

Annexure 6.3

[Section 6: Scope of Work]

Technology Already Frozen [Para 3.9.5]

1. Signalling System ETCS Hybrid Level 3 as per latest specifications
2. Communication backbone (Voice + Data + Video) over LTE (3GPP Rel 16 or latest)
3. Non-fare box revenue model and TOD.
4. Project monitoring system and BIM implementation plan.

Annexure 6.4**[Section 6: Scope of Work]****Indicative Packages [4.3.2]**

S.No.	Packages	Lot	Lot Details
1	Elevated 1 Length - 4.92 Km	-	Part Design and Construction of Elevated Viaduct from SKK (excl.) to ramp near Rajghat and from SKK (excl.) to ramp in Millenium Park and One Elevated Station viz., Indraprastha [including architectural finishing works and design, supply and erection of Pre-engineered steel roof structure of Station, providing and installation of bearings] for Delhi-Karnal and Delhi-Bawal Namu Bharat corridors Length- 4.922 Kms
2	Elevated 2 Length - 32.28 Km	Elev-2 (Lot-1)	Part Design and Construction of Elevated Viaduct from ramp after Kashmere Gate incl. Jharoda Majra station to excl. Alipur station and siding; and Construction of Two Elevated Station viz., Jharoda Majra and Bhalswa Station [including architectural finishing works Design, supply and erection of Pre-engineered steel roof structure of Station, providing and installation of bearings] for Delhi-Karnal Namu Bharat corridor. Length- 18.23 Kms
		Elev-2 (Lot-2)	Part Design and Construction of Elevated Viaduct including Alipur Station to excluding KMP (Future) station and Construction of Three Elevated Station viz. Alipur, Narela & Kundli [including architectural finishing works Design, supply and erection of Pre-engineered steel roof structure of Station, providing and installation of bearings] for Delhi-Karnal Namu Bharat corridor. Length- 14.04 Kms
3	Elevated 3 Length - 31.55 Km	Elev-3 (Lot-1)	Part Design and Construction of Elevated Viaduct from Excl. KMP (Future) up to Depot connection at Murthal and siding; and Construction of Two Elevated Station viz., Bahalgarh & Murthal station [including architectural finishing works Design, supply and erection of Pre-engineered steel roof structure of Station, providing and installation of bearings] for Delhi-Karnal Namu Bharat corridor. Length- 14.25 Kms

S.No.	Packages	Lot	Lot Details
4	Depot 1	-	Construction of Depot cum Workshop and associated building at Murthal/Barhi including Civil, Architectural Finishing, Design, supply and erection of Pre-engineered steel roof structures and Supply, Installation, Testing, Commissioning & Maintenance of E&M Systems including Fire Detection & Suppression Systems, Plumbing, Drainage, External Development Works, road works, at grade depot connection and depot equipment etc.
5	Underground -1 Length - 7.08 km	UG-1	Design and Construction of twin Tunnels (by TBM), Ramp structures, Cut & Cover Tunnel & One Underground Station viz. Kashmiri Gate (by Cut & Cover Method) including Architectural finishing and Plumbing Works from Ch. 4642.08 to Ch. 11,721.45 including Kashmiri Gate underground station for Delhi-Karnal Namo Bharat corridor. Length- 7.08 Kms
6	Elevated 3 Length - 31.55 Km	Elev-3 (Lot-2)	Part Design and Construction of Elevated Viaduct from Excl. Connection to Murthal depot to Gannaur incl. and Construction of One Elevated Station viz. Gannaur [including Design, supply and erection of Pre-engineered steel roof structure of Station, providing and installation of bearings] for Delhi-Karnal Namo Bharat corridor. Length- 17.30 Kms
7	Elevated 4 Length - 19.43 Km	Elev-4	Part Design and Construction of Elevated Viaduct from Ch. 75552 to Ramp near Panipat and siding; and Construction of Two Elevated Stations viz. Samalkha and Panipat ISBT Sewah [including Design, supply and erection of Pre-engineered steel roof structure of Station, providing and installation of bearings] for Delhi-Karnal Namo Bharat corridor. Length- 19.43 Kms
8	Underground -2 Length - 5.36 km	UG-2	Design and Construction of twin Tunnels (by TBM), Ramp structures, Cut & Cover Tunnel & One Underground Station viz. Panipat (by Cut & Cover Method); Design and execution of Architectural finishing and Plumbing Works for Delhi-Karnal Namo Bharat corridor Length- 5.36 Kms

S.No.	Packages	Lot	Lot Details
9	Elevated 5Length - 35.96 Km	Elev-5 (Lot-1)	Part Design and Construction of Elevated Viaduct from ramp near Panipat to Ch. 117495 after Gharunda station & Depot connection; and Construction of Two Elevated Station viz., Ganjbar-Badauli-Kohand station & Gharaunda station [including Design, supply and erection of Pre-engineered steel roof structure of Station, providing and installation of bearings] for Delhi-Karnal Namo Bharat corridor Length- 17.16 Kms
		Elev-5 (Lot-2)	Part Design and Construction of Elevated Viaduct from Ch. 117495 after Gharunda Station incl. to end of Viaduct Ch. 136300 and Construction of Two Elevated Station viz., Karnal Sector-7 and Karnal New ISBT station [including Design, supply and erection of Pre-engineered steel roof structure of Station, providing and installation of bearings] for Delhi-Karnal Namo Bharat corridor Length- 18.80 Kms
10	Depot 2	-	Construction of Depot cum Workshop and associated building at Ganjbar/Karnal including Civil, Architectural Finishing, Design, supply and erection of Pre-engineered steel roof structures and Supply, Installation, Testing, Commissioning & Maintenance of E&M Systems including Fire Detection & Suppression Systems, Plumbing, Drainage, External Development Works, road works, at grade depot connection and depot equipment etc.
11	Staff Quarters	-	Construction of Staff quarters, Security Post, Police Stations and Barracks etc.
12	Track	Track-1	Supply, installation, testing and commissioning of Ballastless track including supply of HH rails, fastening system with track slab system and Ballastless Turnouts; Installation of turnouts; supply and providing MSS to reduce effect of noise and vibrations for elevated and underground section comprising comprising of 15 elevated stations and 02 underground stations for Sarai Kale Khan to Karnal corridor.
13	Track	Track-2	Supply, installation, testing and commissioning of Ballasted track including supply of 880 grade rails, fastening system, ballast, Turnouts and PSC sleeper; installation of Turnouts for Depot at Murthal and Ganjbar.

S.No.	Packages	Lot	Lot Details
14	Traction	Traction-Lot 1	<p>Design, Supply, Installation, Testing and Commissioning of Receiving Sub Stations [including 25 kV AC Traction cum 33 kV Auxiliary Main Sub Stations], Extra High Voltage & High Voltage Cabling, 25 kV Overhead Catenary System [Flexible OCS & Rigid OCS], 33kV Auxiliary Power Supply System, SCADA System including Operational & Backup Control Centre and Associated Works on Elevated, At Grade & Underground Section from Sarai Kale Khan to Bahalgarh (including) for Sarai Kale Khan - Panipat - Karnal RRTS Corridor of NCRTC.</p> <p>Underground: 6.53 RKM (ROCS, 33kV Cable, ASS, SCADA), Elevated: 45.84 RKM (FOCS, 33kV Cable, ASS, SCADA), RSS: 2 nos, EHV cable: 9 (4.5+4.5)km, OCC & BCC</p>

S.No.	Packages	Lot	Lot Details
		Traction-Lot 2	<p>Design, Supply, Installation, Testing and Commissioning of Receiving Sub Stations [including 25 kV AC Traction cum 33 KV Auxiliary Main Sub Stations], Extra High Voltage & High Voltage cabling, 25 kV Overhead Catenary System [Flexible OCS & Rigid OCS], 33kV Auxiliary Power Supply System, SCADA System and Associated works on Elevated, At Grade & Underground Section from Murthal (including) to Panipat ramp towards Karnal [includng Murthal Depot] for Sarai Kale Khan - Panipat -Karnal RRTS Corridor of NCRTC.</p> <p>Underground: 4.95 RKM (ROCS, 33kV Cable, ASS & SCADA), Elevated: 47.72 RKM (FOCS, 33kV Cable, ASS & SCADA), RSS: 2 nos EHV cable: 9 km (4.5+4.5), Depot: 1 no. (8.14 TKM)</p>

S.No.	Packages	Lot	Lot Details
		Traction-Lot 3	Design, Supply, Installation, Testing and Commissioning of Receiving Sub Stations [including 25 kV AC Traction cum 33 KV Auxiliary Main Sub Stations], Extra High Voltage & High Voltage cabling, 25 kV Overhead Catenary System [Flexible OCS & Rigid OCS], 33kV Auxiliary Power Supply System, SCADA System and Associated works on Elevated & At Grade Section from Panipat ramp towards Karnal to Karnal New ISBT Station [including Ganjbar Depot] for Sarai Kale Khan - Panipat - Karnal RRTS Corridor of NCRTC. Underground: 0 RKM (ROCS, 33kV Cable, ASS & SCADA), Elevated: 36.42 RKM (FOCS, 33kV Cable, ASS & SCADA), RSS: 2 no, EHV cable: 11 (6+5) km, Depot: 1 no. (9.78 TKM)
15	ECS/TVS and UG E&M	UG E1	Design, Detail Engineering, Supply, Installation, Testing and Commissioning of Electrical & Mechanical System (E&M), Environment Control System (ECS), Tunnel Ventilation System (TVS), Building Management System (BMS) and TVS SCADA OCC&BCC Systems of 2 Underground Stations at Kashmiri Gate and Panipat including associated tunnels and Ventilation Buildings on Sarai Kale Khan to Karnal RRTS corridor.
16	E&M for Elevated	E&M-1	Design, Supply, Installation, Testing & Commissioning of E&M Systems including Fire Detection & Suppression Systems and 2 year DNP period for Indraprastha, Jharoda Majra, Bhalswa, Alipur, Narela, Kundli, RGEC, Murthal station, Gannaur, Samalkha, Panipat ISBT Sewah, Ganjbar-Badauli-Kohand, Gharaunda, Karnal Sector-7 & Karnal new ISBT station
17	Elevators	Elevator-1	Design, Supply, Installation, Testing & Commissioning including 12 year Annual Comprehensive maintenance of 26 Pax Elevator work for 15 Elevated Stations & 02 Under Ground stations & 02 Depot Admin Building. (Quantity of Lifts: 75 units)
		Elevator-1	10 Years AMC Cost after DNP (Supplimentary contract will be issued seperately)
18	Escalators	Esc. 1	Design, Supply, Installation, Testing & Commissioning including 12 year Annual Comprehensive maintenance of Escalator work for 15 Elevated Stations & 02 Under Ground stations stations. (Quantity of Lifts: 144 units)
		Esc. 1	10 Years AMC Cost after DNP (Supplimentary contract will be issued seperately)

S.No.	Packages	Lot	Lot Details
19	S&T	S&T-1	Design, Supply, Installation, Testing & Commissioning of Signaling & Train Control, and Telecommunication systems for SKK to Karnal Namo Bharat Corridor.
20	S&T	S&T-2	Design, Supply, Installation, Testing & Commissioning of Platform Screen Doors Systems for SKK to Karnal Namo Bharat Corridor.
21	S&T	S&T-3	Design, Supply, Installation, Testing & Commissioning of Automatic Fare Collection Systems for SKK to Karnal Namo Bharat Corridor.
22	S&T	S&T-4	Selection of Financial Institution (FI) for issuance of open loop National Common Mobility Card (NCMC) and accruing services for SKK to Karnal Section.
23	Rolling Stock	RS	Design, Manufacture, Supply, Testing, Commissioning and Comprehensive Maintenance of Namo Bharat RRTS Trainsets, Depot M&Ps (including RRVs), Catenary Maintenance Vehicle (CMV) and Engineering Maintenance Vehicle (EMV) for Delhi-Panipat-Karnal and Delhi-Bawal Namo Bharat Corridors.