

# Traffic Impact Analysis of BRTS - A Case Study of Ahmedabad BRTS

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**Abstract** - This paper expresses the common problems created by BRTS corridor on parallel lane traffic, and also expresses public opinion survey done on the problem stretch to find out the problems faced by the people, Transportation occupies a high place in modern life. Advancement in all spheres of life has been to a large extent influenced by transportation. Proper planning of transport mode become a more useful and advantageous for users. This paper gives a suggestion to solve the problem which affects the other traffic along the stretch, Traffic congestion occurs due to various modes of vehicle. Lack of Mass Transportation System, road user uses the personal vehicle or other alternatives for transportation. This study deals with the improvement of Mass Transportation planning between origin and destination. There are many road user uses a personal vehicle, which produced adversely affect total transportation cost and environment. Traffic congestion also increases day by day on the stretch. Proper planning regarding to Mass Transportation System must be necessary. Public transport problems include: an overall lack of capacity, lack of quality and choice, severe traffic congestions, Sustainable Mass Transportation System planning must be needed for real meaning of transportation

**Index Terms** - mass transportation, planning, transit system

## I. INTRODUCTION

Transportation is the backbone to the development of urban areas. It enables functioning of urban areas efficiently by providing access and mobility. Passenger transport has an overriding influence on the functioning of the city. With 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 (Juneja, S. 2002). 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. Every year millions of people die or suffer serious health effects from air pollution. As per a WHO study (2000), an estimated 3 million people die each year because of air pollution ([www.who.com](http://www.who.com)), 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. There are economic consequences as well. As per a recent study of the World Bank, the costs to society due to air pollution in large cities of India, a part of which is direct productivity loss, was found to be nearly as high as one-tenth of the income generated in these cities from all economic activities. The trends appear similar in most third world cities. The city of 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 (Mohan, D., and Tiwari, D, 1999), transportation sector plays an important role in economic development of the country.

The different types of vehicles present in the traffic can be broadly grouped into eight different categories as follows:

(1) motorized two-wheelers, which include motor cycles, scooters, and mopeds; (2) motorized three-wheelers \_MThW\_, which include autorickshaws—three-wheeled motorized transit vehicles to carry a maximum of three passengers and tempos—three-wheeled motorized vehicles to carry small quantities of goods; (3) cars, including jeeps and small vans; (4) light commercial vehicles comprising large passenger vans and small four-wheeled goods vehicles; (5) buses; (6) trucks; (7) bicycles; and (8) tricycles, which includes cycle rickshaws \_three-wheeled pedal-type transit vehicles to carry a maximum of two passengers and three-wheeled pedal-type vehicles to carry small amount of goods over short distance. In addition, a small percentage of animal-drawn vehicles are also prevalent on Indian roads (Yagar, S., and Aerde, M. V. 1995)..

## II. NEED FOR THE STUDY

### **Problem statement**

Under the heterogeneous traffic-flow conditions prevailing on Indian roads, the buses, being relatively larger vehicles, find it difficult to maneuver through the mixed traffic and is subjected to frequent acceleration and deceleration leading to lower speed and discomfort to both driver and passengers. This also results in enormous delay and uncertainty to bus passengers and, consequently,

the level of service of buses gets reduced considerably making buses a less attractive mode of transport. Hence, there is an urgent need to study the problem comprehensively and find ways and means to enhance the level of service of bus transit. The road traffic in Indian cities has grown at a very steep rate in the recent past, making the available transport infrastructure inadequate. As augmentation of urban transport infrastructure is expensive, there is a need for finding alternative solutions to the problem. One way is to devise methods for optimal utilization of available infrastructure \_road space\_ in such a way that the carrying capacity of the roadway, in terms of number of persons transported, is enhanced. This may be achieved by providing exclusive road space for buses, which will facilitate faster movement of more people in less number of vehicles resulting in reduced congestion and air pollution.

In our case Because of low frequency of BRTS the unoccupied road way of BRTS largely affect the other traffic, The level of service of other vehicle speed gets reduced considerably, At some places or at some stretch the frequency of BRTS is very low and other vehicle running parallel to BRT are more so due to BRT lane the speed of other vehicle are interrupted.

### III. OBJECTIVE OF THE STUDY

As the heterogeneous traffic on Indian roads consists of vehicles of wide-ranging dimensions and speeds, the traffic-flow characteristics are highly complex and the flow characteristics of individual vehicle types are highly sensitive to changes in traffic volume.

#### *Objective of study*

1. To study the flow characteristics of heterogeneous traffic on selected stretches ,
2. To identify the impact of BRT on traffic along implemented corridor,
3. To identify the impact of BRT on traffic also on the adjacent areas,
4. To identify that the BRT is justify or not,
5. To identify that other vehicle speed is affected or not due to BRT corridor.

### IV. SCOPE OF THE STUDY

- Review of the literature for different B.R.T.S. in different country
- Studying different aspect of impact analysis of transportation project
- To study the different impact parameter for the study work
- To fix the methodology for study
- To fix the study area for work
- To collect require data for the work
- To analyses all data as per requirement foe study work for finding the final impact of B.R.T.S.

### V. STUDY AREA

For project work study area is AEC Bridge to SOLA Bridge. The stretch is 4 km long and 7 brts station are there. It connect jaymangal or sola cross road to parasnagar , pasvanath mandir , bhuyang dev , satadhar char Rasta, sola bridge.

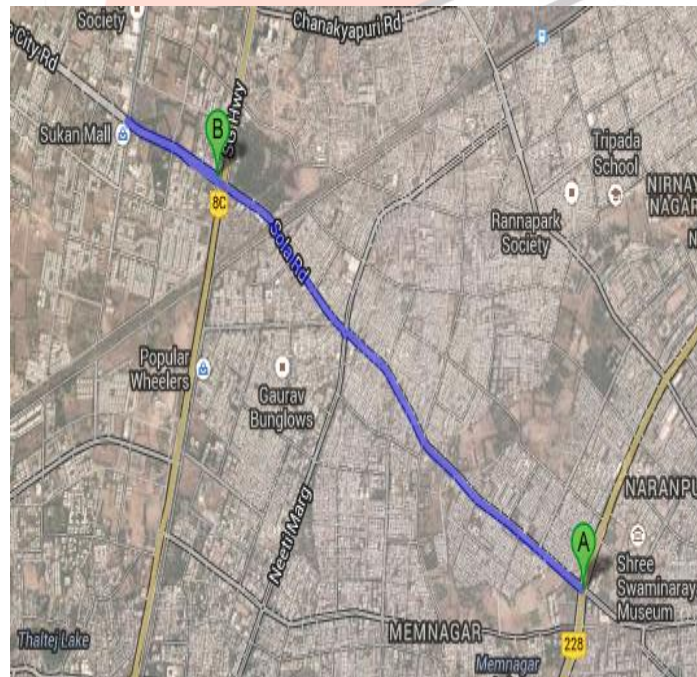


Figure 1 Satellite image of study area(aec bridge to sola bridge).source(www.google mape.com)

Study area is selected in the Ahmedabad city, which was the Manchester of India. The area lies in that route only where the BRTS system is not working as effectively as it is working on other BRTS corridors. The study area is the AEC Bridge to Sola Bridge. At above stations there is problem for private vehicle users and other traffic which is running parallel to BRTS

## VI. ACCORDING TO PUBLIC OPINION SURVEY

1. There is large speed reduction in other traffic which is running parallel to BRTS lane (58%)
2. AMTS should allowed in BRTS lane because it affect the speed of other traffic in negative manner (20%).
3. The other traffic parallel to BRTS facing delay due to BRT lane.
4. Off street parking should be provided at suitable location (22%)

## VII. RECOMMENDATIONS

1. AMTS should allowed in BRT lane because AMTS in other traffic lane make large interruption on other traffic speed
2. The frequency of BRTS is less so in spare time in which car or buses should allowed in BRTS lane
3. Off street parking should be provided to avoid congestion

## VIII. CONCLUSION

Based on above stated objectives and scope it may be concluded that other traffic is largely affected due to BRTS so one solution might be taken as to allow AMTS in separate bus lane (BRTS). AMTS buses and cars should be allowed in corridor because there is a less frequency of BRTS.

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