

RESEARCH ARTICLE



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INTEGRATED MASS TRANSPORT SYSTEM IN PUNE

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ABSTRACT

Recognizing PUNE with the increasing population and the development being carried out, congestion and the environmental problems and a need for integrated network, rail based transit system is gain world-wide popularity among the people. Today, bus services operate in crowded & narrow roads with a very low average speed thus it reducing commuter benefits; where in buses also add to traffic congestion. Where the system like METRO & BRT cannot be implemented that time mono rail can be easily implemented & can negotiate sharp turn & climb up & down steep gradient. There is a great opportunity for waterway in Pune. MULA and MUTHA River in PUNE runs across the city and thus it will help to connect all the corridors of the city. It will not face any traffic problems nor does its affect other transport means like private cars, bikes, bus etc. Advancement of current water route is another option along with the proposed METRO PLAN which ensures fast and safe journey with the installation of MONORAIL on the banks of river.

Keywords: Monorail, BRT, Metro, Mutha- Mula River, Urbanaut Technology

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1. INTRODUCTION

1.1 GENERAL

When one looks back in history, one is overwhelmed by the terminology, acronyms, and technologies that have evolved over the years. As a starting point, it is probably appropriate to define a Monorail. "A single rail serving as a track for passenger or freight vehicles. In most cases rail is elevated, but monorails can also run at grade, below grade or in subway tunnels. Vehicles are either suspended from or straddle a narrow guideway. Monorail vehicles are wider than the guideway that supports them. Train sets should have a minimum passenger capacity of 40. PRT systems are excluded."

1.2 SCOPE

This report is an attempt to study, suggest and recommend an efficient safe and sustainable, multimode led transit for moving people and meeting the goal of environmental integrity, social equity and economic efficiency.

1.3 OBJECTIVES

1. To study existing transit system and future plans for the Pune City.
2. To review studies conducted previously as regards the mass transit system suggested for Pune City.
3. Identify the problems of pockets of area left by existing/proposed system and its implementation.
4. Finding possible solution /alternative Rapid Mass Transit System for Pune.
5. Infrastructural design for the alternative.

2. METHODOLOGY AND INVESTIGATION

The objective of our project is to present a prefeasibility study conducted by carrying out household survey and focusing on the shortcoming of the pune monorail to be faced in near future based on the available data and providing suggestions for the afore-mentioned problems. Construction details, comparison between PMPML and MONORAIL, fare, and the cost factors have also been considered in our project. With the increasing population and the development being carried out in cities of India, congestion is a new problem arising in front of the transportation department. Keeping in

mind the congestion and the environmental problems and a need for integrated network, rail based transit system is gaining world-wide popularity among the people. Mumbai metropolitan region development authority i.e. MMRDA has already implemented the Mumbai monorail with the two phase covering the city from periphery to core. After its successful construction and implementation, the need for rail based transit system in pune is realized. The latest city to get under the radar is "Pune". Pune is a fast growing city and with the increasing population and development, we are suggesting a route and plan for "pune mono".

2.1 Literature Survey:

Initially, to understand the problems being faced by the city, visits were made by us to the PMC and sawarkar bhavan offices and a better outlook towards the Pune Mono was achieved. A development plan of MMRDA was studied along with the proposed development plan of the Pune Mono. Various persons associated with the MUMBAI mono were suggested the problems faced during the construction were discussed. The problems being faced for Pune PMPML were also discussed. For the traffic problems, traffic department of Pune was visited and the details regarding the Pune metro and the problems it will pose on the traffic were discussed. The proposed phase of the Pune mono does not pose a problem for land acquisition and the existing structures because suggested route is going through the river.

2.2 Methodology:

While accumulating the information concerned with the Pune mono, various problems were studied in detail:

2.3 Traffic Congestion:

Construction of mono rail is being troublesome due to Elevated mono and insufficient road width for today's 6,190 phpd (person per hour per direction) Daily Ridership (2014). In phase (i.e. Pmc – nanded city) the sufficient road width is available from Pmc to Deccan for Elevated mono and from Deccan to

Warje many bridges are there that's why insufficient road width is available for elevated mono. Continuous traffic flow cannot be achieved in Pune due to the jam packed roads. Focusing on Pmc to nanded city area, it suffers from traffic problems as it connects Warje, Malwadi, kothrud,,aanand nagar, karvenagar, Hingne.

Table 1: The total vehicular details of the route

Vehicles	Person Travelling (per day)
Cars	8,723
Two-Wheeler	3,48,936
Bus	19,773

2.4 Population survey

Table 2: Census 2014 Total Population (Male/female)

STATIONS	POPULATION
DECCAN	41510
KOTHRUD GAON	65890
WARJE MALWADI	101674
ANAND NAGAR	57025
KARVE NAGAR	81461
SADASHIV PETH	169150
NANDED CITY	80528
TOTAL	597238

2.5 MONORAIL ROUTE

- As we go through the topographical conditions of PUNE it is found that the river Mula and Mutha runs across the city and thus it will help to connect all the corridors of the city.
- Thus there is a great opportunity for waterway in Pune.
- If this is taken into consideration it will not face any traffic problem nor does its gone affect other transport means like private cars, bike etc.
- Thus Monorail will be another option which ensures fast and safe journey of Punkers.
- The corridor that is from PMC to Nanded city is a densely crowded area and Deccan being the heart of city faces traffic problems at peak hours.
- Thus the public transport has to be planned with proper mode of Rapid transit for the commuters in

Also the proposed Metro route has not reached till the Nanded city thus there is need to connect the people to the fastest mode of transport we have planned that Monorail will cover the following stations.

2.6 Elevated monorail on River Route:

In the phase (Pmc to Nanded city) various points were laid out to strengthen and reinforce the idea of the elevated mono rail on river route which are as follows:

- No inconvenience to the citizens and speedy construction with no traffic congestion during construction period.
- No land acquisitions and litigations will delay the project.
- Future expansions of road will not be hampered as river route will not alter the existing road structures.
- Environment will get benefitted as tree cover remains unaffected with minimum noise and air pollution.

Station locations are based on following criteria

PMC: It is the largest BRT depo that connects all the area in Pune.

Deccan: It is the main Metro route station and covers the market area of sadashiv peth, navi peth etc.

Raja mantri road: It covers the crowded area of karvenagar.

Hingne: It covers the main Anand Nagar, Vithalwad, Manik baug were there is a problem of public transport due to congested area.

Warje Malwadi: It is crowded area with the highest need of public transport facilities moreover it is connected to Mumbai- Pune National Highway 04. which will help to connect with the other district.

Nanded city: It covers the area of Ramnagar and Pandurang Industrial area.

Table 3: Distance fare and travel time of route

3.RESULT

3.1 MONORAIL PROJECT COST

Monorail advocates often make claims about the low installation cost of monorail system particularly

compare to light rail transit (LRT) & other standard rail transit system. The monorail is less expensive to build than other transit because it uses public right of ways and no tunneling is necessary –and won't close street during construction.

Monorail project consist of various types of construction technology and for the installation of monorail at a particular length many components and features are considered:

- 1) Total length of the system- 9.8km
- 2) Topography– We are going through river route so there are no flat or hilly terrain and no road in our proposed route.
- 3) Location- There will be no traffic on river route.
- 4) Utilities– Relocation of water mains, power lines, telephone lines etc. also consider a cost of project.
- 5) Land- There is no problem of land acquisition.
- 6) Speed- There are long distances between PMC to NANDED CITY so that a higher speed is desired.
- 7) No of station- 6
- 8) Special structure-tunnel, bridges will not obtain in proposed route.

Monorail total project cost:

Table 4: Monorail total project cost

System Component	Cost	Percentage of total
Train & Control System	300 crore	25%
Power	108 crore	09%
Stations	132 crore	11%
Maintenance Facilities	36 crore	04%
Beam , Columns & Foundation (guide way & track for dual rail)	336 crore	28%
Design & Administration	276 crore	23%

TOTAL	1188 crore	100%	
STATIONS	DIST.	FARE	TIME
PMC	00 KM	00 Rs	00 Min
DECCAN	1.1 KM	05 Rs	2.4 Min
RAJAMANTRI ROAD	2 KM	07 Rs	4.4 Min
HINGNE	2.4 KM	09 Rs	5 Min
WARJE	2.3 KM	11 Rs	4.8 Min
MALWADI			
NANDED CITY	2 KM	11 Rs	4.4 Min

4. CONCLUSION

With increasing population the development being carried out in cities of India, congestion is a new problem arising in front of the transportation department. Keeping in mind the congestion and environmental problems and a need of Integrated Network,Rail based transit system is gaining world wide popularity. Thus rails and developing infrastructure will form the arteries and veins of developing area.

One of the major objectives of the Mono is to wean away commuters from using personalized modes of travel within the city. Primary reason for using personal vehicle (for buying vehicle) is to save travel time during journey. In order to attract users of personalized travel (particularly two wheelers) a seamless integration of various modes of public transport and IPT is necessary. While planning economic ticket projects such as a Mono System this issue gains much more importance. As can be noted from above most of the important Mono Stations of Pune are well connected with various adjacent localities by City Bus Service. Once the Mono gets commissioned the City Bus service could be rationalized. With this it should be possible to manage the areas which suffer from lack of connectivity by redevelopment of buses from the existing fleet.

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