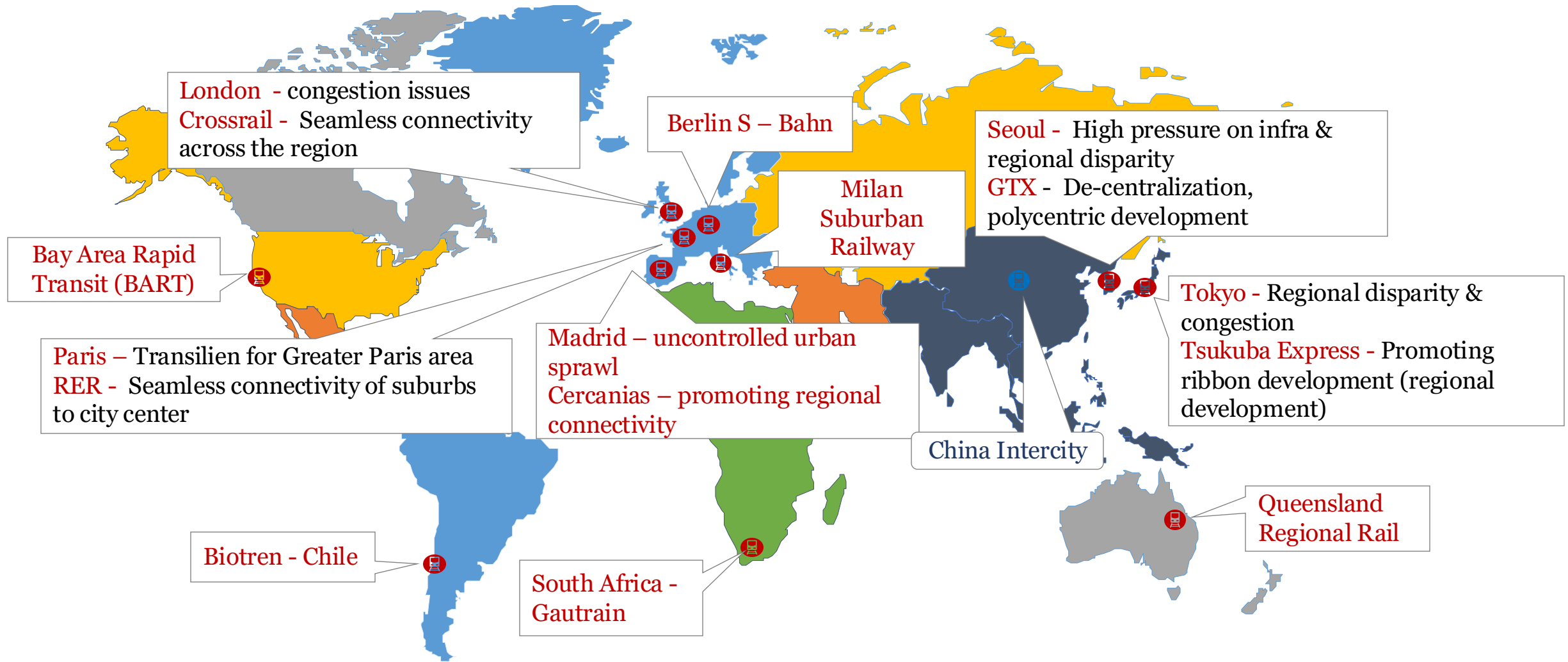
✓ Under implementation for first time

Comparative Analysis of Transit Modes in India

Transit Level	Mode	Max Speed	Capacity	Efficiency	Cost (₹/km)	Comment
National	High-Speed Rail ^[1]	320 km/h	1,200 passengers	High	₹6-8/km	Still in nascent stages.
	Airlines ^[2]	800-900 km/h	150-350 passengers	Very High	₹10-12/km	Expensive for frequent use.
Regional	Passenger Trains ^[3]	80-100 km/h	1,000-2,000	Moderate	₹1.5-3/km	Slow, crowded.
	Inter-state Buses ^[4]	50-80 km/h	30-50 passengers	Low	₹1-2/km	Long travel times.
	RRTS (Semi-High Speed Rail)^[5]	160-180 km/h	1,700 passengers	Very High	₹2-3/km	Quick, high frequency.
City Level	Metro Rail ^[6]	80 km/h	900-1,200 passengers	High	₹1.5-2/km	Restricted to city limits.
	Bus Rapid Transit ^[7]	40-60 km/h	70-100 passengers	Moderate	₹1-1.5/km	Limited reach.
Last Mile	Autos/E-Rickshaws/Feeder Buses ^[8]	20-30 km/h	3-10 passengers	Low	₹5-10/km	Critical for local connectivity.

Regional Rails

Adopted by cities globally promote decentralized urban development



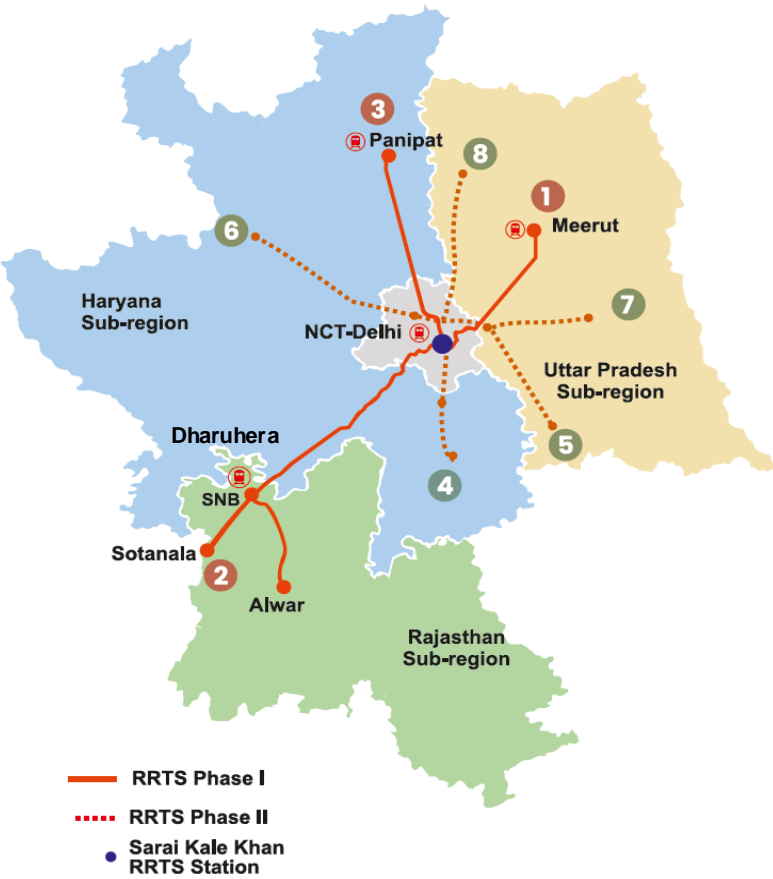
Regional Rail

Inter-city / Commuter / High Speed Rail

Regional Rapid Transit System (RRTS) in National Capital Region

Eight RRTS corridors identified in Functional Plan of Transport for NCR (2032) - 3 prioritised in Phase - I

National Capital Region (NCR)



Parameters	Delhi – Meerut	Delhi – Panipat	Delhi - Alwar		
			Delhi – SNB #	SNB – Sotanala	SNB – Alwar
Total Length (Km)	82.15	103.02	107	33.3	58
Estimated travel time (min)	60	72	75	23	30
No. of total stations	25	17	16	4	2
Present status	42 Km operational under commercial operations	Under GOI appraisal (approved by Govt. of Haryana & GNCTD)			

Phase-I: 3 RRTS corridors

1. Delhi-Ghaziabad-Meerut

2. Delhi-Gurgaon-Rewari-Alwar

3. Delhi-Sonipat-Panipat

4. Delhi-Faridabad-Ballabgarh-Palwal (60 Km)

5. Ghaziabad-Khurja (83 Km)

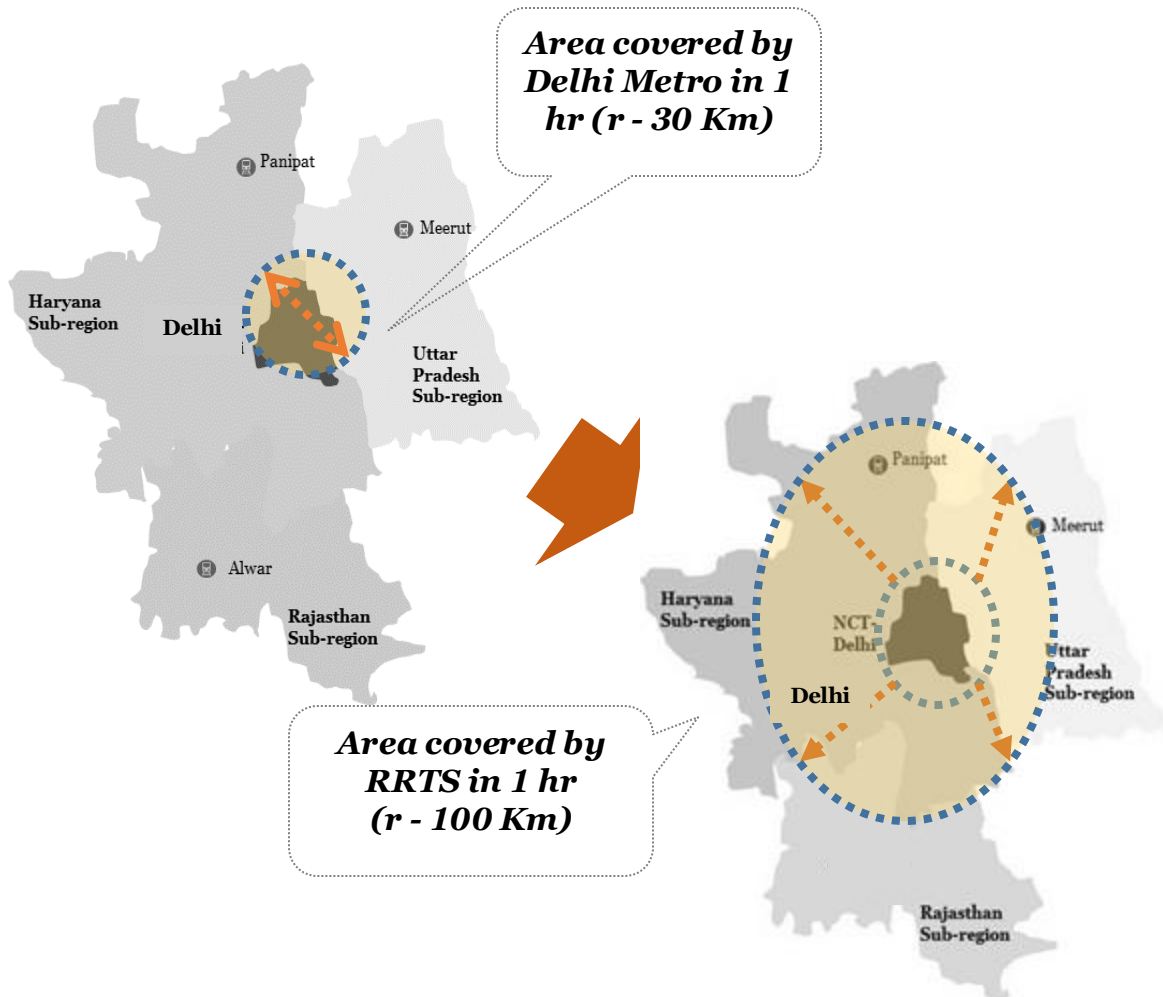
6. Delhi-Bahadurgarh-Rohtak (70 Km)

7. Ghaziabad-Hapur (57 Km)

8. Delhi-Shahdra-Baraut (56 Km)

- To be implemented in two stages – Stage-I: Delhi – Dharuhera, Stage-2: Daruhera to SNB  6

Bringing Regions Closer through a Network of Networks



Connectivity Enhancement	Origin – Destination	Time by RRTS# (Min)
Semi High-Speed Connectivity between Towns of NCR	Ghaziabad - Gurugram(Cybercity)	34
	Meerut (<u>Begampur</u>) – Gurugram (Cybercity)	66
Seamless access to job centres	Kashmere Gate – Gurugram (Cybercity)	26
	Sarai Kale Khan – Gurugram (Cybercity)	17
Fast direct connection to Airport	Mayur Vihar – Aero city	22
	Noida City Centre – Aero city	33
	Ghaziabad - Aero city	30
	Meerut (<u>Begampur</u>) - Aero city	63
	<u>Kundli</u> – Aero City	40
	RG University (KMP) – Aero City	45
	<u>Murthal</u> - Aero City	53

Delhi-Meerut RRTS Corridor

Project at a glance

- Project Sanctioned – **March 2019**
- Project Cost – \$ **3.6 bn**
- Corridor Length ~ **82.15 km**
- 16 RRTS Stations; 13 Local Transit Stations (Metro) on same infrastructure
- 42km Currently Operational** serving important towns like Ghaziabad, Modinagar
- Served Over 2 million Commuters** since October 2023
- Progress up to Aug 31st, 2024
 - Physical progress - **79.7%**
 - Financial progress – **73.4%**

Section under Revenue Operations:

- Sahibabad to Meerut South
- 42 Km section
- 9 Operational Stations



Commissioning of complete corridor – June 2025

Innovation and Inclusivity

Technological Milestones



Signalling

ETCS II on LTE Backbone with ATO and PSD integration being tried for the first time globally



Track Structure

Pre-cast slab track, low maintenance, suitable for high speed



Civil Structures

Different civil structures from Metro- due to higher speed; **Higher tunnel diameter**



Integration of RRTS & Metro services

RRTS & MRTS operated on same infrastructure



Over 30% controllers and train operators are women

Commuter Centricity at Every Step



**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**



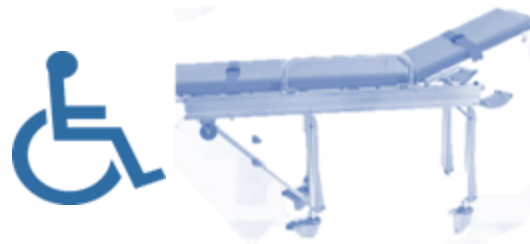
**Inter-operable Corridors &
Multimodal Integration**



**Priority seating - women, disabled,
elderly & children**



**High capacity, comfortable
journey, airline seating**



**Wheelchair & stretcher lift
space provision**




**Two stage AFC for premium
class**



**UPI enabled Ticket
Vending Machine**

Upcoming Tenders

S N	Type of Work	Location	No of Packages	Estimated Cost (INR Million)
Supply Contracts				
1.	Design, Manufacturing, Supply Testing and Commissioning of Catenary Maintenance Vehicle and Engineering Maintenance Vehicle with Integration of Signaling System for Delhi-Ghaziabad-Meerut Regional Rapid Transit System (RRTS) Corridor	Delhi Meerut RRTS	01(one)	INR 650



Government eMarketplace - Central Public Procurement Portal

ePROCUREMENT for Central Public Sector Enterprises

26-Sep-2024
Search | Active Tenders | Tenders by Closing Date | Corrigendum | Results of Tenders
Home | Contact Us | SiteMap

Government eProcurement System

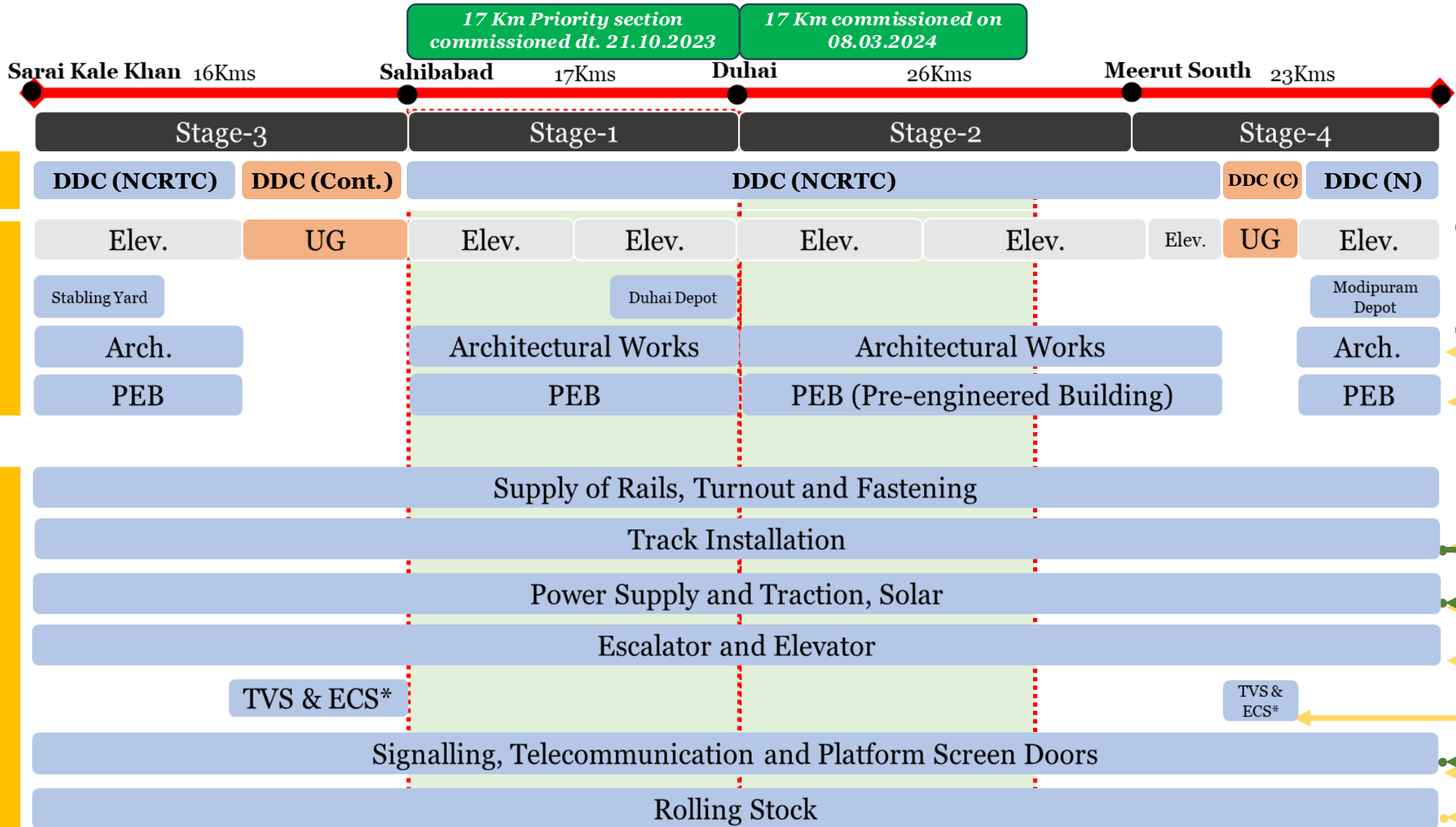
MIS Reports

The latest Tender documents issued by various Government Departments, Directorates, Organisations, Institutions and local bodies of eProcurement System for Central PSUs are listed here.

- Tenders by Location
- Tenders by Organisation
- Tenders by Classification
- Tenders in Archive
- Tenders Status
- Cancelled/Retendered
- Downloads
- Debarment List
- Announcements
- Awards
- Site compatibility

S.No	e-Published Date	Bid Submission Closing Date	Tender Opening Date	Title and Ref.No./Tender ID	Organisation Chain
1.	17-Sep-2024 04:15 PM	17-Oct-2024 03:00 PM	18-Oct-2024 03:00 PM	[DM/MS/COR-OF/256 - Final Road Carpeting of road in balance section from Duhai EPE to Shatabdi Nagar (RRTS Ch. 33030.950 to 64103) of Delhi-Ghaziabad- Meerut RRTS corridor.] [DM/MS/COR-OF/256] [2024_NCRTC_208281_1]	National Capital Region Transport Corporation GGM-Strategic Planning - NCRTC
2.	07-Sep-2024 11:00 AM	08-Oct-2024 03:00 PM	09-Oct-2024 03:00 PM	[Construction of Public Toilet Blocks at Anand Vihar, Bhaisali, Meerut South and Begumpul RRTS Stations of Delhi-Ghaziabad- Meerut RRTS Corridor.] [DM/MS/COR-OF/251] [2024_NCRTC_205796_1]	National Capital Region Transport Corporation GGM-Strategic Planning - NCRTC
3.	30-Aug-2024 02:00 PM	03-Oct-2024 03:00 PM	04-Oct-2024 03:00 PM	[DM/CN/COR-OF/253- Supply, Fabrication and Erection of Steel Girders from Pier P-10 to P-18 of Elevated Road and Construction of Ramp from Pier PP-1 in Ring Road Connectivity Project to NCRTC Complex Jangpura of Delhi -Meerut RRTS Corridor.] [DM/CN/COR-OF/253] [2024_NCRTC_206358_1]	National Capital Region Transport Corporation GGM-Strategic Planning - NCRTC

Major Packages



→ Access from Civil Contractor

→ Access from Track Contractor

*TVS & ECS – Tunnel Ventilation System & Environment Control System

Procurement strategy for successful commissioning of Delhi Meerut corridor

- **Pre-construction activities taken-up before on boarding of main contractors** to have encumbrance free sites for timely execution of the works.
- **Packages designed to ensure balanced risk sharing** as the project has many new technologies-
 - Viaduct and Stations packages undertaken on BoQ basis with separate DDC consultants
 - Underground packages undertaken on Design and Build basis as the tunnel diameter, Schedule of Dimensions and alignment were fixed, too much variation was not expected.
- **Balance achieved between Procurement Guidelines** Prescribed by GoI and MDBs and NCRTC's own Procedures
- As a result approx. **400 bidders from across the globe participated** in the bidding in ~50 major packages of the Corridor.
- Priority section ready within 4 years of starting construction, **project to be complete by its June 2025 deadline**

First of its kind Partnerships with Private Sector



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

Property Business at RRTS Stations



Key Retail Opportunities

<p>Retail Built-up Shops</p>	<p>F&B Built-up Shops</p>	<p>Kiosks and ATMs</p>
-------------------------------------	--------------------------------------	-------------------------------

Other Opportunities

<p>Pickup/ Delivery Points</p>

Key Advertising Opportunities

<p>Outdoor Advertising</p>	<p>Indoor Advertising</p>	<p>Semi-Naming Rights</p>
<p>Smart Card/Token Ads</p>	<p>In-train Ads and Wraps</p>	<p>Co-branded Cards</p>

Other Opportunities

<p>Experiential Marketing</p>
<p>Tunnel Advertising</p>

Innovative Revenue Generation Opportunities

Key Telecom Opportunities

Towers, IBS and Small Cells



Optical Fibre Cables



Key Last Mile Connectivity Opportunities

Parking



Cab Access



Other Opportunities

EV Charging Points




Key Innovative Opportunities

Virtual Stores



Pouring Rights



Other Opportunities

Digital Products



In-Train Wi-Fi



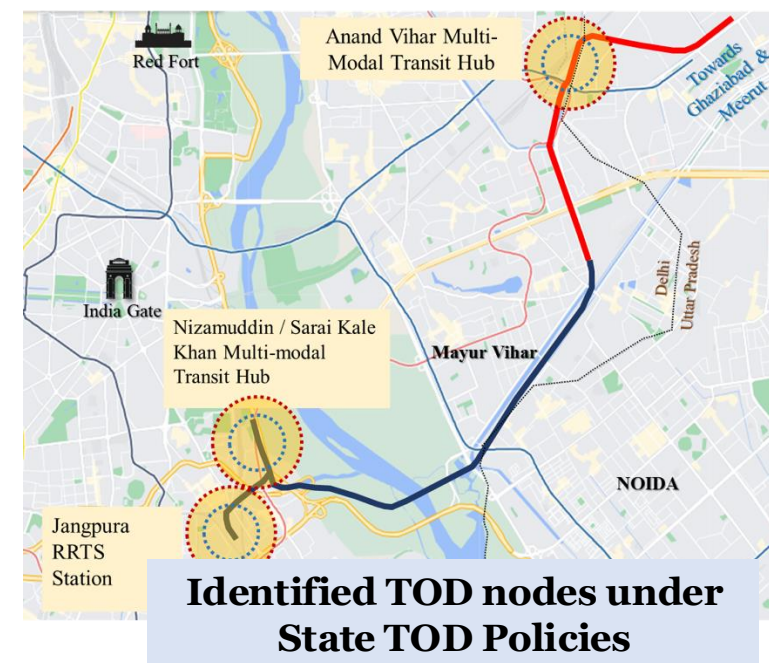
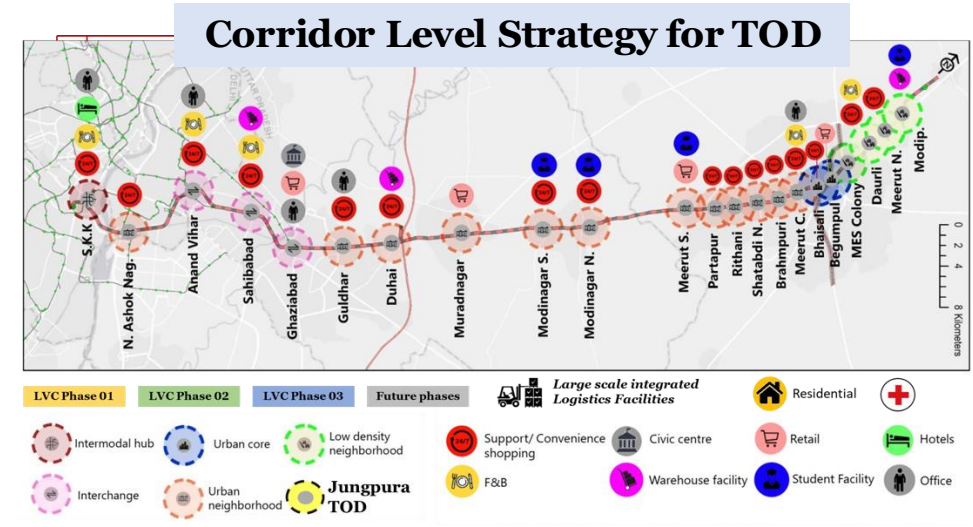
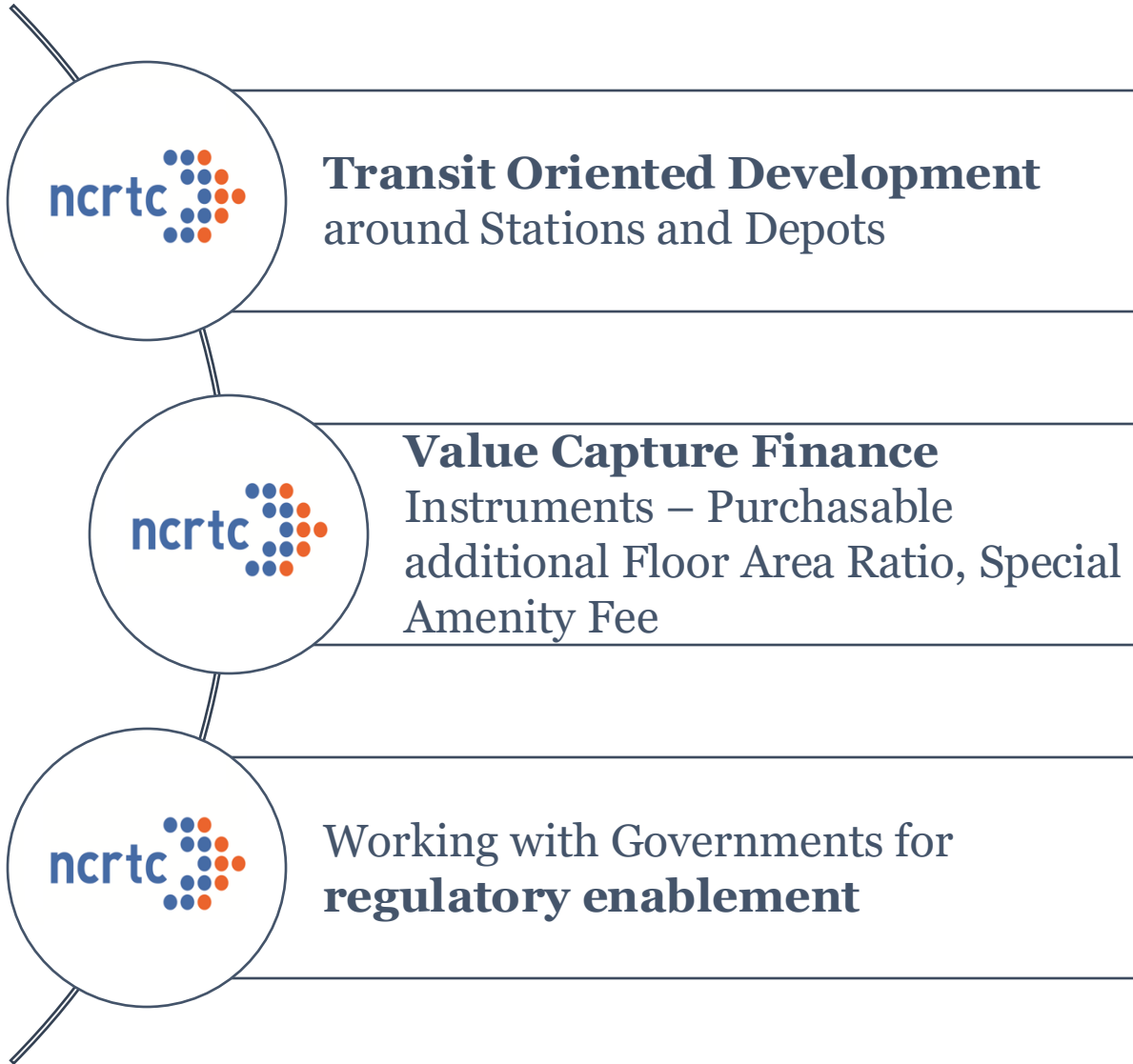
Area at Stations for Property Development

Sl. No.	Stations	Area (in Sqm)
1	Sarai Kale Khan*	6,919
2	Anand Vihar*	7,840
3	New Ashok Nagar	2,905
4	Anand Vihar	4,299
5	Sahibabad (Tender Awarded)	165
6	Ghaziabad (Tender to be floated soon)	18,495
7	Guldhar (Tender Awarded)	134
8	Duhai (Tender Awarded)	275
9	Meerut South	4,970
10	Begumpul	3,560
	Total	49,562

 Under Process

* Air rights available

First-of-its-kind TOD Implementation



Major land pockets for Property Development

Location	Product mix	Approx. area to be developed
Jangpura	• Commercial Towers above Stabling Yard	<i>≈ 4 - 5 lakh sqm BUA</i>
	• Residential Development	
	• Mixed Use Development	
Sarai Kale Khan	• Offices / co-working, Food Court, Budget Hotel	<i>~50,000 sqm of BUA above elevated RRTS structures</i>
Anand Vihar	• Retail, Offices	<i>~50,000 sqm of BUA above UG RRTS Station</i>
Ghaziabad	• Retail, Offices, Entertainment, Food Court, Service Apartments	<i>total BUA development of ~50,000 sqm</i>
Duhai Depot	• Big Box Retail , Sports and Entertainment Zone (temporary), Integrated Townships (long term), warehouses, etc.	<i>~75 acres land available for integrated development</i>
Bhaisali	• Retail, Office / Healthcare	<i>~20,000 sqm above UG MRTS Station</i>

Development on PPP Mode

Masterplanning for PD – Ghaziabad RRTS Station



Unprecedented Multimodal Integration



Network Integration

- Integrated Network Planning
- Less overlap between public transport



Physical Integration

- *Station Proximity*
- making transfers among transit systems more efficient
- *In-station facilities*



Operational Integration

- Coordination of routes, schedules and frequencies



Information & Ticketing

- Integrated ticketing
- Integrated Information

Delhi – SNB RRTS Corridor

Alignment details

Total Length (km) 107

Elevated (km) 70

In Delhi 0.22

In Haryana 68

In Rajasthan 2

Underground (km) 37

In Delhi 22

In Haryana 15

In Rajasthan 0.0

Estimated travel time ~ 75 min

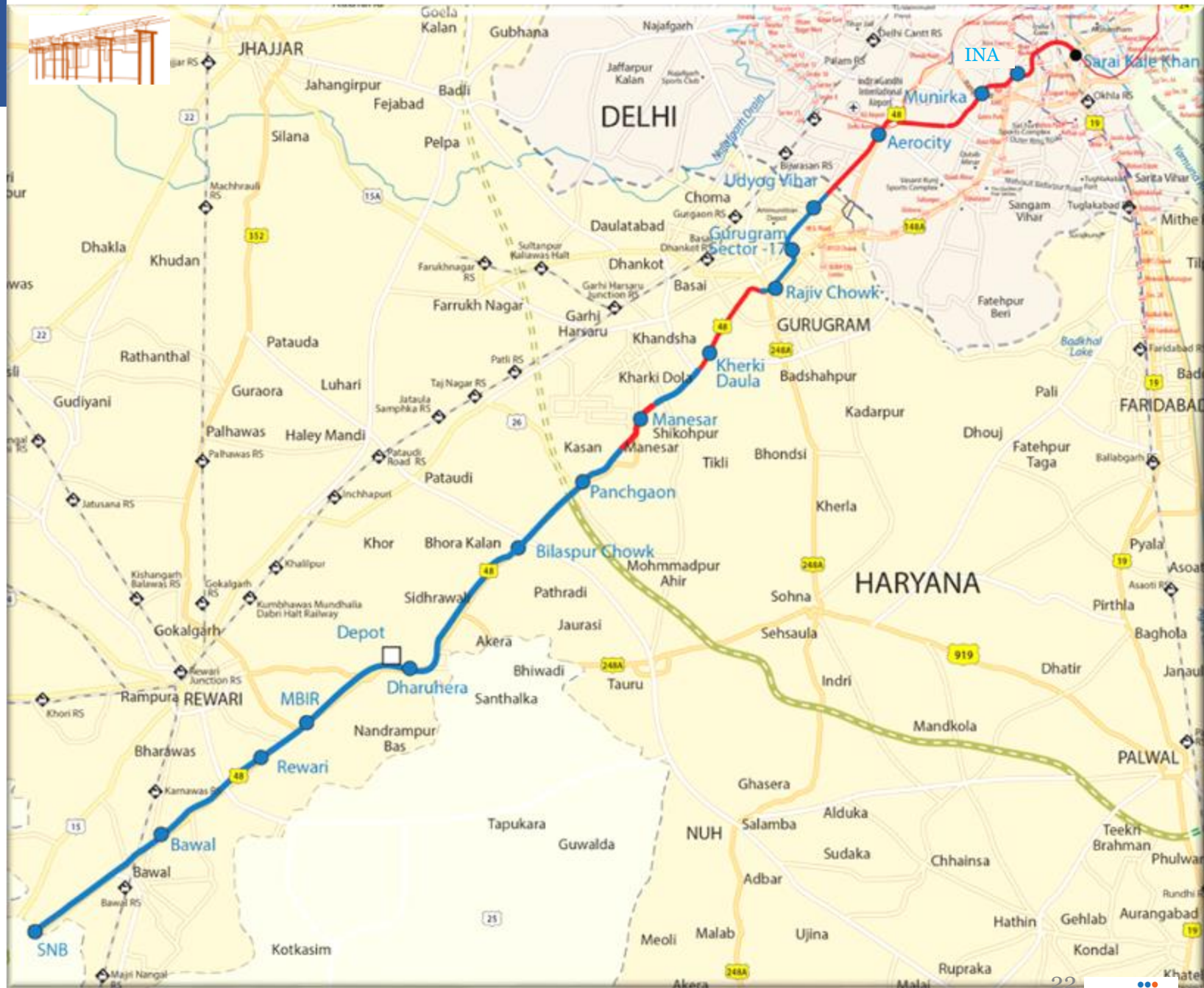
No. of total stations 16

In Delhi (U/G: 3) 4

In Haryana (U/G: 2) 11

In Rajasthan 1

**State Govt Approval received,
Under Consideration by GoI**



Stations on Delhi – SNB Corridor

S.No	Station Name	State	Interstation distance (in km)	Cumulative distance (in km)
1	Sarai Kale Khan Station	Delhi	0.48	0.00
2	INA	Delhi	7.29	6.81
3	Munirka Station	Delhi	5.07	11.88
4	Aerocity Station	Delhi	5.38	17.26
5	Udyog Vihar Station	Haryana	7.78	25.04
6	Sec 16 Station	Haryana	4.83	29.87
7	Rajiv Chowk Station	Haryana	3.49	33.36
8	Kherki Daula Station	Haryana	6.28	39.64
9	Manesar Station	Haryana	7.13	46.77
10	Panchgaon Station	Haryana	6.77	53.54
11	Bilaspur Chowk	Haryana	5.50	59.04
12	Dharuhera Station	Haryana	11.66	70.70
13	MBIR Station	Haryana	9.86	80.56
14	Rewari Station	Haryana	3.51	84.07
15	Bawal Station	Haryana	10.10	94.17
16	SNB Station	Rajasthan	11.84	106.01

Pre-construction activities underway

- **CPM Field offices are functional** at Gurugram and Delhi since May 2019 and Jan 2020 respectively



- **Enabling works:** In order to save time in project implementation once the Project is sanctioned by GOI, enabling works are substantially completed with the support of Government of Haryana.



Project in high state of readiness to commence construction

Loan Name: Delhi-SNB Regional Rapid Transit System Investment Project (Project Number: 56015-002)

- Loan Amount: **US\$ 2358 million**
(**ADB** Financing: US\$ 1382 million; **World Bank** Financing: US\$ 457 million; **JICA** financing: US\$ 519 million)
- Implementing Agency: National Capital Region Transport Corporation (NCRTC)
- Loan Period: Proposal is under active review.
- Construction Period: Likely construction period is about 6 years from the date of sanction of the project.
- Categories of Procurement: (Civil Works/ Supply of Equipment/ Consultancy Services)
- Nature of Procurement: Expected to be ICB/NCB/QCBS as per procurement policies of ADB
- Geographical Location: (Delhi-Gurugram-Rewari-SNB)
- Future Procurement Opportunities: Please refer next slides.
- Project Director/Concerned Official's Contact Details:
 - Name & Designation: Mr. Anil Kumar Shrangarya, Director (Projects)
 - Postal Address: GatiShakti Bhawan, INA, New Delhi-110023
 - Phone Numbers: +91 011 24666700
 - Email Id: anil.shrangarya@ncrtc.in

Expected Future Procurement Opportunities – Civil & Elect. Works (Delhi – SNB Corridor)

SN	Type of Work	Location	Scope of Work
1	Construction of Depot cum Workshop	Dharuhera	All civil, PEB and E&M work
2	Environment Control System (ECS), Tunnel Ventilation System (TVS) and Building Management System (BMS)	DLI-SNB	ECS, TVS & BMS for 37 km UG section and 6 Nos. of UG stations
3	Escalators and Travelators	DLI-SNB	For 6 Nos. of UG and 9 Nos. of elevated stations
4	Elevators (Lifts)	DLI-SNB	
5	HH Rails & Fastening System	DLI-SNB	Entire 107 Route km
6	Construction of Elevated Viaduct	Kherki Daula Toll to Manesar Sector-1, Manesar Ravine Area ramp to Bilaspur Chowk, Bilaspur Chowk to Dharuhera	26.6 Route Km & 3 Nos. Elv. Stns.
7	Construction of Elevated Viaduct	Dharuhera to SNB	35 Route km & 4 Nos. Elv. Stn.
8	Design and Construction of twin Tunnels	Ramp at Millenium Park (including Ramp Structure) to Munirka	13 Route km & 2 Nos. UG Stn.
9	Design and Construction of twin Tunnels	Ex. Munirka to Ramp at IDPL Complex (including Ramp Structure)	9 Route km & 1 No. UG Stn.
10	Construction of Elevated Viaduct	IDPL Complex to Rajiv Chowk (Incl. Elevated ramp structure)	9.0 Route Km & 2 Nos. Elv. Stns.
11	Design and Construction of twin Tunnels	Rajiv Chowk to Kherki Daula Toll and Manesar to Ravine Area	15 Route km & 3 Nos. UG Stn.
12	Other Packages	As and when required	

Expected Future Procurement Opportunities – Other Infrastructural Works (Delhi – SNB Corridor)

SN	Type of Work	Location	Scope of Work
1	Signalling, Train Control Systems, Telecommunication system, Platform Screen Doors	DLI-SNB	Entire 107 Route km
2	Solar	DLI-SNB	RESCO Model
3	Staff quarters and others	Dharuhera	For entire corridor
4	Automatic Fare Collection	DLI-SNB	For all 15 Stns. (PPP mode)
5	Financial Institution (FI) for issuance of Open Loop National Common Mobility Card (NCCM)	DLI-SNB	RESCO
6	RRTS Trainsets (Rolling Stock Systems)	DLI-SNB	For entire corridor
7	Catenary Maintenance Vehicle and Engineering Maintenance Vehicle	DLI-SNB	
8	Electrical Work on Viaduct & Tunnel (from Sarai Kale Khan to Kherki Daula)	DLI-SNB	
9	Electrical Work on Viaduct & Tunnel (from Kherki Daula to SNB [including Depot])	DLI-SNB	
10	Other Packages	As and when required	

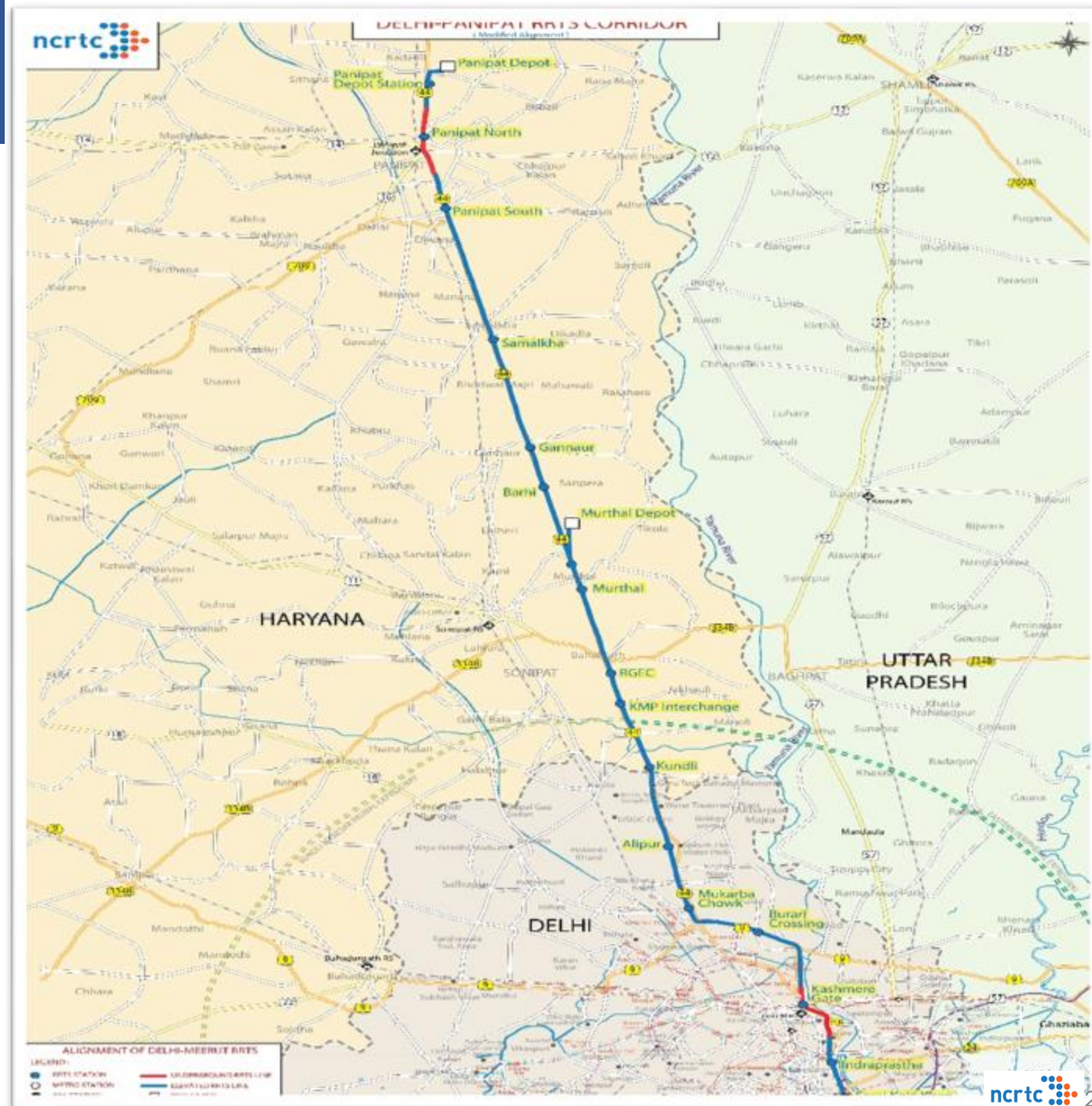
Delhi – Panipat RRTS Corridor

Alignment details

Total Length (km)	103.02
<i>Elevated (km)</i>	<i>91.54</i>
In Delhi	29.7
In Haryana	61.84
<i>Underground (km)</i>	<i>11.48</i>
<i>In Delhi</i>	6.5
<i>In Haryana</i>	4.98
Estimated travel time	~ 72 min
No. of total stations	17
<i>In Delhi (U/G:1)</i>	29.7
<i>In Haryana (U/G:1)</i>	61.84

*Delhi = 36.20 km, Haryana = 66.82 km

State Govt Approval received, Under Consideration by GoI



Stations on Delhi – Panipat Corridor

S. No.	Station Name	State	Inter Station Distance (Km)	Cumulative distance (in km)
1	Sarai kale khan	Delhi	0.48	0
2	Indraprastha	Delhi	3.82	4.3
3	Kashmiri Gate	Delhi	6.14	9.96
4	Burari Crossing	Delhi	8.51	14.65
5	Mukarba chowk	Delhi	5.36	13.87
6	Alipur	Delhi	6.64	12
7	Kundli	Haryana	7.13	13.77
8	KMP	Haryana	6.72	13.85
9	R G E C	Haryana	3.24	9.96
10	Murthal	Haryana	7.86	11.1
11	Murthal Depot	Haryana	3.23	11.09
12	Barhi	Haryana	5.87	9.1
13	Gannaur	Haryana	4.56	10.43
14	Samalkha	Haryana	10.66	15.22
15	Panipat-south	Haryana	12.37	23.03
16	Panipat-North	Haryana	6.83	19.2
17	Panipat Depot	Haryana	3.84	10.67

15 Elevated Station 2 Underground Station

Delhi – Panipat : Current Status

- In-principal approval of DPR given by State Governments of NCT of Delhi and Government of Haryana
- Under consideration by Govt. of India

DPR Capital Cost – INR 32,052 Cr

Description	Total Cost
Land	2,174
Civil works, Alignment and formation (excl. Stations & Depot)	9,858
Station Building	1,805
E&M Works	552
Depot-cum-Workshop	856
Permanent Way	2,082
Detailed Design and Proof check charges	-
Traction & Power Supply	2,175
Signalling and Telecom. (incl. Depot lines)	1,951
Automatic fare collection	10
Misc. Works	1,602
Rolling Stock	3,307
Miscellaneous Items	181
General Charge incl. General consultancy charges, administrative charges	1,221
Contingency Charges	833
Interest During Construction	3,443
Total Project Cost (INR in Cr)	32,052

SPEED - NCRTC's In House Project Management Tool

Systematic Program Evaluation for Efficient Delivery (SPEED)



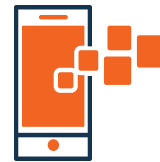
Important project aspects covered -
Pre-construction,
Construction, Cost,
Meetings, Quality &
Safety, etc.



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

SPEED[®] is an enhanced and comprehensive customizable project tool

NCRTC supporting other organisations in the urban transport sector

1 Transaction advisory for outsourcing of O&M

2 Bid Process Support for efficient procurement and maintenance of Rolling stock

3 Support for MMI and TOD Planning and Implementation

4 SPEED & GATI (GPS based Attendance Information) App

In house technical, legal and financial expertise to assist in preparation of Bidding Document for the urban transport sector

NCRTC has subject matter experts equipped with hands on experience and knowledge if required softwares/tools.

Implemented at BMRC, HRIDC

गति से प्रगति

Thank You



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