

Systematic Organization of Paratransit System in Context of Public Transport System: A Case Study Of Surat City

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ABSTRACT

Paratransit system is the backbone of Surat city's non personalized public transport because the contribution of public bus system in Surat 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 Surat city.

Keywords - paratransits, optimization, formalization, route length distribution

I. INTRODUCTION

Surat is the second largest city (area wise) in Gujrat state and ninth largest city (area wise) in India. As per census of India 2011, the population of Surat city is 45.85 lakhs and the municipal area of the city is 326.51 sq.km. Surat city has a large population of migrants. It has 56% of migrants out of which 50% immigrants are from other states and 80% of immigrants are living in squatter settlements. Surat is a well known city for its manufacturing of textile and diamonds. The share of cutting and polishing is 42% in world's total rough diamond and is 70% in India's total rough diamond. Surat city has 40% of total nation's diamond export and 40% of nation's total man made fabric production and 18% of nation's total manmade fibre export.

The total vehicular population spectrum of Surat 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 passengers buses, 100 buses are introduced recently which cater 45000 passenger trips daily but the auto rickshaws are catering about 7-9 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 Surat 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.

II. NEED OF THE WORK

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

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 parkings 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.

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.

III. FIGURES

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

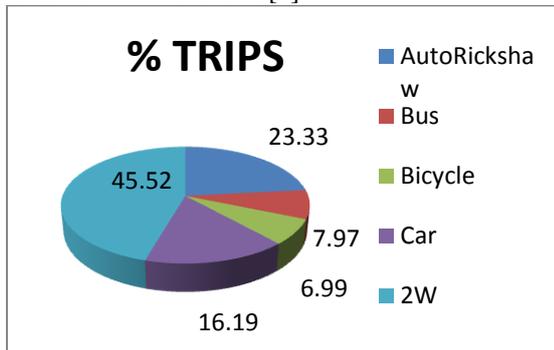
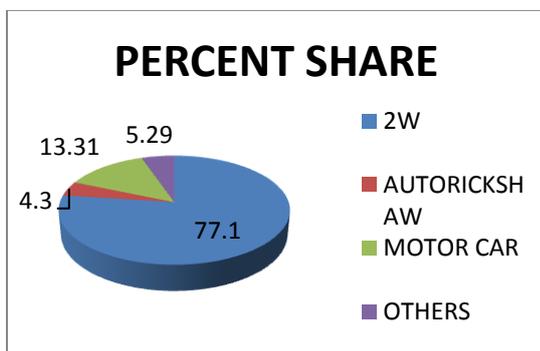


Figure no.2



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.

IV. 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 weightage 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.

V. 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.

VI. CONCLUSIONS

In the absence of effective public bus system in Surat 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.

REFERENCES

- [1] Government of India (1980) Report of the National Transport Policy Committee, Planning Commission, New Delhi.
- [2] Baboo, B., et al (1986) The Urban Informal Transit system: A Comprehensive Sociological Study, Urban India, VI (1 and 2),p. 71.
- [3] RITES (1998) Traffic and Transportation Policies and Strategies in Urban Areas in India -Final Report, Ministry of Urban Affairs and Employment, Government of India, p. 10.3.
- [4] Roy, S.K. (1997) A Simplified Method for Selection of Transit
- [5] Mode for a Metropolitan City, Indian Journal of Transport Management, 21(3), pp. 203-207.