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TITLE: Bus Rapid Transit System (BRTS) in India

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Abstract

Traffic problems in urban areas are increased due to rapid growth of population and with the increase in numbers of vehicles. This results into excessive delays, travel times and reduction in speeds on urban road network. To reduce these problems there's a need for sustainable public transport system. The term rapid transit system means a form of high speed urban passenger transportation. The mode of transportation is bus hence it is called as bus rapid transit system (BRTS). Transportation facilities and the system will be different form different countries. If a country gets richer the development will be seen in the different aspects like education, industry, science and technology etc., except transport which will get worse. There are many ways to get rid of the traffic issues and the transport problems. What attracted the countries to install BRT is the bus way concept as that it can cover whole city and is cheaper than the rail. BRTS is the most economical eco-friendly solution of the public transportation for growing cities of India.

Index Terms: BRTS

1. INTRODUCTION

A country's growth is very much dependent on the adequate transportation systems available to the citizens. Bus Rapid Transit Systems is one of successful mode of transport to solve the congestion, delays, accidents and other issues. The cost involved in the construction of BRTS is quite cheaper than metro rails and light rail transits because existing roads can be converted to BRTS routes. As most of our towns and cities face huge problems of public transport, BRTS stands out very well in achieving the needs of the society.

The introduction of a BRT system is based on the physical characteristics of a corridor, the current and estimated future passenger demand, and the financial capacity of the community at specific points in time. BRT may be selected as the desired transit mode to serve a corridor or it may be utilized as part of a corridor development strategy with higher order transit modes considered for the future.

The most basic characteristic of BRT is that it is a bus service operated on the basis of limited stops. Modern BRT systems typically incorporate the use of information and communications technology, such as bus tracking through GPS (Global Positioning System), smart cards, traffic signal priority and electronic bus arrival time displays on board buses and at bus stands. The main reasons for providing a BRT

system are speed and capacity, although reliability is also usually increased.

A true bus rapid transit system will have most of the following elements:

1. A bus way alignment in the center of the road (to avoid typical curb-side delays)
2. Station platforms level with the bus floor (to reduce boarding and alighting delay caused by steps)
3. Stations with off-board fare collection (to reduce boarding and alighting delay related to paying the driver)
4. High capacity vehicles (to increase the passenger carrying capacity)
5. Bus priority at intersections (to avoid intersection signal delay)

Why BRT in Indian Cities?

Rapid growth of India's metropolitan cities has generated a correspondingly rapid growth in travel demand, overwhelming

the limited transport infrastructure. The sharply increasing levels of the motor vehicle ownership and use, have resulted in alarming levels of congestion, air pollution, noise, and traffic danger. The level of service provided by the public transport system is low in terms of reliability, comfort, safety and security. The infrastructure is not designed for buses. Generally, pedestrian infrastructure is not maintained. To retain the modal shares and switch from captive users to choice users of public transport in Indian cities, requires the provision of efficient and utility-based public transport systems along with safe and secure support systems for non-motorized vehicles. Bus systems are a viable option and if planned properly can provide high capacity at a fraction of the cost of a rail-based system. Moreover, bus systems are flexible and hence can easily meet the changing development pattern and travel demand of a city. At present, buses are the dominant mode of public transport system in Indian cities and there is a need to improve existing services. This has led to the planning of Bus Rapid Transit Systems (BRTs) in several Indian cities in the past ten years.

has been approved and the work has started on the stretch between Solapur and Satara road.

Table-1: Detail of BRTS Projects in India

Cities	Length (in km)	Segregation	Bus Stop Location
Delhi	14.6	Partial	Middle
Bhopal	21.71	Partial	Middle/Side
Ahmedabad	88.50	Yes	Middle
Surat	29.90	Yes	Middle
Indore	11.45	Yes	Middle
Vijayawada	15.5	Yes	Middle
Jaipur	26.10	Yes	Middle
Vizag	42.80	Yes	Middle
Pune	124.77	Yes	Middle

2. Bus Rapid Transit - In Indian Cities

The increasing need for the urban mass transit mobility is now being addressed by the various cities in India, following the best practices in the world. The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) which aims to encourage reform and fast track planned development in 63 cities does consider projects in the field of urban, public transport. Safe, versatile and economic the Bus Rapid Transit System (BRTS) is also known as the High Capacity Bus System (HCBS) and is increasingly being adopted by cities in India.

DELHI

The Delhi BRTS expects to introduce sleek, modern buses with Intelligent Telecommunication Systems (ITS) and some additional facilities for non-motorized modes along a new corridor.

- First contract for detailing 5 corridors in Delhi was awarded to TRIPP and RITES in 2003 and tenders were called in 2005.
- A Special Purpose Vehicle, The Delhi Integrated Multi-Modal Transport System (DIMTS), was formed in 2006 to manage the BRTS and other mass transit systems in Delhi.

AHMEDABAD

Ahmedabad with the population of 45 million (2001) has the total vehicle population of 1.5 million. About 6,000 buses ply on these roads and close to 60% share is of the public transport in the region.

PUNE

BRTS planning has started in 2003-04 and potential corridors were identified for the phase wise implementation of the BRTS. About 130 km has been identified for the total block cost estimate of about Rs. 10,164 million and the entire process is planned in concert with an integrated cycle master plan. A pilot project of 13.2 km at a cost of Rs. 618 million

3. How BRTS System Works

Some features of the Bus Rapid Transit System are:

- Dedicated bus lanes which operate and separate from all other traffic modes. This allows buses to operate at a very high level of reliability, since only professional drivers are allowed on the bus way.
- Location of the bus ways in the median of the roadway rather than in the kerb lane.
- Existence of an integrated "network" of routes and the corridors.
- Separate stations that are convenient, comfortable, secure, and weather protected.
- Special stations and terminals to facilitate physical integration between trunk routes, feeder services, and other public transport systems.
- Pre-boarding fare collection and fare verification.
- System management through a centralized control centre, utilising ITS applications such as automatic vehicle location.
- Special physical provisions to ease access for people with disabilities, such as children, the elderly, and the disabled.
- Clear route maps, signage, and / or real-time information displays that are visibly placed within stations and / or vehicle.
- Low-cost infrastructure elements that can increase speed and the reliability of bus service which include bus turnouts, bus boarding islands, and curb realignments.

3.1. Challenges to the Rapid Transit System

There are unfortunately risks to the timely implementation & Operation of the Bus Rapid Transit System:

- Taxi Associations have blamed the government for going ahead and implementing the BRT without thoroughly explaining to them how it will work.
- One of the challenges faced in the construction of local BRT systems is time factor.
- Lack of support by the public transport industry where some of the public transport operators don't want to support the project or don't want to change to the new operations.
- Taxi owners says that they cannot compete with BRT because the system will have dedicated lanes.
- Budgetary constraints may cause delays and the implementation over a longer period.

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4. CONCLUSION

As the government of India is planning for building 100 smart cities across the country, BRT will be a major contribution towards a sustainable and cost-effective mode of transport system. With the increasing population, with expansion of the city limits geographically there is a tremendous pressure on the existing modes of transport systems in the cities. When designing a BRT system, the features should be selected according to project budget, local users, and traffic and corridor characteristics and combined to produce maximum ridership attraction and operating speed.

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