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FORMALIZATION OF PARA-TRANSIT SYSTEM IN CONTEXT OF PUBLIC TRANSPORT SYSTEM OF AMRAVATI CITY

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Abstract: Paratransit system is the backbone of Amravati city's non personalized public transport because the contribution of public bus system in Amravati city's transportation is negligible because of the very high waiting time, inadequacy of passenger buses, lack of fixed time table and at the same time enough availability of paratransits (auto rickshaws). Also these auto rickshaws cater from almost any part of the city to any corner of city which also makes them preferable over public buses. The present paper deals with the methodology to be adopted to harmonize the present public transport system and paratransit system to avoid competition and to optimize the urban transport system of Amravati city. Paratransit system consists of small passenger capacity vehicles operate on flexible routing and scheduling or fixed routing and flexible scheduling according to the usage of the trip makers. In Indian condition, paratransit plays an important role for the urban passenger transportation, particularly in the small and medium size cities. Amravati city has been selected in this study. Paratransit modes are the only means of public transportation system in Amravati. The study gives the detail information about the urban transit scenario of Amravati city. There are four major types of paratransit modes operating in the study area mainly, cycle-rickshaws, auto-rickshaws, tata magic and maruti van. The characteristics of each mode have been established by conducting different surveys such as modal split, vehicular occupancy and operator survey. The survey was carried out on important roads distributed all over the city. The percentage share of paratransit in terms of urban passenger movement has been found out with respect to all the modes. The auto-rickshaw is the most popular mode of paratransit having maximum share in terms of numbers and occupancy rate. The approach to transportation system is to focus not just on increasing vehicle movement, but on improving paratransit modes in the city. Predefined stoppage, parking for paratransit modes are essential to have better and timely service of the paratransit.

Keywords: Paratransits, Optimization, Systematic Organization, Route Length Distribution, Modal Split, Operator Survey, Vehicular Occupancy.

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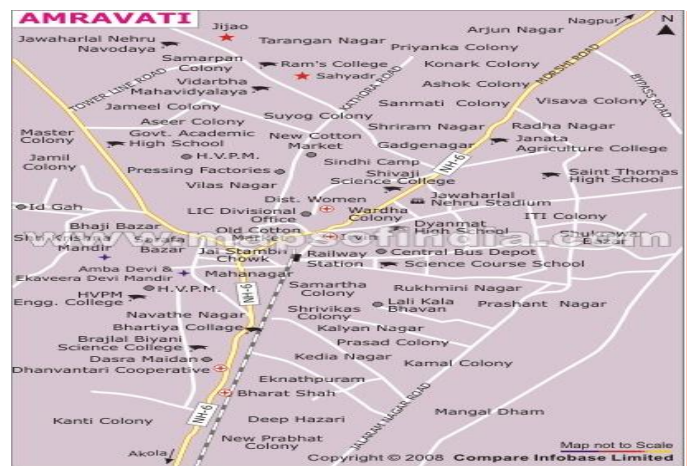
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INTRODUCTION

Paratransit plays an important role in the Amravati urban area. Major four types of paratransit modes are playing in the study area – cycle rickshaw, auto rickshaw, tata magic, maruti vans in the city to provide the needs of transportation services to the urbanites. Among these, auto rickshaw has the highest percentage share of occupants with respect to all the modes. The uses of cycle rickshaw is decreasing day by day as it is based on human energy and used for short distance services. Tata magic is another mode for the passengers for long trips. Taxi service and buses have less significant role in the city. In this paper, four major paratransit modes have been discussed. A special focus on the paratransit operators have been made through operator survey to know the socio – cultural characteristics of the operators, infrastructure facilities and service facilities of the operators. Paratransit not only provides the ease of movement from one place to another but it also generates a considerable amount of employment opportunities to the unemployed youths.

Amravati is the One of the largest city(area wise) in Maharashtra state and. The total vehicular population spectrum of Amravati city shows a drastic distribution i.e.77.09% vehicles are two wheelers while 4.3% are auto rickshaws whereas share of passenger buses is only 0.5% . O of these passenger buses, 35 buses are introduced recently which cater 38000 passenger trips daily but the auto rickshaws are catering about 3-5 lakhs of trips per day. The big inadequacy of public transport system in city needs to be looked after. Despite of this big size and economic importance of Amravati city, due to incomplete network, missing hierarchy in road network system, poor qualities of facilities for pedestrians and bicyclists, inadequate traffic management are some of the issues the city is facing. The auto rickshaws are required to serve the changing trip distributions characterized by shorter distances and scattered trip origins and destinations.



III. NEED OF THE WORK

The paratransit system of Amravati city possesses some serious problems. Some are discussed below:

The speed on the arterial road should be 70- 80 kmph but the study reveals that the observed speed during peak hours is 35-40 kmph and during off peak hours is 50-55 kmph.

2.1 ABSENCE OF PLANNING FOR AUTO RICKSHAWS

Absence of planned routes for the auto rickshaws has lead to the self-decision making of the auto rickshaw drivers regarding the routes. This results in the over utilization and congestion on the routes connecting the important parts of the city like railway station, textile market, educational areas, recreational area, regional bus stops etc. To main focus of this research paper is to keep the urban transport in hustle free and smooth manner which needs maximum usage of public transport system and minimum usage of private modes. This can partially be achieved by increasing the number and frequency of public buses and arranging the auto rickshaws as the feeder system for the public bus system. This will be effective if the role of auto rickshaws is very reliable in case of i) door to bus stop and bus stop to door delivery on demand ii) fares fixation on basis of distances and not on special or shared trips.

2.2 INADEQUATE PARKING LOTS

The city does not have sufficient parking space dedicated for auto rickshaws which leads to the parking of auto rickshaws on the road sides which causes congestion. Also the auto rickshaws parked along different streets makes a separate union of auto rickshaws and these unions generally do not allow parking to other auto rickshaws. These informal parking when clubbed with encroachments lead to overcrowding of stretches, hindrance in traffic flow and also disturbance in aesthetics of road.

2.3 HETEROGENEITY IN TRAFFIC

The heterogeneity of traffic on main roads of city due to high growth rate of auto rickshaws and personalized modes cause various traffic hazards like confusion, accidents, collisions and slow travel speed.

IV. FIGURES

Mode wise average weekly trips (%) per household are as follows [1]:

% TRIPS

Auto Rickshaw – 45.3

Bus _ 8.2

Bicycle _ 6.99

Car _ 16.19

2W _ 23.32

PERCENT SHARE

Auto Rickshaw – 4.22

Car _ 13.57

2W _ 76.9

Other _ 5.31

It is seen that in case of 2 wheelers, not only the vehicular population is highest but also the mode share is highest. In case of auto rickshaws, the mode share is second highest even though its vehicular population contributes only about 4%. This gives a very clear idea regarding the influence of auto rickshaws over public transport buses.

V. DATA COLLECTION

Hierarchy of the work process regarding the organization of auto rickshaws with respect to the public bus system is as follows:

i) The very basic work starts from observing and identifying the arterial routes of city on which both auto rickshaws and public buses are running. Once this part is over, the schedule of public buses needs to be checked so that its feasibility with respect to the peak and off peak hours can be checked.

ii) The house hold survey needs to be conducted which results in origin destination matrix, route length distribution and various other socioeconomic factors like willingness to pay, the weight age of various factors like comfort, convenience etc.

iii) The average occupancy survey for auto rickshaws and public buses needs to be done to get the average passenger occupancy of auto rickshaws and buses.

VI. DATA ANALYSIS SUGGESTIONS

i) The proper scientific study such as trip assignment should be done using suitable research tool like CUBE 6.0 so that the zoning of auto rickshaws can be done to optimize the present trips.

ii) The auto rickshaws should be confined to operate zone wise by considering different aspects like the average income of auto rickshaw operators in a zone, the total numbers of auto rickshaws operating in that zone, the trip origin-destination details of that zone which will help to know the passenger definitions regarding short and long distances.

iii) The operation routes of auto rickshaws should be planned so that they act as feeder system to the public passenger buses and also the frequencies of auto rickshaws should be very reliable especially in peak hours.

iv) The frequency of public buses is also very important because it is the trunk system which caters long distances.

v) Both the auto rickshaws and the public buses should be readily available so that the whole urban transport system becomes reliable.

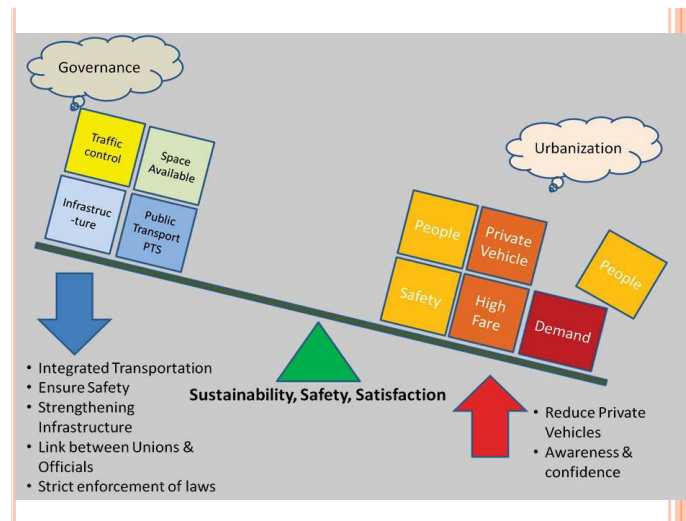
VII. RECOMMENDATIONS

It is evident from the study that the paratransit modes have been used as public transit mode in the small and medium sized cities. However, it is observed that

Paratransit modes are creating congestion in the urban street may be because of its slow speed, overcrowding of passengers, unsystematic parking policy, etc. Therefore, the following recommendations may be made to improve the services of the paratransit.

- Pre- defined stoppages to pick up and alight passengers.
- The maximum number of passengers carried should be less than or equal to the capacity of the vehicle.
- Auto-rickshaw may not be permitted further to reduce the noise pollution.

- A counter for collecting tickets for reserved taxis to be used by the passengers should be made.
- Separate lanes may be provided for the slow moving paratransits like cycle rickshaw as it causes more traffic jams.
- The old auto- rickshaw may be removed from the city for pollution control.



VII. CONCLUSIONS

In the absence of effective public bus system in Amravati city, the auto rickshaws are serving very well but not efficiently. It needs to be optimized and should be well coordinated with respect to the public buses in terms of fares, routes and frequencies. It is concluded from the study that the small and medium sized cities in Indian conditions, the paratransit plays an important role in urban passenger transportation. In Amravati, paratransits are used as a public transportation as it provides the basic transportation needs of the urbanites. It is the gap filler between the private transits and other conventional transits. They are the only public transportation mode operating in the city. The study has also shown that the paratransit operators are literate and they generate large scale of employment to the people. For better services, it is required to provide more facilities to the operators in terms of parking lot, garages, etc. So, the planners, engineers and policy makers should illustrate the activities in the context of some of the transportation modes in current use. Several steps can take up by analyzing the present scenarios. The actions should be made to ensure the efficient use of paratransit services. Improvement of transit service and internal management efficiency is highly necessary for future movements in the city as well as in the urban areas.

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