Case Study of Comparison of BRTS (Janmarg) and AMTS Ahmedabad

Priti Kumari1, Pooja Podar2

1PG Student 2Assistant Professor

1,2Department of Civil Engineering

L.D.R.P Institute of Technology and Research, Gandhinagar, Ahmedabad

Abstract— With the Rapid development of the country especially in the urban areas the economic condition of the people is improving very fast. Economy is no doubt rising but this rise is at some cost. With growth the need for transportation is increasing and the people like to have freedom in their mobility as a result more and more people are buying their own vehicles. The result is increase in traffic congestion and increasing air pollution. As per WHO an estimated 3 million people die each year because of urban air pollution. Vehicles are major sources of urban air pollution and greenhouse gas emission. One of the ways to keep a lid on the number of growing vehicles is to improve the public transportation facilities so that more and more people are attracted to use it resulting in lesser vehicles on road. Ahmedabad has the highest growth of vehicles in India and its air quality is deteriorating very fast. BRTS project taken by AMC is one of the sincere efforts to improve public transportation in Ahmedabad. The Aim of the project is to provide separate lane for the buses which would increase speed, cause less delay and as a result more people would be attracted towards it, resulting in reduce vehicular emission as number of two/three wheelers will reduce which are the main source of urban air pollution. 1) There are lots of alternatives for Mass Transportation system like; Bus Rapid transit System (BRTS), Metro Train, Ferry Boat, Auto rickshaws, Double decker bus etc. In this study, we focus on AMTS and BRTS of Ahmedabad, many problems and solutions outlined. Which one BRTS or AMTS alternative solution in Ahmedabad city would impact transit system and on comparative parameter.

Key words: AMC, AMTS, BRTS (Janmarg)

I. INTRODUCTION

In the last 10 years, Ahmedabad’s economy has grown significantly due to substantial progress in the transportation and communication industries. With this growth, vehicles registered in Ahmedabad have increased 13% per year. In order to reduce Traffic congestion, Air and Noise Pollution, Fuel Consumption, land new alternatives of BRTS (Janmarg) in Ahmedabad city is introduced.

As per provisional reports of Census India, population of Ahmedabad in 2011 is 55, 70,585. Which is going to be 11 million by the year 2035, this would lead to agglomeration of surrounding settlements like Naroda, Narol, Bopal, Vaishnavdevi and other smaller villages, which ultimately increases the area of the city, which may become 1,000 km² in the year 2035. For the first 50 years since independence, Ahmedabad had very limited public transport options. During BJ P Government, Ahmedabad Municipal Corporation and Gujarat State Government initiated a plan for integrated public transit system, in which Bus Rapid Transit System (BRTS) is one of the components, to facilitate the major mobility need of the people. In future, this system will get integrated with Metro link Express for Gandhinagar and Ahmedabad (MEGA) by the addition of two lines running through east to west and north to south in the city.

II. LITERATURE SURVEY

Traffic problems in urban areas increase due to rapid growth of population and with the increase in numbers of vehicles which result into excessive delays, travel times and reduction in speeds on urban road network. In order to reduce these problems there is a need for sustainable public transport system. The of promotion of Bus Rapid Transit (BRT) is a veritable option directed at improving the Service delivery in the public passenger transport particularly as it affects the most predominant form of transport mode in Ahmedabad – road transport. The essence is to relieve congestion, enhance mobility, time savings to passengers, and reduction in accidents and improve the environment especially with regard to pollution in shyamlal to shivranjani area. There are incremental benefits and costs to a number of economic agents: government, private transporters, passengers, general public and unskilled labour. The impact analysis shyamlal to shivranjani of BRT Corridor done in this study tries to measure all these benefits and costs from project covering a total distance of 4.1kms in Western Ahmedabad. The prime objective of this study is to establish the impacts of the BRT project and comparing BRT to do nothing scenario.

In this study, the benefits and costs of converting a lane to a BRT lane will depend heavily on how such a project affects traffic speed, delay, and vehicle miles travelled, both in the mixed flow lanes and the BRT lane. Transportation is the backbone to the development of urban areas. It enables functioning of urban areas efficiently by providing access and mobility. With rapid growth, the mobility needs increases. People’s personal choices and freedom get expressed in increased ownership and use of personalized vehicles. The public agencies operating public transport systems often fail to restructure service types to meet with the changing demand pattern. As a result public transport becomes financially less viable, speeds reduce, and congestion levels increase. The transportation has also become a source of environmental problem. According to a study (World Bank, 1996), 70% of the world’s urban population breathes unsafe air. It is also estimated that more than one billion people live in cities with unhealthy levels of suspended particulate matter. As per a WHO study (2000), an estimated 3 million people die each year because of air pollution; this figure represents about 5% of the total 55 million deaths that occur annually in the world. Vehicles are major sources of urban air pollution and greenhouse gas emissions.

In large cities of India, like, Ahmedabad, largest among all cities of Gujarat state, accommodating about 5 million people has a registered vehicular strength of 1.4 Million. The rate of growth of vehicles has been about 9 to 10% per annum. Public transport situation has deteriorated
rapidly over the past decade. The end result is visible in terms of increasing congestion on the city streets and the worsening of air quality among all infrastructures sectors; transportation sector plays an important role in economic development of the country.

At present, the numbers of vehicles in Ahmedabad are more than some of the major metropolitan cities. The registered numbers of vehicles in Ahmedabad have significantly increased over the years. Total number of vehicles in Ahmedabad doubled from 12 lakhs in 2001 to 28 lakhs in 2012. It is the well-known fact that an efficient public transport system is the best alternative to cater the increasing traffic. Thus it is the need of the hour to improve the efficiency of bus transport system by providing BRT system.

The study of the work is the implemented BRT stretch from shyamal to shivranjani of BRT collect all the required data of CVC for three intersections.

- To measure spot speed and average travel time on identified road.
- To determine travel time, queue lengths and delays for current traffic.
- To do road inventory survey on identified corridor.

![Fig. 1: Average queue lengths at intersection of selected corridor](image1)

Running Speed and Journey speed after implementation of BRT for different modes increased up to 4kms per hour.

- The queue length is increased up to certain level when comparing with queue lengths before implementation of BRT.
- The queue length is increased because of traffic signals on the selected corridor are not working properly.

Bus Rapid Transit System (BRTS): A Sustainable Way of City Transport (Case Study of Narol BRTS)

Irrespective of the cities of any country around the world, at some point of time they have faced problems associated with passenger mobility and connecting the city periphery with central part, in urban areas and found few innovative solutions to overcome the problems. Urban Planners, Engineers and Urban Administrator have found Bus Rapid Transit (BRT) System as efficient, cost effective and simple as compare to other Light Rail Transit (LRT) and Metro Rail solution to provide ‘life line’ to city. Many cities around the world operating BRTS and getting positive results including so many Indian cities. By this technical paper, I am investigating the salient features and properties of BRT system with the help of various operational BRT. At last, I am presenting an observational study of Bhopal BRT system to analyses the actual condition and lacunas of BRTS.

III. DATA COLLECTION AND ANALYSIS

Ahmedabad has two types of transit service – regular bus service (AMTS) and rapid bus system (BRT). In order to explore the changes in land use, land values and impacts on passengers across both the services, AMTS is considered as the base case i.e. NO BRT situation. Since BRT is operational from 2009, a pre and post analysis for changes in land use and land values for both the services has been done for 2006 and 2014 respectively.

The pair of stops selected for study are such that they are almost on parallel roads and are located in different parts of the city with varied locational attributes and characteristics so that a diverse range of land use and land values impacts can be observed. A buffer distance of 500 mt. was accessed for the aforesaid changes.

The first pair is situated on the western side which represents the newer commercial area whereas the second pair is situated on the eastern side of the city which represents the old, industrial and peripheral side of the city. Land use, development intensity, land values and passenger impacts were assessed with the help of primary survey and analyzed in a comparative framework. Interviews of passengers was done on an unbiased basis such that they represent all age and income groups, both the genders and both working and non-working population.
IV. CONCLUSION

BRTS stands for Bus Rapid Transit System; Here I want to emphasis on the word ‘System’ that represents an integrated approach to develop not only dedicated lanes for buses but to provide safe and comfortable corridors for pedestrians, cyclists, motor vehicles etc. The important elements of BRT system are bus stops, Foot Over Bridges, Pedestrian Subways, platform, curbs, railings, Public Information System, Pedestrian Crossing Signals, Signage and road markings should be passenger / user friendly of all age groups (Old age, Children), gender and people with varied physical conditions (Pregnant Woman, Wheel Chair Bound Person, Vision Impaired) etc. In, other words BRT system provides us an opportunity to develop our cities in a holistically manner, so that anyone can use it with pride.

ACKNOWLEDGMENT

This paper is the starting of my journey in sharing my knowledge and experience. I have not travelled in vacuum in this journey. This paper has been kept on track and been seen through to completion with the support and encouragement of numerous people including my well-wishers, friends, co-authors and various institutions. Hence, at the end of my paper I would like to thank all those people who made this paper possible and an unforgettable experience for me.

I must offer my profoundest gratitude to my paper co-authors Prof. H. M. Pooja Podar and Prof. Ashok C Patel. From guiding me towards this topic from the vague background that I had in my mind to the entire process of carrying out the research he offered me tremendous help and guidance. What I learnt from them is not just how to write a paper but how to view Urban Transport from a new perspective. I convey my heartfelt thanks to all the faculty members who were a part of all the internal discussions and interim reviews to enlighten me with their valuable advice and comments. The library and computer services have been totally indispensable and hence need a special mention here as well.

My deepest gratitude to my friends who helped me during the course of these days especially during the paper for data collection, survey, technical advice or help in any software related issues. This work could not have been completed without your support as well.

Lastly, I wish to thank my parents and family who have been extremely supportive and patient all this while and have encouraged me to pursue and do my best whenever I felt like giving up.

REFERENCES