

BEST PRACTICES IN INTEGRATED PUBLIC TRANSPORT



NAGPUR METRO

AGENDA

- Introduction
 - Nagpur Metro
 - Design and Planning for MMI
- MMI Infra
- Service Integration
- NMT
- EV Charging
- Green Journey App – Integrating all of the above

NAGPUR METRO NETWORK



S.	CORRIDOR	LENGTH (KM)	STATIONS
1	Khapri to Automotive Square (NS Corridor)	19.658	18
2	Prajapati Nagar to Lokmanya Nagar (EW Corridor)	18.557	20
	TOTAL	38.215	38

Status as of 28th October 2021:

- Train services are operational on 26.6km and 24 stations.
- Overall Physical Progress – 96.75%
- Overall Financial Progress – 95.95%
- Balance Works likely to be completed by December 2021.

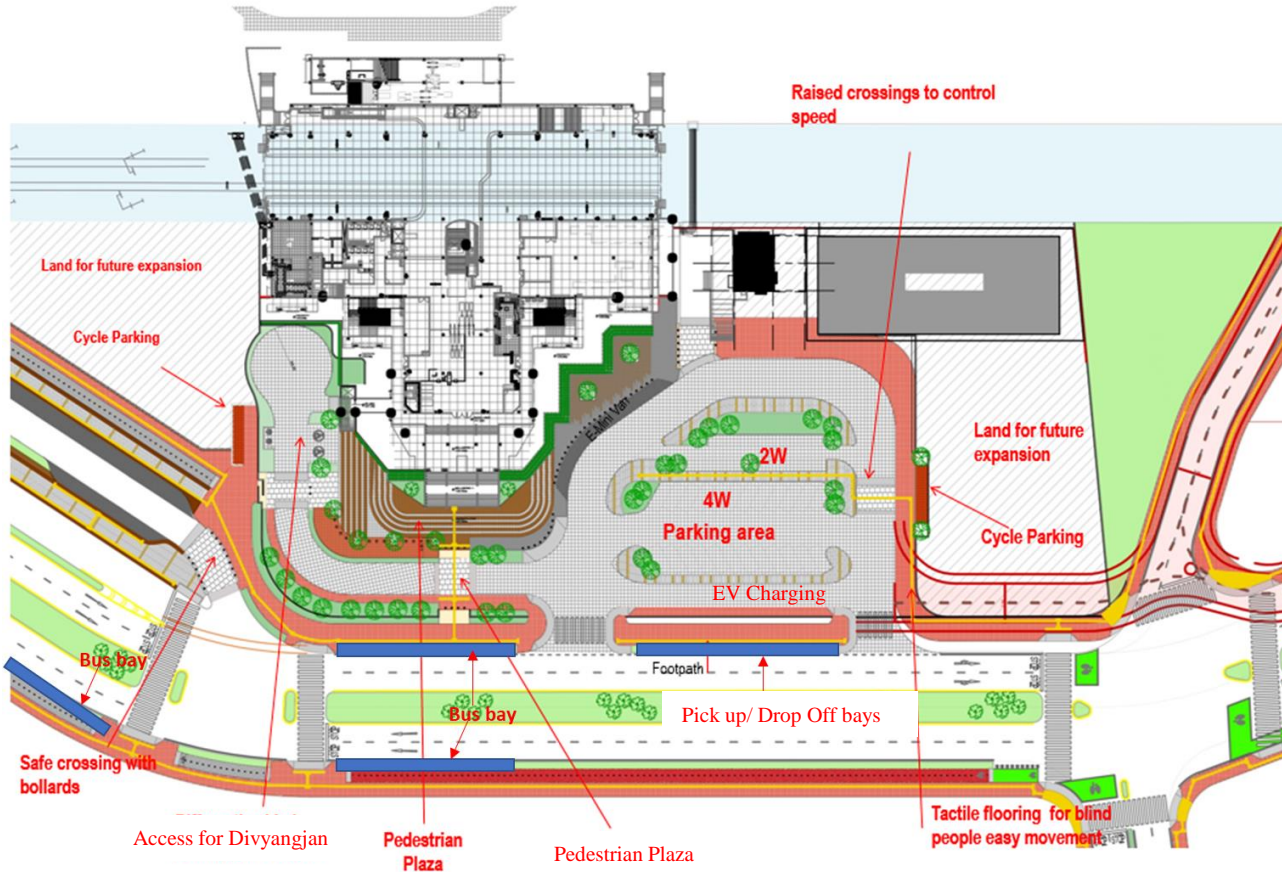
DESIGN & PLANNING FOR MULTI MODAL INTEGRATION

- Appointed M/s UMTC Ltd as DDC since the inception of the project.
- Elements of MMI planning
 - Divyang jan
 - Pedestrians
 - NMT – Bicycle sharing
 - Feeder Services – Vans (6+1) seater
 - Pick up & Drop off bays
 - IPT
 - Integrating all other modes – city buses, intercity buses, Railway Station and Airport
 - Private vehicles
 - parking provisions for Divyang jan, Cycles, 2 wheelers at all stations.
 - EV Charging facilities
 - Landscaping and greenery
- Concerned stakeholders such as NHAI, PWD & NMC to implement proposed planning beyond Metro Station area

MMI INFRA AT KHAPRI STATION - PLANNING

MMI Features

- Pedestrian Plaza
- Pick up and drop off bays for Divyangjan, 2W, 3W, 4W and buses.
- Dedicated parking for Divyangjan, cycles, 2W and 4W.
- EV Charging
- Aesthetic Landscape to improve ambience.



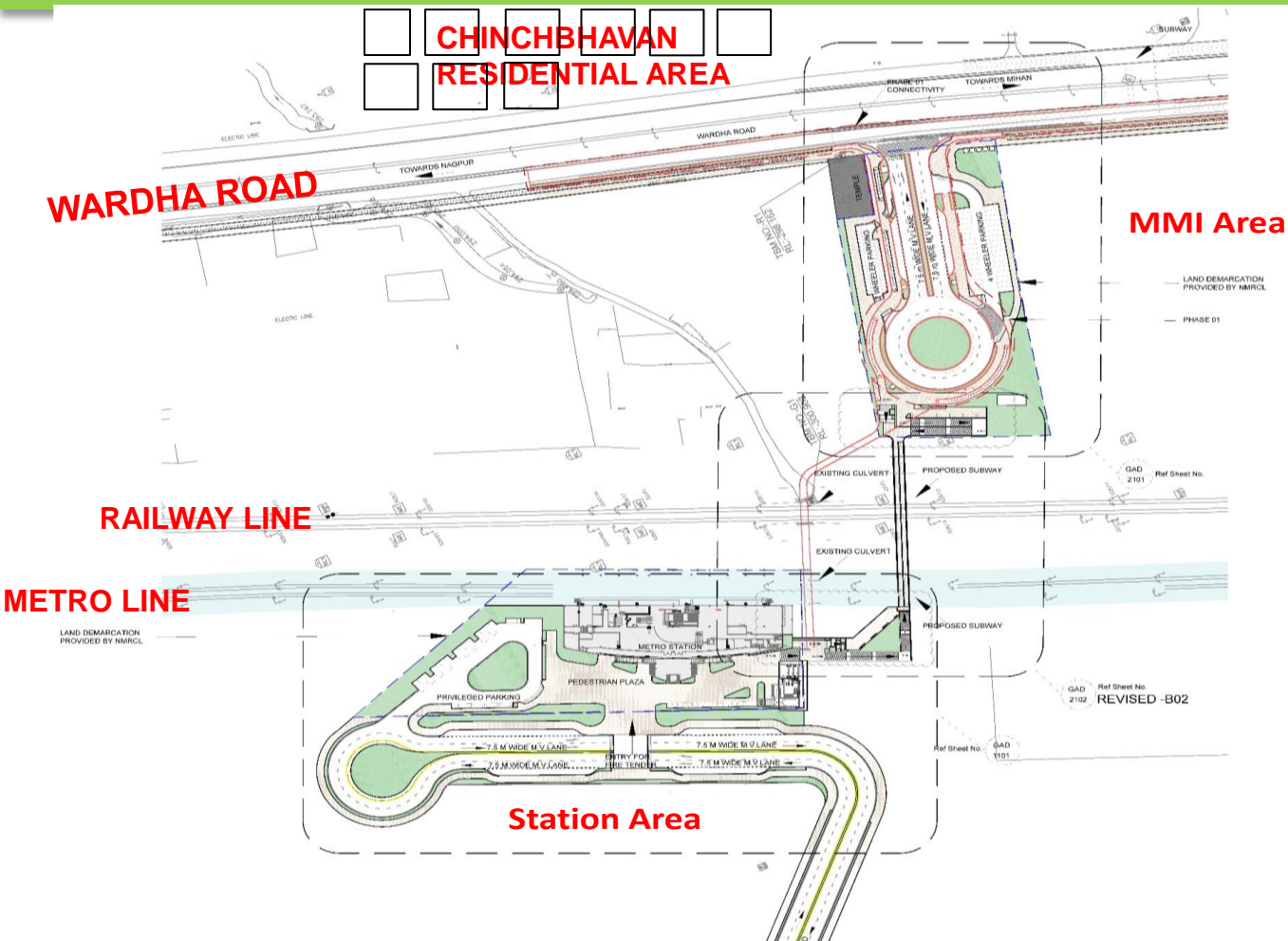
MMI INFRA AT KHAPRI STATION – INTEGRATION WITH RAILWAY STATION



MMI INFRA AT KHAPRI STATION – CLOSER VIEW



MMI INFRA AT NEW AIRPORT STATION - PLANNING



MMI FEATURES

- Dedicated Drop-off and pick-up facility for all modes
- Subway connectivity to Wardha Road
- Divyangjan bay and parking
- Dedicated cycle, 2W, 4W parking.

MMI INFRA AT NEW AIRPORT STATION – INTEGRATION WITH NATIONAL HIGHWAY



MMI INFRA AT NEW AIRPORT STATION – CLOSER VIEW



COMPREHENSIVE FEEDER SERVICE FOR NAGPUR METRO

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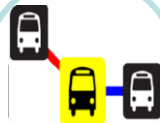
Maha
Metro

NMC

MoUs
with
private
operator



- o DPR for development of Feeder System (6+1-seater) of 4-6km near Metro Stations
- o Planned – 193 Feeder Vehicles (210 km – 38 Feeder routes)
- o Implemented – 58 (4+1) E-rickshaws through MoU's, 731 existing Auto's integrated with operational metro stations through App



- o Rationalization of City Bus Services in line with Metro and Feeder services
- o Planned – 42 routes
- o Implemented – 9 routes; NMC buses stopping at 24 operational stations



- o Non- Motorized Transport Study - Phase-wise proposal of NMT Network along Metro Corridor and other roads in the city
- o Planned – 740km NMT network to be implemented by 2041 in next 20 years
- o Implemented – 23km on metro corridor by Maha Metro. NMC, PWD & NHAI to implement along other roads in the city.



- o Public Bicycle Sharing System
- o Planned – 209km
- o Implemented – 92km at 24 operational stations; ULB is implementing cycle track and parking stations in the city

PROPOSED FEEDER ROUTES

38

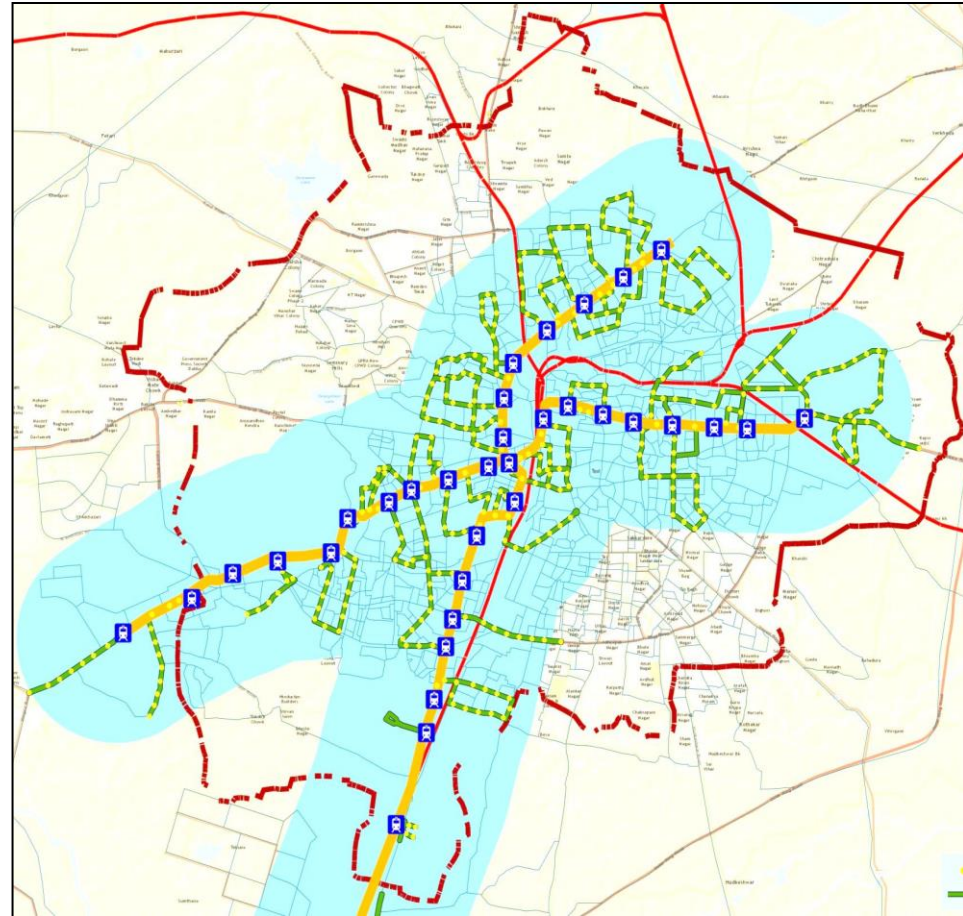
Metro Feeder Routes



20 Feeder Routes on E-W
Corridor & 18 Feeder
Routes on N-S Corridor



210 km Feeder Route



INTEGRATED FEEDER SERVICES BEING PROVIDED BY MAHA METRO THROUGH MOU WITH NMC AND PRIVATE OPERATORS

- 17 MoU's have been signed with feeder operators for different services

Integrated by



- Bicycle – 460 on ground
- E-cycle – 100 on ground
- E-Scooter – 33 on ground
- E-Rickshaw – 58 on ground
- Feeder bus service – 36 on ground
- Mobile App - 01

- By executing MoU's, Maha Metro has not invested in procurement, operation and maintenance of fleet.
- Out of above 17, 5 are being operated.
- Balance are expected to be operational soon.



INTEGRATED FEEDER SERVICES BEING PROVIDED BY MAHA METRO



PUBLIC BICYCLE SHARING SYSTEM



AIRPORT SHUTTLE BUS SERVICE



PRIVATE FEEDER BUSES



E - SCOOTERS



E - RICKSHAWS



E - RICKSHAWS

ROUTE RATIONALIZATION OF CITY BUS SERVICES BY NMC

- As per the request of Maha Metro, NMC buses, now stop at every operational Metro Station.
- As per the findings of the Comprehensive Feeder Services Report, the current and future bus routes are as under

Year	Existing Buses	Type of Buses	Remark
2021 (42 routes)	487 (existing)	Mixed Fleet	Hours of operation= 16, Avg running speed= 25 kmph, Distance between bus stop= 500 m, Dwell time at bus stop= 30sec, Avg. lay time= 20% of total one-way running time, Spare vehicle=5% of total fleet
2026	607 (probable)	Mixed Fleet	
2031	1011 (probable)	Mixed Fleet	

- On 9 routes – Buses run by NMC have been rationalized as feeder services.
- On 7 routes - Permission has been granted by NMC for operation of 'Private Feeder Services'.

FEEDER SERVICES BY ROUTE RATIONALIZATION BY NMC



NMC OPERATED FEEDER SERVICES
IN MIHAN AREA



DISPLAY OF TIMINGS OF NMC
OPERATED FEEDER SERVICES AT
BUS STOPS



ROUTE MAP OF NMC FEEDER BUSES
IN MIHAN AREA



NMC OPERATED FEEDER
SERVICES ON WARDHA ROAD



DISPLAY OF TIMINGS OF NMC
OPERATED FEEDER SERVICES
AT KHAPRI STATION



DISPLAY OF TIMINGS OF NMC
OPERATED FEEDER SERVICES AT
SITABULDI INTERCHANGE

NON-MOTORIZED TRANSPORT MASTER PLAN FOR NAGPUR

Category 1 - for dedicated NMT infrastructure

**740km
NMT
Network**

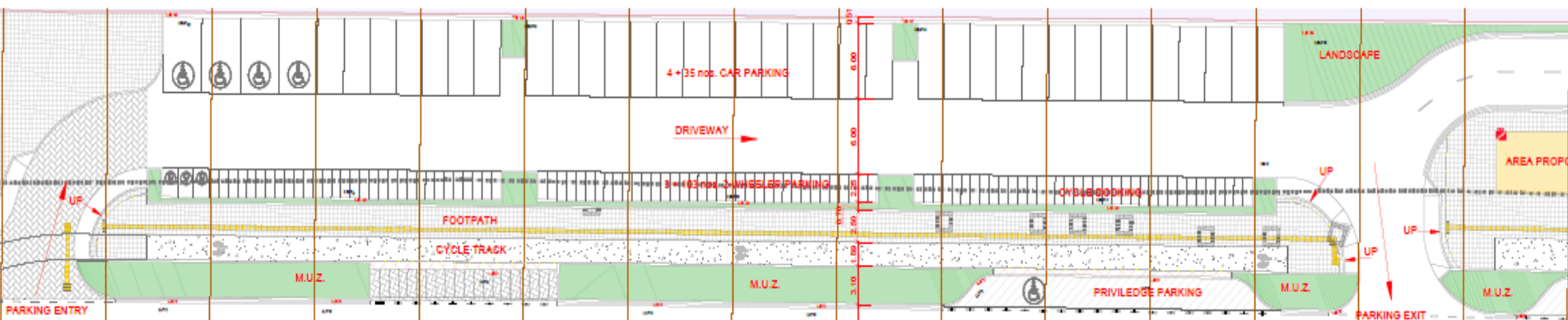
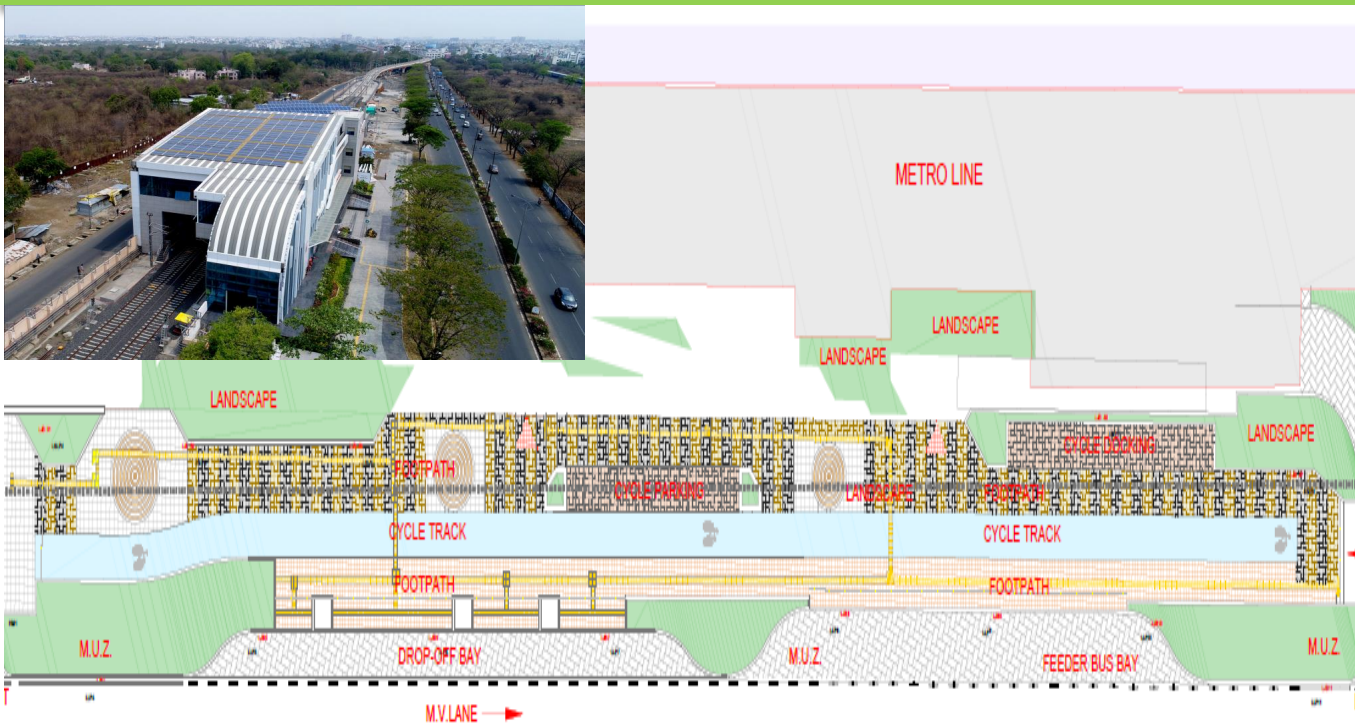
Category 2 - for slow streets (shared infrastructure)

NMT FEATURES

- Footpaths
- 100% Segregated cycle tracks
- Dedicated 2W, 4W, cycle parking
- Dedicated Pick Up /Drop-off facility for all modes
- Divyangjan bay

- Category 1 (230 km) – The main roads (18m – 36m) of the city will be required to provided with dedicated NMT infrastructure.
- Category 2 (510 km)– The internal streets (below 18m) will require shared NMT infrastructure.
- As per the Comprehensive Feeder Service Report, 740km of network is identified for the city to provide an integrated network. This work is required to be completed from the budget provision of concerned stakeholders by 2041.

MODEL NMT FACILITY AT AIRPORT SOUTH METRO STATION



NMT FEATURES

- Footpaths
- 100% Segregated cycle tracks
- Dedicated 2W, 4W, cycle parking
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- Divyangjan bay

MODEL NMT FACILITY AT AIRPORT SOUTH METRO STATION



EV CHARGING STATIONS AT METRO STATIONS

Airport Station



Maha Metro has signed an agreement with M/s Energy Efficient Services Ltd. (EESL) – Ministry of Power, GoI on 31.12.2020 for installation and operation of EV charging systems at **ALL** 38 Stations of Nagpur Metro.



Solar Energy for EV charging



Solar Energy for Train Running

FEATURES OF GREEN JOURNEY PLANNING APP BEING DEVELOPED AS PART OF MOU

- Provide First Mile and Last Mile Connectivity to the commuters/passengers using Single App.
- Connect Various Modes of Public Transport into Single system.
- Show options and Provide Booking Facility for First Mile and Last Mile Connectivity covering Various Public Transport system Via Nagpur Metro.
- **Show Carbon emission saved/Generated during the Trip.**



PLAN YOUR JOURNEY



BOOK YOUR JOURNEY



PAY FOR JOURNEY



FEATURES OF GREEN JOURNEY PLANNING APP BEING DEVELOPED AS PART OF MOU

- Green Journey Mode Selection
- Ticket Booking & Card Top-up
- Train related information
 - Schedule
 - Timings
 - Fare Structure
- Parking Information for stations
- Information on other modes of travel



THANK YOU

