

# Nagpur Metro Rail : A review

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## Abstract :

Transport system whether it is public or private is the basic need of any city which not only decide the level of development but opens new avenues for the city. Nagpur is third largest city & second capital of Maharashtra state which itself more that sufficient to recognize its importance in socioeconomic and political corridor. To fight with the problem of traffic and to manage the future road traffic govt. Of India and Maharashtra govt. Initiated Nagpur metro rail project which is suppose to be started by 2018. This review paper argue against and in the favor of Plan, work, future, hurdles and other issues related with Nagpur metro rail project and how it is going to affect orange city in near and far time. This paper also focuses on distinguish advantages and disadvantages of Nagpur metro rail over other metro rail project in India.

**Key words :** *Transportation system , Metro rail , Traffic.*

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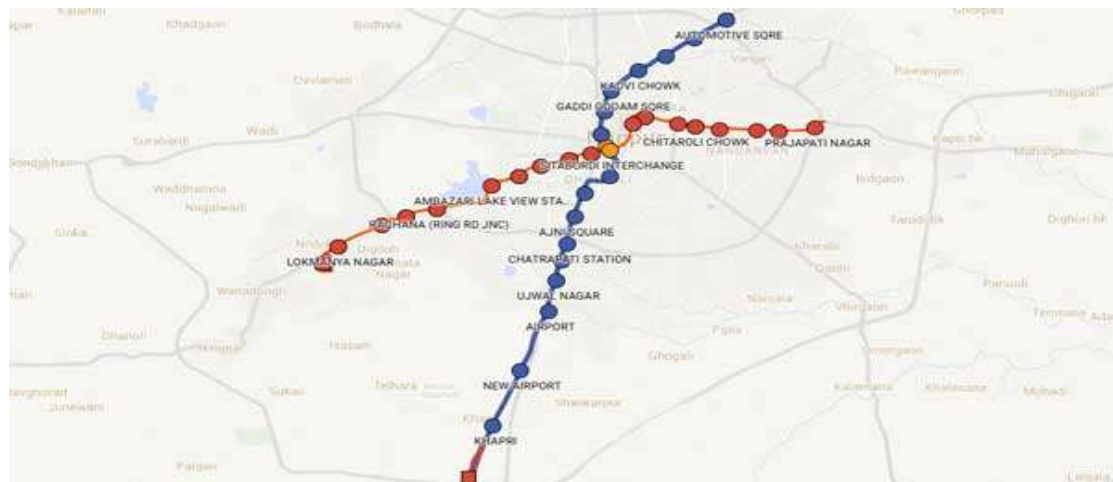
## Introduction:

Nagpur, the second capital of the state of Maharashtra is also the third largest city in the state and 13th largest urban agglomeration in India with area of 217 Sq. km. Its Metro Region has a population of around 35 lakhs and an area of around 3576 Sq. km. The city boasts of being the geographical center of the nation along with being the 'Orange City' as well as the 'Tiger Capital of India' as it is a Gateway to several tiger reserves in Central India. MIHAN Project is coming up in the city and will create many job opportunities. With the growing economic activity, it was necessary to plan for the infrastructure development so as to support the growth of the city. One of the major impacts of economic development will be increased traffic on the city roads. Currently the Public Transportation System contributes only 10% of the total trips. The motorized transport is dominated by two Wheeler's (28%) and so is the vehicle ownership in the city (84% of all owned vehicles are two-wheelers). Thus, there is a need for a safe, reliable, efficient, affordable, commuter friendly and environmentally sustainable rapid public transport system for the Nagpur Metro Region.

## Nagpur Metro Project Detail

The **Nagpur metro rail system** will be spread over a length of around **38.21 km**. It will be useful on two passages, to be specific the North-South Corridor and the East-West Corridor. The **19.65 km** long North-South Corridor will be running from **Automotive Square to MIHAN** and the East-West Corridor which is **18.55 km** long will be developed from **Prajapati Nagar to Lokmanya Nagar**. Aggregate number of stations on Corridor No. 1 and Corridor No. 2 would be 17 and 19, separately.

## Nagpur Metro Route



### Corridor-I

First Station:- Automotive Square

Last Station:- Khapari

**Number of Stations – 17**, All Elevated except Airport to MIHAN City route.

**Link to other Corridors – At Munje Square**

### Corridor-II

First Station:- Prajapati Nagar

Last Station:- Lokmanya Nagar

**Number of Stations – 19**, All Elevated.

**Link to other Corridors – At Munje Square**

According to the venture gauges, Rs 8,680 crore will be put resources into the Nagpur Metro Rail Project, out of which Rs 1,555 crore will be contributed through the Government of India. The Government of India will contribute monetarily to the undertaking as subordinate obligation and value. Likewise, the task will get money related backing from the Improvement Trust of Nagpur, City itself and Industrial Development Corporation, Maharashtra Airport Development Company, the Nagpur Municipal Corporation and Maharashtra Industrial Development Corporation and

The endeavor will be finished under the supervision of the Nagpur Metro Rail Corporation, which will be driven by the Urban Development Secretary. For the post of the Directors on the Board of the organization, there will be 10 chosen people, out of which five will be named by the Government of India and five by the state government. Additionally, the Managing Director of the organization will be a chosen one of the Maharashtra government.

### Nagpur Metro Rail Fare

According to the high-level committee and the officials of Nagpur Metro Rail Corporation Limited (NMRCL), the fare of the metro railroad will be equivalent to auto rickshaw charge per individual.

The authority also said that monthly and three monthly passes would be issued as the organization needed long haul business from suburbanites. The suburbanites will have the capacity to pay the fare of feeder administration and bicycles (wherever accessible) through the metro rail cards and tickets.

“Just 30% of our revenue will originate from tickets. The rest will be from different sources and subsequently the passage will be reasonable.

Nagpur Metro Rail Corporation Limited has been arranging such projects at territories arranged close metro rail stations. Nagpur Metro will help nagpurians and those who will come to this city in following ways

1. Dilute Traffic Congestion
2. Control Pollution
3. Reduce Road Accidents
4. Increase Convenience
5. Protect from Weather Extremities
6. Reduce Travel Time
7. Reduce Transportation Cost
8. Help in Energy Saving

Thus there is a need for a safe, reliable, efficient, affordable, commuter friendly and environmentally sustainable rapid public transport system for the Nagpur Metro Region.

### **Distinctive Features of Nagpur Metro**

- **Green Initiative:** Nagpur Metro will be the pioneer in adopting and integrating solar energy generation right from the project planning and design stage to meet its energy requirements to the tune of 65% which will make it the “Greenest Metro”. All station roof-tops, depot boundary walls, depot shed rooftops and vacant ground spaces will be mounted with solar PV panels. In Phase - I, 14MW solar power is proposed to be generated which will rise to 36MW in future so as to met 65% of the growing energy requirements of NMRCL.
- **Bio Digester Technology”:** Nagpur Metro goes a step further towards making it the greenest Metro. NMRCL and DRDO (Defense Research and Development Organization) signed a MoU for propagation and installation of “Bio Digest-er Technology”. Nagpur Metro is the first Metro in India to adopt this technology with an objective of keeping Eco friendly clean environment and make use of organic waste and waste water.
- **Green Building:** Nagpur Metro has been following the Green Building norms for environment protection in all its building design & construction to an optimum level so as to have an eco-friendly, low energy & low water consumption building and at the same time providing fresh & healthy environment to its occupants. Nagpur Metro has installed solar power panels on top of the buildings. Existing Metro House is generating 13 KWp and the under construction Metro Bhawan shall be generating power 260 KWp. Green buildings basically seek to harness all these natural elements in its design & construction
- **Tree Plantation:** On Forest Day, 4000 trees planted. Nagpur Metro is extending the programme creating “little wood’ in that area.

- **Superior Project Management through 5D-BIM:** 5D-Building Information Modelling (BIM) – IT based platform is proposed to be used to ensure tight control over costs, time, quality and safety of the project for the first time. NMRCL would be a pioneer in this respect also.
- **Transit Oriented Development (TOD):** In addition to fare box collection, revenue stream of the project would include earnings from transit oriented development of Metro rail corridors by way of additional FSI. In addition to this, our percentage point increase in the rate of stamp duty on property transactions in the city is also proposed. This will ensure better financial viability of the project.
- **Multimodal Integration:** NMRCL is planning to integrate with all other modes of transport in the city to ensure seamless travel for the Metro commuters.
- **Common Mobility Card for Seamless Travel:** Nagpur Metro Rail is striving to introduce common mobility card for seamless travel of Metro commuters in various transport modes.
- **Efficient & high quality Feeder service:** Introduction of an efficient and high quality feeder service is part of Nagpur Metro rail project to provide first and last mile connectivity to the commuters. This will ensure higher ridership towards achieving the project objectives.
- **Metro Samwad:** A novel concept of 'Metro-Samwad' adopted by NMRCL for direct communication with all stake holders of the project including the citizens. NMRCL is conducting these programmes in the vicinity of 36 stations.
- **Social Media initiative:** Nagpur Metro has 2 lac+ likes on the fb page as on date and the number is ever increasing. Nagpur Metro project are updated on Face book every day and all the questions are answered on line on fb page. In an inclusive approach is adopted by Nagpur Metro Twitter handle is used to go the citizens and answer their tweets.
- **TV and local cable network:** Nagpur Metro has been constantly airing progress of the project, cautioning the public on the usage of road involved near the construction site as also answering doubts/questions in the interest of the public on UCN, in-cable network.
- **Radio FM:** As an inclusive approach, Nagpur Metro is conducting “Metro Samvaad” on regular basis through different Radio FM channels in the interest of the citizens, explaining the intricacies of the project and involving the people of Nagpur.

#### **Plan of NMRCL :**

To execute the project, the Cabinet approved setting up of Nagpur Metro Rail Corporation Limited.(NMRCL). NMRCL is a Special Purpose Vehicle (SPV) created for the smooth implementation and operations of the Nagpur Metro Rail Project and is a joint venture of Government of India and Government of Maharashtra, with 50:50 equity. NMRCL shall be solely responsible for the successful and timely completion of the project and its subsequent operations. The project is scheduled to be completed by March 2018

#### **Nagpur Metro Rail Expenditure :**

The Total Expenditure of the Project is estimated to ₹8680 Cr. with the Central Government and State Government each contributing 20% share in the form of equity and subordinate debt.Nagpur

Municipal Co-orporation and nagpur Improvement trust each giving 5% share of the expenditure while the rest 50% is being financed by loan.

Recently, KfW, a German government-owned development bank, has approved a loan of ₹3,700 crores (€500 million) to NMRCL as a part of fund required for the project. An additional €60 million (₹444 crore) loan will also be provided for funding the proposed feeder service and solar energy installation of Nagpur Metro Rail on mere concessional terms of KfW Germany. The remaining requirement of about €130 million for the entire project has been funded by AFD France. The 20-year credit, will be used for funding signalling, telecommunication, automatic fare collection systems, lifts and escalators.

#### **Opportunity for the Local Entrepreneurs :**

Rs.8,680 crore Nagpur Metro Rail Project presents a huge business opportunities to local entrepreneurs. They can develop the capability and quality to cash in and deliver the goods. opportunities were mainly in the field of engineering. “Civil, electrical and electronics and telecommunications are the main sectors. Stores and purchase is another sector.” The buildings will be pre-engineered. Component of site construction will be less and it will replaced by floor manufacturing. The general consultant will advised to interact with local entrepreneurs to help them in the same. Around 75 hectare of land has already acquired for the ambitious project and investments are pouring in for the project which will eventually benefit the industrialists.

#### **Opportunity for the Local Engineers :**

Nagpur is hub of producing quality engineers as this region have very good number of engineering colleges. Taking the advantage of Nagpur metro rail , students of various expertise like civil,electrical,electronics , Telecommunication & mechanical will definitely going to be befitted and can secure good job in Nagpur itself.

#### **Challenges to Nagpur Metro Rail:**

Apart from many advantages Nagpur metro rail have some serious challenges also , as Nagpur is neither having big industries and industrial work load nor the good places to see hence it is biggest question that how Nagpur metro will take out theirs expenses. Unlike other metro rail project Nagpur is absolutely different and having its own socioeconomic difficulties. Second thing is that distribution of Nagpur population is also a problem which will not covered in metro rail project.

#### **Conclusion :**

Finally after going through the detail literature available and the reports on Nagpur metro rail , conclusion can be made that Nagpur metro rail is proposed before the worst situation unlike other cities and if it works in planned ways then it could be the model for all cities for development of public transport system and management of road traffic.

#### **Recommendations for Future Research :**

Based on the literature the following recommendations for future research are

below:

**Recommendation 1:** Further research should be conducted to check the

Experience of beneficiaries of Nagpur metro rail

**Recommendation 2:** Further research should be conducted on comparison between Nagpur metro rail project and other metro rail project in India

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