

# Review of Comparative study on ridership for urban mass transit systems: a case study of Ahmedabad BRTS

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**Abstract**— Ahmedabad is the traffic congested city and the traffic problems are increasing day by day. Ahmed Shah, ruler of Gujarat established this city in 1411; hence it was named as Ahmedabad. Ahmedabad is having traffic congested city and the problems are increasing day by day. The reason is increased private vehicles. There are basically two transit systems in the city, Ahmedabad Municipal Transport Service (AMTS) and other is Bus Rapid Transit System (BRTS). The Main aspect of this research is to find out the reasons why commuters are not using BRTS at problem stretch which is between stations Kalupur to Town Hall, and this route is more used by the other modes like Auto-Rickshaws and AMTS, instead BRTS- being smart and efficient system. This paper expresses why the route of BRTS which is having less demand from the commuters point of view and gives its possible solution which needs to be adopted for creating passenger demand than other modes of transport.

**Index Terms**— Public Demand, Transit systems, Utility.

## I. INTRODUCTION

Ahmedabad is the seventh largest metropolitan city in India. . It is the largest population city in the Gujarat and is having traffic congestion problems. Large amount of vehicles are 2-wheelers Auto Rickshaws and cars in the city which are increasing day by day. The transit service Ahmedabad Municipal Transport Service which was introduced in 1947, whereas Bus Rapid Transit System (BRTS) were introduced in 2009 are running in the city right now but in the corridor of Kalupur to Town Hall. The only problem on this route is passengers are less demanding the journey of BRTS and other modes of transport are well running there, hence public needs to be switched over to BRTS as the system is efficient and already Installed .There are 8 numbers of BRTS stations and 5 numbers of AMTS stations between Town Hall and Kalupur. Out of both the systems AMTS is working effectively and that is why demand estimation in BRTS needs to be done by

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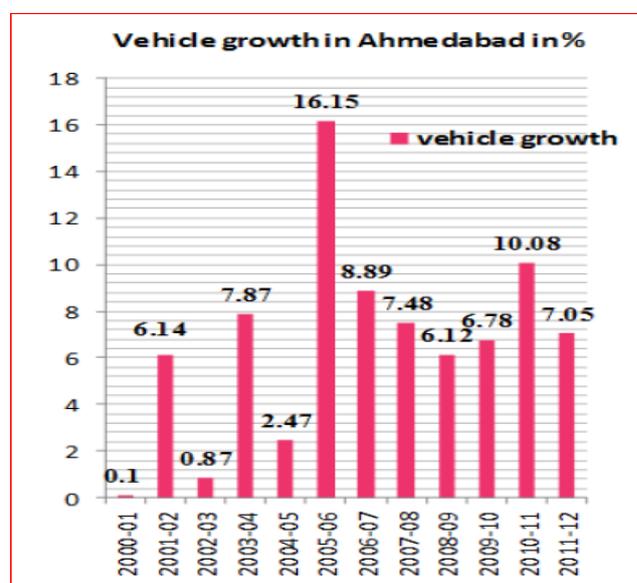
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comparing the travel time, travel cost accessibility and other parameters of both the system.

## II. NEED FOR THE STUDY

Due to rapid growth of private vehicles used by city people, it has led the condition of congestion, due to which the other modes of transport like public transport cannot move faster, which is causing consumption of the more time of public. Due to this problem public have to wait for much time in the bus. Now Ahmadabad has introduced with a new concept of BRTS for overcoming this problem as it has exclusive corridor which provides better riding amenity without any transit delay being caused by other traffic on lanes. But due to some small deficiencies this system is not running effectively on some stretches that are need to be studied for bringing the demand.



(Source: Darshit M.Shah Deepa Akshay Patel-Impact of BRT on urban Traffic a Case Study of Ahmedabad, Global Research Analysis Volume 2, April 2013)

As Shown in above graph Vehicle growth also has increased upto a higher level in the city of Ahmedabad which has led to more traffic congestion and created problem for the movement of our mass transit system. Due to this increased growth of traffic it consumes the time of mass transit system leading to consuming the time of commuters sitting in the bus.

### III. PROBLEM STATEMENT

Day by day number of private vehicles is enormously increasing resulting in uncontrollable mammoth traffic. The fare structure is "stage based" where 1 stage =2 to 4 kilometers. Due to high fare structure for short distances there has been seen a gradual shift of commuters using BRTS back to AMTS and private vehicles or other mode. This resulted in chaotic traffic situation in many of the signalized/unsignalized intersections in Ahmadabad. Specially from Kalupur station to Town Hall is the most crowded stretch in Ahmadabad where the commuters find it difficult to access BRT buses due to traffic congestion, this whole stretch inspite of having throughout BRT facility always faces a "jam" situation due to private vehicles, autorikshaws and AMTS buses. Commuters of BRTS are facing travel time delay due to the absence of priority at junctions providing one more reason to them for switching to AMTS and other modes. With this situation importance of mass transit seems to gain a name of "BAD BRT".

### IV. OBJECTIVES

- (1) To suggest the restructuring fare chart for short distances and increasing frequency of buses on longer routes.
- (2) Conduct a people preference survey encountering the reasons for not using BRT at the study stretch.
- (3) To set up criteria's for public to switch over to BRTS from other modes on the problem stretch.
- (4) Suggesting transit priority to cut the transit travel time to make the mass transit much more attracting which will automatically avoid the congestion and jam situation.

### V. STUDY AREA

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 Kalupur to Town Hall BRTS corridor. This is the route where the other modes of transportation are running effectively than BRTS. And this needs to be recovered by optimizing the system and providing public demand for BRTS.

There are 8 stations in between Kalupur to town Hall.

1. Lokmanya Tilak bag
2. Raikhad Char Rasta
3. AMC office
4. Astodia Chakla
5. Astodia Darwaja
6. Raipur Darwaja
7. Karnmukteshwar Mahadev
8. Sarangpur Darwaja

Average ridership from Lokmanya Tilak bag=62

Average ridership=1,25000

Bus capacity=80-90

Average route length (BRT)=45 km

BRTS in Ahmadabad is already equipped with advanced ITS technologies like traveller information, smart card facility, GPS equipped buses, route scheduling, passenger information system. At present scenario if we need to enhance the number of commuters, this migration can only be possible by introducing signal priority measure with the aid of detectors which gives intermittent priority to transit buses running behind schedule. At all the BRTS stations mentioned in the stretch from Kalupur to Town Hall major reason of commuters for not using BRTS is lack of provision of pedestrian crossings and measures to cross the busy streets to get onto the BRT stations.

**As per the public opinion survey:-**

**Commuters found difficult for approaching the stations because of inappropriate pedestrian crossing provision-46%**

**Commuters finding the waiting time too much-20%**

**Commuters facing the travel time delay -8%**

**Commuters find the fare for short distance too costly-26%**

### VI. RECOMMENDATIONS

1. Making provisions for pedestrian crossing like an overhead bridge or skywalk so that commuters get easy access to mass transit stations as mentioned above according to the people preference survey around 46% commuters find it difficult to approach the stations.
2. Reducing fare for short distances like stage based fare structure costs Rs 4 for 2 kms in BRT while this is quite less in AMTS, and increasing frequency for the long stretches as 26% commuters have the fare limitations and 20% riders avoid BRT because of the waiting time at this stretch.
3. Introducing intermittent priority measures for BRT at busy intersections which will ultimately reduce the transit delay and aid in attracting more and more commuters to it

### VII. CONCLUSION

If the above stated objectives are carried out then BRTS passenger demand can be obtained as passenger willingness to transfer into BRTS would be possible to know by People preference survey and the reasons why they do not use BRTS also will also get to know which will make Objective more clear to satisfy the requirement.

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