An Extensive Desk Research on the Contribution of Progressive Metro Rail Construction towards Traffic Jam in Pune

Pournima Sham Bodke[1], Dr. P. L. Naktode[2]

[1,2]*Sandip University, Nashik, Maharashtra, India*

Abstract- *Traffic delays are one of the main issues in most metropolitan cities like Pune. As we know, the city of Pune is well-developed and popularly known for its education, many students come from different cities and many young people come to work because of the big IT firms. Because of this city, it has become more populous. There is a higher risk of road collisions and traffic delays due to poor management. As Pune Metro building works are underway, due to the fact that many places in the city as well as Pimpari – Chinchwad are facing a traffic jam situation. As a result of this situation, the civic government has indicated that Maha Metro officials ought to make recommendations to boost traffic conditions. In emergency cases, several residents have encountered delays due to traffic jams created by metro work to get to the ambulance and the city hospital. The paper discusses about the traffic jam situation during the construction of Metro in Pune city of India.*

Keywords: Pune City, Traffic jam, Pune Metro Rail, Collusion, Congestion.

1. INTRODUCTION

The scenic beauty and rich natural resources for which Pune is well known as the" Queen of Deccan. In addition, it is renowned for its religious and historic sites. Because of its educational, science and development institutions, Pune City is recognized on the world map (National Library Board, 2020). As a major military base, the district is also critical. In western Maharashtra, Pune is the most developed district and a popular IT center in the region. Pune exemplifies an indigenous Marathi community and ethos in which importance is given to education, arts & crafts and theatres (Gov.in, 2017). Pune is Maharashtra's cultural hub. It is the birthplace of Tukaram, the poet-saint. It is the birthplace of warriors of great liberation, such as BalGangadharTilak, Agarkar and Gopal Krishna Gokhale. The famous contemporary physicist, JayantNarlikar, comes from Pune (Kamath & et. al.).

The district of Pune is between 17.54 'and 10.' 24 'North and 73.19 and 75.10' East. East Longitude. The district is bounded by the District of Ahmednagar in the north-east, the District of Solapur in the south-east, the district of Satara in the south, the District of Raigad in the west and Thane in the northwest. The district of Pune forms part of the tropical monsoon and displays major seasonal temperature and rainfall variation (Gov.in, 2017). The climate is cool in the western part of Pune, while the eastern part is hot and dusty. Pune being covered with small towns, villages and under developed districts most of the young population migrate to Pune for both education and Jobs.

The public transit system is a space effective consumer which eliminates air and noise emissions. If the population of a city increases, the proportion of public transit, be it road or rail, should rise (Rangarajan, 2010). Experience has shown that transport on the road can optimally accommodate 8,000 people per hour per direction (phpdt), in cities like Pune, where roads are not wide enough and are suited to mixed traffic conditions between slow- and fast-moving vehicles. As traffic density grows more than this level, the average car speed decreases, the driving time increases, the air population increases and passengers are at elevated levels, with drawbacks. So, when on a corridor traffic level exceeds this number at peak hours, i.e. rail-based mass transit. The metro system should be taken into consideration.

The population of Pune drastically increased with the IT industry started emerging for over three decades along with non-IT industry (Gupta & Apte, 2017). There came a time when Pune was in desperate need for improved public transportation and need for sustainable transportation system by introduction of Metro rail (Srinivas, 2011). But the construction of metro rails in the areas crossing the roads and construction along the roads occupies a part of the road and thus roads become narrower. The narrow roads end up in congestion. The paper discusses about the narrow roads and congestion of the traffic during the construction phase of metro.

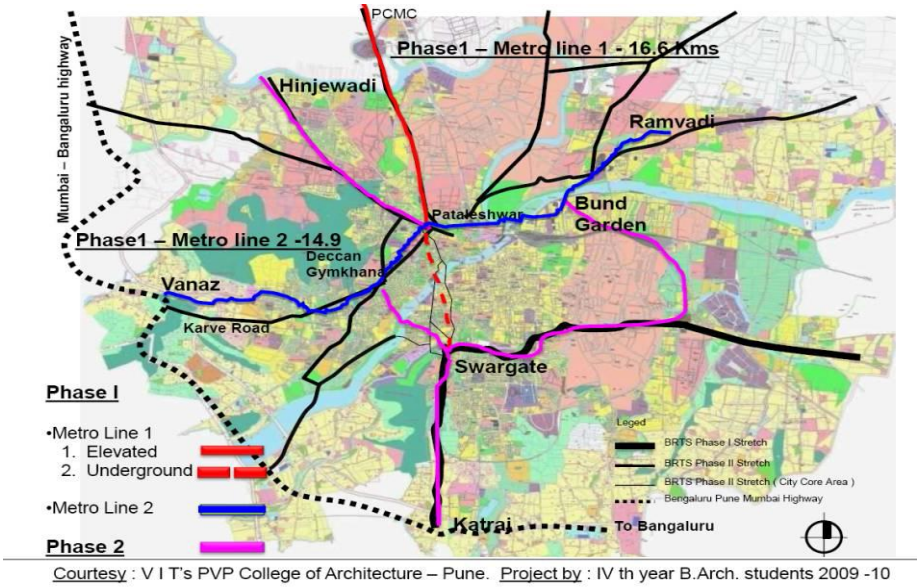
2. BACKGROUND

Pune city and the nearby suburban area had a total population of 35.6 lakhs in 2001. The decadal growth of PCMC in the last 3 decades has been almost 100 percent. The PMC region has reported an annual decadal increase of about 35%, and a population decrease is observed in both cantons. The research area population for the base year 2011 and the population for the horizon years was projected.

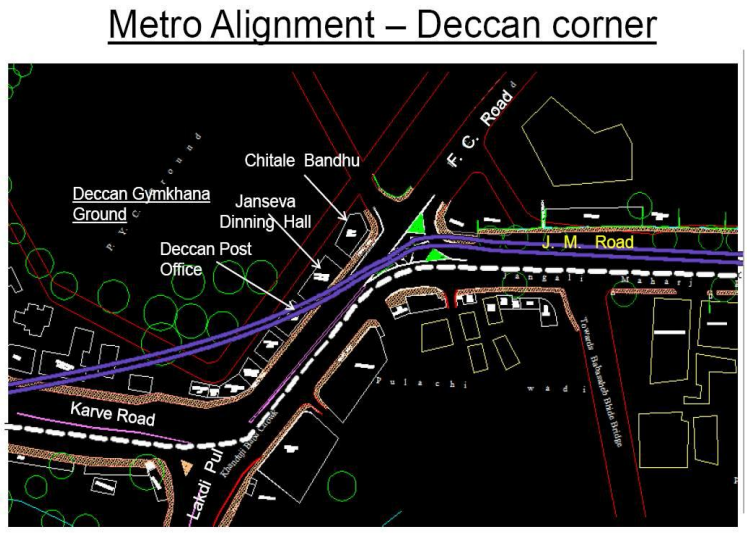
Initially, to consider the issues facing the city, visits have been made to the offices allocated and a clearer view of the Pune Metro has been achieved. DMRC and BMRC 's growth plans were analyzed in depth along with the planned Pune Metro development strategy. Several people were consulted and the issues encountered during construction were addressed with Delhi or Bangalore Metro. The issues facing Pune metro have also been addressed. Different charts were also used and the geological problems regarding the strata were established. On the basis of the report, the building issues were sought and the remedies presented were given (DMRC, 2014). For problems of traffic, the Pune traffic department was visited and the information about the Pune Metro and the traffic problems were addressed. The PCMC Department was also visited for metro surveys and the solution to this technique with the executive engineer was discussed. The planned phases of the Pune metro are also an issue for land acquisition and the current systems in some areas that are traditionally important are hindered. The projected costs of the Pune Metro are almost 10,000 crores. The government with the local authorities and the World Bank are required to contribute to this number. This pressure on the government and the people as a result of the city taxes was also discussed. The Vanaz-Ramwadi Corridor has many building issues and this has been addressed with officers and solutions have been identified. In addition, a pre-feasibility study was performed on houses in the vicinity of the PCMC area to define the metro needs and to define the public opinion in the form of maps and pie charts and solutions.

3. DISCUSSION

The overall phpdt is likely to be 6203 for Vanaz – the Ramwadi route will be 6203 in 2018, 8519 in 2021 and 10982 in 2031 –- suggesting very low travelling. The Metro is capable of touching up to 30,000 traffic in a high-speed traffic (Kamble & et. al., 2019).



***Map 1**: Pune Metro Map (DMRC, 2014) (DMRC, 2014)*



Map 2: *Pune Metro Line (DMRC, 2014)*

Pune metro line is explained in the above two maps. The explain the crossover of road and metro construction in key areas and thus resulting in traffic congestion and also prone to accidental conditions.

A. Traffic Jams Areas

The city of Pune is today a big hub for information technology (IT), which was established as a pensioner's paradise and the cultural capital of Maharashtra. It has brought in a great deal of growth in the wake and has seen a sharp increase in the city's population. But the current infrastructure in Pune, like other towns such as Mumbai and Bangalore, is just not enough to accommodate this development. The transport infrastructure in particular failed to deal with the increased car load (Kumar, 2016). Traffic delays caused by the on-going work of the metro impair our service and we arrive late at our destination and demand emergency personnel from numerous local hospitals and ambulance officials (Hundusthan Times, 2019).

Image 1*: Traffic Jam in Pune Around Metro Construction areas. Source: Hindustan Times*

At 753 cars per 1000 residents in car density, traffic on urban roads continues to be rare. While absence of mass transit is the key cause of the traffic jam, the threadable infrastructure of the city is also the perpetrator and adds to the troubles of city commuters (Joshi, 2019).

B. Construction Accidents

Three staff were killed and one wounded after they fell off an under-construction building off Sinhgad Road in Pune in the Dattawadi district (PTI, 2017) (HTC, 2017). When a steel center plate moved horizontally by an overhead crane slipped off the hooks and fell on him, a worker at the Pune Metro site at Mobo 's Hotel on Bund Garden Road died (Shaikh, 2019). The incident happened when a worker was killed when, while working on the Metro near Moboz Chowk on Bundgarden Lane, a plate raised by a crane dropped onto him. A lawsuit against the crane driver in this respect has been registered (Bhosale, 2019). A big disaster has been averted following a weight of over a tonneled steel reinforcement cage on Saturday morning in the pedestrian portion of the Sangam Bridge. There have been no records of injury, officials of Maharashtra Metro Rail Corporation Limited said. This is the fourth recorded occurrence in two years (Thevar, 2020).

***Image 2**: Pune Metro Pillar Accident. Source: Times of India*

4. CONCLUSION & FUTURE SCOPE

Maintenance of traffic flow along the work zone with minimal traffic interruption can be made possible by pursuing the best mix of proposed solutions to the issue of congestion during the introduction of the metro rail network. It is the responsibility of the construction manager and the authority involved not only to deal with the issues of the project, but also to address the possible problems that will occur during the execution of the project.

- To maintain clear 2 + 2 traffic lanes – widening of footpaths
- Efficient dispersal of cars and passengers
- Integration of other modes of transport
- Station Impact Zone to limit on-street parking, hawking and free trails.
- Railings Footpath
- Alternative routes, particularly in the highly congested area

The future scope of the paper is the create and suggest an alternative route for the vehicles in the most congested areas which might help in reducing the traffic jam and also the accidents.

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