CITY PROFILE → METRO RAIL NETWORK → PUBLIC TRANSPORT FOR ALL → NON MOTORISED & FEEDER INITIATIVES → MULTIMODAL INTEGRATION PLANS
CITY PROFILE
...Third-largest city of Maharashtra after Mumbai & Pune

...Major commercial and political center of the Vidarbha region of Maharashtra

Study Area

About 1500
Sq. km.

34.3 Lakhs

Population Growth in NMC (227 sq. km)

- 20.5 lakhs (2001)
- 24.0 lakhs* (2011)
- 28.7 lakhs (2018)

26%

16.2 lakhs (1991)

17%
Nagpur Profile

- **Total Population:** 34.3 lakhs
- **Total Trips:** 51.2 lakhs
- **Per capita Trip Rate:** 1.49
- **Motorized Trip Rate:** 1.20
- **Average Trip Length:** 8.2 Km
- **Average Household Income (Rs.):** 26,945
- **Average Household Size:** 4.3
- **Expenditure on Transport:** 7-8% of the average household income

**Trip Distribution**
- **16%** - Public transport
- **43%** - Two wheelers
- **16%** - Pedestrians
- **19%** - Public transport
- **5%** - Motorized vehicles

**Trip Purpose**
- **43%** - Work
- **31%** - Education
- **25%** - Others

- **High Share of Two Wheelers**
- **Diminishing share of public transport**
- **Need to strengthen public transport system for overall sustainability**
## Nagpur Profile – Major Concerns

### Type of Accidents

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Accidents</th>
<th>Fatalities</th>
<th>Injured</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-16</td>
<td>1149</td>
<td>281</td>
<td>1094</td>
<td></td>
</tr>
<tr>
<td>2016-17</td>
<td>1254</td>
<td>260</td>
<td>1203</td>
<td></td>
</tr>
<tr>
<td>2017-18</td>
<td>1373</td>
<td>291</td>
<td>1033</td>
<td></td>
</tr>
</tbody>
</table>

Source: Ministry of Road Transport & Highways Statistics, Govt of India

- 45% (92 pedestrians & 21 cyclists out of 291 deaths in 2016)
- Pedestrians, Cyclists & Two-wheelers account for 49% deaths in Asia
- Compromised pedestrian and non-motorized facilities in the city
- Maha Metro wishes to have a dedicated and segregated NMT facilities covering pedestrians and cycle track

### Source: Times of India, May 2017, Nagpur

- More than 250 Fatalities /Annum

### Source: World Health Organisation

- > 12 lacs
- > 1.63 lacs
- > 15 Thousand
- 14.7 lacs

Even though the traffic police concentrated on various safety measures, two-wheeler riders topped the list of deceased persons in road accidents, with 87 persons lost their lives. It was followed by 64 pedestrians, 15 bicyclists and six rickshaw riders lost their lives in accidents, respectively. The figure of pedestrian killed in 2016 was 92 and 141 two-wheeler riders and 21 bicyclists.

Internal and inner ring road recorded the maximum road accident deaths at 782 and 128 respectively, followed by Amravati road (63), Wardha road (79), Jabalpur road (78) and Bhandore road (39), according to police figures.

"The fall in road accidents has been possible because of proactive measures taken by the police to spread awareness and check rash driving. Another factor is involvement of voluntary organizations working for road safety," Pardeshi said.

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METRO RAIL NETWORK
### Nagpur Metro

#### Project Funding Pattern

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Funding Agency</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Government of India (Equity +SD)</td>
<td>₹ 15.55 Billion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>USD 222 Million</td>
</tr>
<tr>
<td>2.</td>
<td>Government of Maharashtra (Equity +SD)</td>
<td>₹ 15.55 Billion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>USD 222 Million</td>
</tr>
<tr>
<td>3.</td>
<td>Bilateral Loan from external funding agencies</td>
<td>₹ 45.21 Billion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>USD 646 Million</td>
</tr>
<tr>
<td>4.</td>
<td>Grant Contribution (ULB)</td>
<td>₹ 8.68 Billion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>USD 124 Million</td>
</tr>
<tr>
<td>5.</td>
<td>Land Cost and State Taxes-GoM (SD for ST)</td>
<td>₹ 1.81 Billion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>USD 26 Million</td>
</tr>
<tr>
<td></td>
<td><strong>Total Project Cost</strong></td>
<td><strong>₹ 86.80 Billion</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>USD 1240 Million</strong></td>
</tr>
</tbody>
</table>

### 38 STATIONS, 38.215 KM VIADUCT

![Nagpur Metro Map](image-url)

Map not to scale.
How Maha Metro is ensuring Public Transport For All

• Dedicated ramps at station entrance for differently abled
• Every Station has dedicated drop off for specially abled nearest to Elevator
• Dedicated ramps from drop off bays to reach entry exit elevator point
• Tactile paving continuously along footpath
• Feeder services for seamless connectivity
• Off-street as well as on-street parking facilities
NMT & FEEDER INITIATIVES
Why Multimodal Integration

Seamless first and last mile connectivity

Improves city infrastructure and increases Public Transport share

Emission reduction and reduces usage of private vehicular

Improves ridership and accessibility

Reduces congestions and save travel time
**Seamless integration** between Metro Station and other transport modes like walking, bicycling, public transport, feeder services and IPT and private transport.
Access Friendly Multimodal Drop Off Planning

<table>
<thead>
<tr>
<th>Mode</th>
<th>Access Length (m) *</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMT Access</td>
<td>&lt; 50 M</td>
</tr>
<tr>
<td>PT Stop</td>
<td>&lt; 100 M</td>
</tr>
<tr>
<td>Autorickshaw</td>
<td>&lt; 150 M</td>
</tr>
<tr>
<td>Personalized Parking</td>
<td>&lt; 250 M</td>
</tr>
</tbody>
</table>

* Varies with respect to site and Major PT Mode
Metro Feeder Routes

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

210.17 km Feeder Route Network

193 Feeder Vehicles

• Electronic Fare Collection System
  Smart Card  Mobile App

• GPS Based Automated Vehicle Location System

• Passenger Information System (PIS) – On Board and Off Board
Feeder Options

Maha Metro's Kinetic Green E-Rickshaw
MAHA METRO - ONE CARD & ONE APP

- App based motorized bike sharing is being tried and tested in other metros also in India
- These systems will provide the first and last mile connectivity from metro stations to destinations at a reasonable cost.

A user discovers the nearest scooter through a mobile app.

1. gets access to the vehicle through Bluetooth and OTP based
2. rides it himself to the destination and drops it there
3. He pays only for the distance and time he uses the vehicle
4. The drop off point becomes pick up point for the next user.
MUNICIPAL CORPORATION SUPPORTED FEEDER AT TERMINAL STATION - KHAPRI

NMC Feeder Bus Service at Khapri Metro Station
NMC Feeder Bus Service at Lupin
NMC Feeder Bus Service at Administrative Building MIHAN
NMC Feeder Bus Service at GIF Technologies and Infocept
NMC Feeder Bus Service at HCL
NMC Feeder Bus Service at MRO
<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Operator’s Name</th>
<th>Proposed Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wicked Ride Adventure Services Pvt Ltd (Bounce)</td>
<td>Bicycle, E-bicycle, E-scooter</td>
</tr>
<tr>
<td>2</td>
<td>Kinetic Green Energy Power solutions Ltd.</td>
<td>E-Rickshaw</td>
</tr>
<tr>
<td>3</td>
<td>E V Rental Ventures LLP (Bajoria Motors)</td>
<td>E-Rickshaw</td>
</tr>
<tr>
<td>4</td>
<td>Twarit Mobility</td>
<td>E-Rickshaw, Elite E-Rickshaw</td>
</tr>
<tr>
<td>5</td>
<td>Vogo Automotive Pvt. Ltd</td>
<td>E-scooter</td>
</tr>
<tr>
<td>6</td>
<td>Ride E Transport Pvt. Ltd.</td>
<td>E-scooter</td>
</tr>
<tr>
<td>7</td>
<td>Nikhil Furnitures</td>
<td>E-Rickshaw</td>
</tr>
<tr>
<td>8</td>
<td>Bharat Vikas Parishad</td>
<td>LPG Rickshaws</td>
</tr>
<tr>
<td>S.No</td>
<td>Section</td>
<td>Length</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>1</td>
<td>Nagpur-Katol</td>
<td>60.4 km</td>
</tr>
<tr>
<td>2</td>
<td>Nagpur/Itwari - Ramtek</td>
<td>41.6 km</td>
</tr>
<tr>
<td>3</td>
<td>Nagpur/Itwari – Bhandara</td>
<td>62 km</td>
</tr>
<tr>
<td>4</td>
<td>Nagpur - Wardha</td>
<td>80.7 km</td>
</tr>
</tbody>
</table>

- Maha Metro proposes to replace existing passengers trains with modern AC coaches
- Provision of better facilities like automatic doors, CCTV cameras etc.
MULTIMODAL INTEGRATION PLANS
Multimodal Design Features

100% segregated and accessible NMT facilities

Pick up Drop off bays

Integrated approach to planning

Due consideration towards needs of differently abled

Cycle Parking provisions planned

Junction Improvement
Multimodal Design Features

- Cycle Parking near Station Entrance
- Drop-off Bay for Specially-Abled
- Accessibility Ramp for Specially-Abled near Station Entrance
- Drop-off Bay for E-Rickshaws
- Drop-off Bay for Two-Wheelers
Multimodal Design Features – Sitabuldi Interchange Station

- Public seating facilities, recreational and landscaping areas
- Pedestrian friendly facilities of wide footpath, guard rails, bollards
Multimodal Design Features – Airport

- Cycle parking for PBS
- 2 W parking
- 4 W Parking
- E-Vehicle Charging Station
- Station Entrance
Future of Nagpur….

• Maha Metro in coordination with NMC will strive to achieve over 50% of Public Transport share in next 20 years as per Mobility objectives. Current share is under 20%.
• Surrounding areas of city will be connected to Nagpur through BG metro initiatives.
• Movement of Nagpur towards green and sustainable mobility through various initiatives.
THANK YOU