Analysis of Problems in BRTS, Ahmedabad

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Abstract: Like many other metro cities, Ahmedabad is struggling with traffic congestion and chaos, high rate of accident, deteriorating transport, operational management and environmental condition. Our project is to determine efficiency of BRTS, which is the most efficient solution as rapid transit system of city in which we examine about operational, technical, economical, schedule feasibility to cope with the problems and recommend some other alternatives to solve the issues.

***Index Terms*–Public Transportation, Performance Evaluation, BRTS, GPS, vehicle mode.**

I. INTRODUCTION

Transportation is movement of people, animals and goods from one place to another. Mobility is the base for any kind of progress. For any country to develop, transportation act as a basic infrastructure. It has been seen throughout the history that road transport has played major role for development. With constantly improving civilization, the thirst for better transport has been increasing day by day. Transportation plays vital role for at national, regional and urban level. It contributes for economic, social and political growth of all developed and developing countries. But road transport has contributed more for national development over the other transport. Road transport occupies a primary place in today's world that all other transport rely on road transport that it is a base of transport system.

1.1 Concept of BRTS as rapid mass transit system

- Bus rapid transit (BRT) is a term applied to a variety of public transport systems using buses to provide faster, more efficient service than an ordinary bus line.
- It ensures fast, reliable, secure and high capacity service.

1.2 Types of BRTS

BRTS can be classified into three types:

a) **Kerb Guided Bus Way (KGB):**
Buses steered for part or their entire route by external means, usually on a dedicated track. The track is often parallel existing roads. Guidance system can be either physical, such as kerbs, or remote. Such as optical or radio guidance. The track way allows for high-speed operation on a narrow guide way as well as precise positioning at boarding platforms.

b) **Dedicated Lane But open system:**
High capacity or normal city buses play in a dedicated lane or in a market corridor which segregates but movement from general traffic; it is preferable where ROW is less.

c) **Dedicated lane but closed system:**
Bus ways or BRT are system that eels on rails developed in a number of Latin American cities including cities in Brazil, Colombia and Ecuador.

1.3 Why BRTS in Ahmedabad?

- Ahmedabad being India's seventh largest city and the largest city in Gujarat with a population of over 5 million people required a **transport system** that is **effective, efficient** and can complement the pace of development .
- Almost all leading international financial centres from London, Paris, New York have mass transit infrastructure in place and this is exactly what Shri Modi is seeking to achieve for Ahmedabad for which Janmarg is only the grand beginning.
- Area- 466 sq kms. Population-5.6 Mill, By 2031 >10 Mill
- Compact City, Well Balanced Network, Mixed Land use, Ahmedabad has 5 ring roads and 17 well developed radials. Mixed Land uses
- 2 million vehicles, 2 wheelers-73 percent, 0.8 Million Bicycles,
- 60000Three-wheelerAuto(CNG),Addition of 430 vehicles every day

1.4 Criticism

BRTS failed to increase the number of public transport users in Ahmedabad. Before launch of BRTS, in 2009, the number of public transport users (users of AMTS) was 8 to 8.5 lakh. After six years of operation, in January 2016, it is found that the number of public transport users

1.5 Basic needs of study:

The main basic needs of the study are Performance evaluation of Bus rapid transit system (BRTS) for Ahmadabad city (Chandkheda to Nehru Nagar).

1.6 Objectives

1. To encourage people to opt for public transportation for the welfare of government.
2. To develop analytical hierarchical structure for performance evaluation of BRT system.
3. The objectives of this study is to evaluate the existing BRT network by means of bus stop accessibility, travel time, line route network coverage, number of passenger transfers, passenger transfer waiting time, number of service trips and line route evaluation of network in the planning area of Ahmedabad.
4. Travel demand.
5. Ease of implementation.

II. LITERATURE REVIEW

Megha panicker (et. al.) in their research identified the issues related to mass transportation system. The objective of the paper is to consider the increasing need for urban mass transit mobility being addressed by various cities in India and discuss the need, advantages and disadvantages, hindrances in establishing a Rapid Transit System and its scope in a developing country like India.

Bhupendra Patel (et. al.) carried research to determine the efficiency of mass rapid transportation system. Bus Rapid Transit Plan for Ahmadabad is a multifaceted project which integrates landuse and transport, various forms of public transport services as well as other motorized and non-motorized modes through various physical, operational and policy interventions to achieve the objective of making Ahmadabad an accessible and competitive city. Given this multi-dimensional nature of the project, anticipated impacts are numerous, some measurable and some qualitative in nature. Significant benefits to road users are anticipated due to improvements of the system.

As per the recent trends, the number of private vehicles on the streets of Pune city is increasing rapidly. Thus, the traffic in the city is prone to frequent congestion during peak hours; leading to jams causing huge delays in travel times. Also, the increasing pollution levels are a cause of concern. A shift from private transport to public transport will help to deal this situation effectively. As a solution, the Pune Municipal Corporation came up with a plan to implement the BRTS on some of its corridors. But this system did not prove efficient in dealing with the situation. The objective of this study is to evaluate the performance of a BRT corridor in the city which may help to measure the efficiency of the proposed BRT corridor.

III. STUDY AREA

Ahmedabad is situated on western side of India.
Location: 22° 58' N 72° 58 E
Altitude: 48.77 Metres above sea level
Area: 220sq.kms.
The population of Ahmedabad was 55, 70,585 as per 2011 census
Millions of vehicles growing at the rate of 0.1 million every year.
Almost 1 million passengers use buses out of which 1.4 % passengers use BRTS.

Ahmedabad is the commercial capital of the State and is also known as the textile capital of India. It lies in the cotton belt of Gujarat, 23 km south of Capital Gandhinagar, 552 km north of Mumbai and 96 km from the Gulf of Cambay. It has excellent connectivity through air, road and rail links with Mumbai and Delhi.

Historically Ahmedabad has been one of the most important centres of trade and commerce in western India. The city has a great architectural tradition reflected in many exquisite monuments, temples and modern buildings. The city is facing problems of traffic, parking, and pedestrian safety on certain stretches of road in the city.

The total population of Ahmedabad is7, 214,225 as per Gujarat census, 2011. The population within the Ahmedabad Municipal Corporation (AMC) area is growing at 2.5% per year and that at Ahmedabad Urban Development Authority (AUDA) area is growing at 3.62% per year. The increase in population within a given area/region results in denser settlements which in turn lead to generation of higher number of trips using various modes.

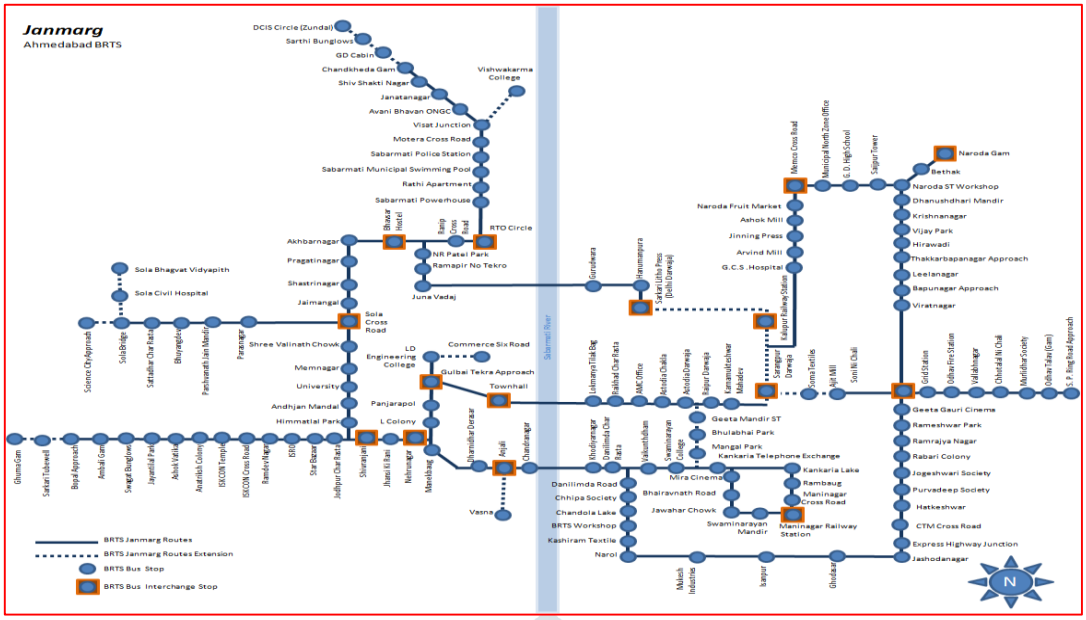

Figure 1:- Study Stretch (Source: BRTS, Ahmedabad)

We have selected routes of phase 1and phase 2 as our study area

These are the routes of phase 1 & phase 2

Table:-1 Routes in study area

Line no	Route
1	RTO circle-Maninagar
2	Anjali (Vasna) – Naroda
3	RTO Circle – Naroda
4	RTO Circle - Sarkari Litho Press (Delhi Darwaja)
5	Ghuma - Iskcon – Maninagar
6	Soni ni chali –odhav-sp ring road
7	Sarkari Litho Press (Delhi Darwaja) - Science City Approach
8	Chandkheda - Visat Junction – Maninagar
9	RTO Circle - Town Hall (Ellisbridge) - Memco – Naroda
10	Anjali (Vasna) - Kalupur Railway Station (Ahmedabad Central)
11	RTO Circle - Nehrunagar - Kalupur - RTO Circle
12	Anjali (Vasna) - Kalupur - Akhbarnagar - Anjali (Vasna)

IV. DATA COLLECTION

Data collection is an important part of project. In data collection we have collected data by different sources. We have done personal interview survey of passengers and collected schedule from BRTS stations. We found some problems during data collection and also worked on the problems.

Methods of data collection:-

- **Personal Interview**
  We have collected information by filling this survey form containing trip purpose of passenger, frequent use of BRTS, ticket cost, satisfied with BRTS service and their review regarding BRTS.

- **BRTS Schedule Collection From Potential Station**
  We have collected schedules from potential stations sitting into the BRTS station and noted down the timings of buses And their routes as shown in picture.

V. PROBLEMS OBSERVED DURING THE STUDY:-

- At some station doors are operated manually by hands to open the door when bus is reached at the station and at some station in now days the doors are open every time.
- At some stations and in buses display boards are not working properly & it creates problem for the new traveller.
- At many stations only one of card is in working condition and sometimes both of card are not working. At that time passengers have to go the next or previous station and logout his card and then by the next bus he/she has to come to their destination.
- The BRTS corridors are proving dangerous mainly because of over-speeding by the bus drivers and also because people move into the corridors without bothering about the buses.
- Only 18% of total population of city is using public transport

Figure 2:- Traffic congestion at intersection due to BRTS

Figure 2:- Accident by BRTS

VI. CONCLUSION

- Due to separate corridor the traffic congestion is increased.
- Footpath becomes parking place along the BRTS stations.
- At intersections traffic congestion is increased because closed corridor provide for BRTS.
- Travel speed of BRTS is decreased and travel time is increased due to traffic.
- The frequency of buses is less than required demand to satisfy peak hour rush.
- BRTS is failed to increase number of public transport users of Ahmedabad.
- People travel in BRTS regularly but they may face many problems.

REFERENCES

[1] Anuj Jaiswal a , K. K. Dhote b , R. Yadu Krishnan c , Devansh Jain;Bus Rapid Transit System: A Milestone For Sustainable Transport: A Case Study Of Janmarg BRTS, Ahmedabad, India.
[2] Darshit shah,Deepa patel; Impact Of BRTS On Urban Traffic A Case Study Of Ahmedabad.
[3] Gupta K, Singh A, Dwivedi V, Tandon M; BRTS: An Effective Mode of Public Transport.
[4] Prof. Prem Pangotra; URBAN AIR QUALITY AND SUSTAINABLE TRANSPORT: Issues, Instruments and Strategies