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BRTS

Courtesy By

Dr. Guruprasad Mahapatra, I.A.S., Municipal Commissioner, Ahmedabad And Chairman, AJL

Editorial Team

Dr. Neeta Shah
Ms. Smita Gosai
Mr. Dixit Nagar

BRTS

Introduction: Janmarg also known as Ahmadabad BRTS, is a Bus Rapid Transit in Ahmadabad. It is operated by Ahmadabad Janmarg Limited, a subsidiary of Ahmadabad. It is designed by CEPT University.

Bus Rapid Transit System (BRTS) takes part of its name from "Rapid Transit", which describes a high-capacity transport system with its own right-of-way, implemented using buses through infrastructural and scheduling improvements, to provide a high level of service. Complicated as it sounds, this is nothing but high-capacity articulated buses operating in lanes reserved for their exclusive use. The Bus Rapid Transit system is expected to revolutionize public transport with new buses, special lanes and new routes, all at a low cost. Bus Rapid Transit System, or 'High Capacity Bus System' as it is commonly referred to, is a flexible mass-transit mode that has the advantage of being the most economical amongst the mass-transit options. BRTS flexibility is both in terms of routes and areas of coverage as well as in terms of its amenability to features-up-gradation over time. BRTS, as a system, includes a number of broad elements such as running way, stations (or stops), vehicles, service and operating plans, fare collection, ITS (intelligent transportation system) etc., under which the different features of BRT are subsumed.

Background: Ahmadabad has limited public transport options. Ahmadabad Municipal Corporation and Gujarat State Government initiated a plan for integrated public transit system, in which Bus Rapid Transit System) is one of the components, to facilitate the major mobility need of the people.

Technical procedures were started in 2006. A part of the first corridor connecting Pirana to RTO Junction was opened to public on October 14, 2009 by Chief Minister of Gujarat, Narendra Modi. Second half of the first phase of the BRTS was inaugurated on December 25, 2009. It was stretched up to Kankaria Lake later to cater eastern part of the city.

Ahmadabad Municipal Corporation has incorporated "Special Purpose Vehicle" called Ahmadabad Janmarg Ltd in order to run and to operate BRTS buses. Ahmadabad Janmarg Ltd is registered under Companies Act, 1956 and is 100% subsidiary of Ahmadabad Municipal Corporation. In order to provide faster, reliable, eco friendly and advanced Public Transportation, Ahmadabad Janmarg Ltd is committed to operate and run BRTS services for the citizen of Ahmadabad.

What is BRTS?

BRTS consists of several components designed to function together so as to generate superior services, which are comparable with other mass rapid transit system including metro rail system. Some or all of these elements are integrated to from BRTS, which will ensure fast, reliable, secure, high capacity service, which also has a distinct identity.

Objective: The integrated transit management system the entire operations of the internationally acclaimed Bus Rapid Transit System. The trans-vision of Ahmadabad captioned as **'Accessible Ahmadabad'** is to redesign the city structure and transport systems towards greater accessibility, efficient mobility and lower carbon future. The objective of the BRTS is:

- To present Ahmadabad's land use transport context.

- To summarize various initiatives taken up in the past, review progress of implementation.
- To identify and present improvements/additions for implementation during the next 4 years.
- Reducing need for travel;
- Reducing the length of travel; and
- Reducing automobile dependence.

Needs of BRTS: There are many reasons for developing Bus Rapid Transit system:

- Central business districts (CBDs) have continued to prosper and grow in ways that require more transport capacity and improved access. Given the cost and environmental impacts associated with parking and road construction and the traditional urban form of most CBDs, improved and expanded public transport emerges as an important alternative for providing that capacity. In addition, many suburban cities exceed the aggregate employment base of many urban city CBDs but do not currently have the focus and density to make rail-based rapid transit a cost effective investment.
- BRTS systems can often be implemented quickly and incrementally.
- For a given distance of dedicated running way, BRTS is generally less costly to build than rail transit. Moreover, where BRTS vehicles can reliably operate at high speeds on high-occupancy vehicle (HOV) lanes or general-purpose highways and streets over significant proportions of a given route, running way capital costs will be even lower compared to those for rail modes, which must be purpose-built over the entire distance covered.
- BRTS can be the most cost-effective means of serving a broad variety of urban and suburban environments. BRTS vehicles, whether they are driver-steered or electronically guided, can operate on streets, in freeway medians on railroads right-of-way, on aerial structures, and underground. BRTS systems can also provide a broad array of express, limited-stop and local all-stop services on a single facility without complex signal and guide-way switching systems.
- BRTS can provide quality performance with sufficient transport capacity. The efficiency of the system and high capacity of the passengers depends

on the system as a whole and not necessarily on the size of buses, though when necessary articulated buses could be used with ease. BRTS is designed and developed to tackle all the drawbacks of the existing bus system in an economical and efficient manner. It is a low-cost option for providing cities with a quality transit option.

Challenges before the initiative:

- Addressing inadequacies in transit infrastructure – Structuring urban road network, connectivity, network completion
- High quality and efficient public transport system – Mode shifts in favor of PT, Sustainable solution
- Land use and Transport integration – Land use plans, transport facilities, high densities along PT
- Enforcement – Policy making, traffic behavior, curbing private vehicle use
- Adapting to Social realities – Existing Religious structures
- Introduction and enhancement of Urban Transportation
- Comprehensive Mobility Plan
- Completing network – Building river bridges, flyovers, Rail over Bridges
- Conversion of 65,000 three wheelers (autos) to CNG
- Planning and Implementation of Bus Rapid Transit System
- Integrated Transit System Plan – Introduction of Suburban rail System and MRT system

Technology:

- **BRTS vehicle technology:** Selection of BRT vehicle must be carefully planned as it influences every aspect of transit performance. BRT Vehicle characteristics affect overall levels of service in terms of speed, reliability, capacity and cost. Further, vehicle selection should be matched with the characteristics of the other elements of the system, including running ways, bus station design, service plans, intelligent transport system (ITS) application and fare collection.

  BRTS systems use specialized vehicles to give a distinct appearance and to create a unique identity. The vehicles are sometimes articulated,

environmental friendly and have features, which increase passenger comfort and convenience. Features adopted also enhance operational efficiency.

On several dimensions the choice of technology is limited by the governing legislation (Indian Motor Vehicle Act and Gujarat Motor Vehicle Rules). However, there are certain critical decision elements influencing the transit operations where choices exist. These include:

- The type of bus (Minibus, Standard Bus, Articulated Bus) determining the capacity of the system
- Factors such as number of doors, size of doors, location of doors; floor height (Low Floor, Semi-low Floor and High floor) affecting operating efficiency
- Positioning of the Engine (Front or rear) affecting driver comfort, door space, noise and vibration.
- Choice of Fuel
- Type and level of access to physically challenged, and
- Aesthetics, Identity and Branding

The choice of vehicle is also going to be determined by the present developments in the automobile sector. In the country, it is known that truck chassis are being modified for use as buses. However, some recent developments in terms of developing semi-low floor buses with aesthetic design are interesting. BRTS development efforts in the country will fasten the process of innovation in this sector. Needless to mention that BRTS buses used in other parts of the world are 8-10 times more expensive than Indian buses and therefore choice of imported buses is ruled out.

- **GPS based BRT system**: "Bus Rapid Transit (BRT) is a high-quality bus based transit system that delivers fast, comfortable, and cost effective urban mobility through the provision of segregated right of way infrastructure, rapid and frequent operations and excellence in marketing and customer service". BRT essentially emulates the performance and amenity characteristics of a modern rail based transit system but at a fraction of the

cost. A BRT system will typically cost 4 to 20 times less than a tram or light rail transit (LRT) system and 10 to 100 times less than a metro system.

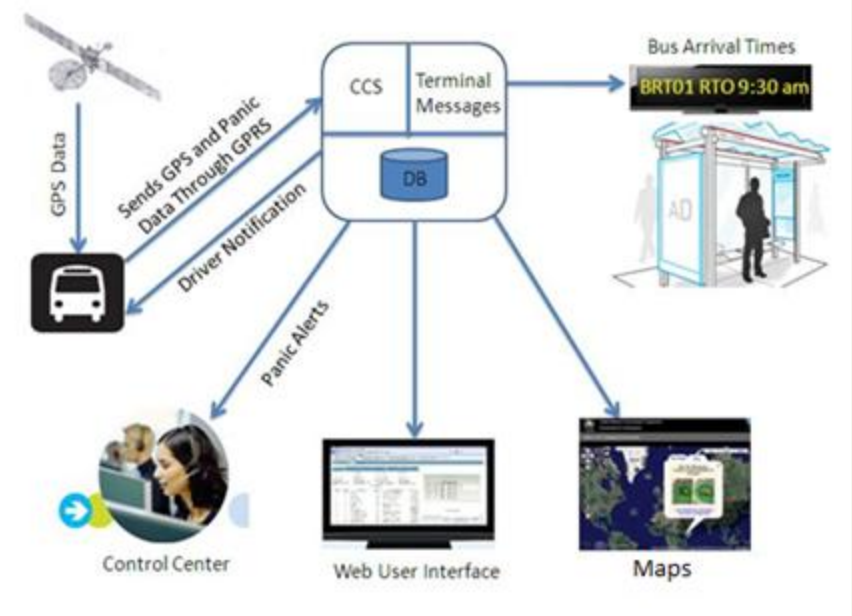

Figure 1: Working of BRT System

Features: BRT systems normally include most of the following features:

- **Dedicated lanes:** Bus-only lanes make for faster travel and ensure that buses are not delayed by mixed traffic congestion. Separate rights of way may be elevated, depressed, or in a tunnel, possibly using former rail routes. Transit malls or 'bus streets' may also be created in city centers.
- **Bus way alignment**: Center of roadway or bus-only corridor keeps buses away from the busy curb-side, where cars and trucks are parking, standing and turning.
- **Off-board fare collection**: Fare payment at the station, instead of on board the bus, eliminates the delay caused by passengers paying on board.
- **Intersection treatment**: Prohibiting turns for traffic across the bus lane significantly reduces delays to the buses. Bus priority will often be provided at signalized intersections to reduce delays by extending the green phase or reducing the red phase in the required direction compared to the normal sequence. Prohibiting turns may be the most important measure for moving buses through intersections.

- **Platform-level boarding**: Station platforms are level with the bus floor for quick and easy boarding, making it fully accessible for wheelchairs, disabled passengers and baby strollers, with minimal delays. High-level platforms for high-floored buses makes it difficult to have stops outside dedicated platforms, and to have normal buses stop at high-level platforms, so BRT stops have to be fully separated from other bus stops. In contrast to rail vehicles there is also a high risk of a dangerous gap between bus and platform. An increasing popular variant is low-floor buses without steps at the door, which can allow easy boarding and have stops compatible with other buses.

Benefits:

- **Improvement in travel speed:** Peak hour speed- 25 Kmph as opposed to 16-17 kmph of Ahmadabad Municipal Transport service. Mixed Traffic Speeds are also matching with BRTS
- **Reduced congestion:** Congestion has long been recognized as an environmental problem. Other than causing delay, it causes noise and fumes and increases health risks to road users and residents. Cost estimates for HCBS are significantly less than the cost of grade separators, provided to reduce congestion.
- **Dependable Service/Reliability:** Over 90% of Departures are on time (+/- 90 sec time).
- **Increased capacity:** An exclusive bus lane carries significantly more people than an adjoining general traffic lane during the peak travel periods. The number of bus riders in an exclusive bus lane exceeds the number of automobile occupants using adjacent lanes. Thus exclusive travel ways result in to increased capacity. If a separate segregated lane is constructed for BRTS and bicycles, the curbside lane, which is currently used by bicyclists, becomes available to motorized traffic and buses. This relatively small investment in bicycle lanes can increase the road space for motorized traffic by 50% on three lane roads. Bicycle lanes also result in better space utilization. Not only does extra space on the main carriageway become available to other modes, the dedicated bicycle track also provides a higher capacity for bicyclists. Provision of exclusive bicycle track also provides an opportunity to develop left lane as an exclusive bus lane.

- **Safety**: Major reduction in accidents on the corridor has been observed.
- **Mode Shift**: Modal shift in favor of BRTS (shift of Passengers from motor cycles, cars and 3-wheelers, Which is about 50% of the total BRTS users)
- **User Satisfaction**: BRTS got average rating of 8.3-9.3 out of 10 in the monthly survey from its users
- **Ridership Increase**: Ridership has increased consistently through thirty first month Ridership has gone up to 1, 25,000 pay/day from 18,000 in first month
- **Information Availability**: Real Time passenger information is made available at the stations with in form of electronic signs that show next bus arrival. Janmarg introduced toll free no. for the commuters' convenience, feedback and complaints

Sustainability:

- Major modal shifts
- Improvement in air quality
- Improvement in road safety
- Financial sustainability
    - ❖ Automatic fare adjustments (Fuel pricing, WPI)
    - ❖ Proposed fare revision annually
    - ❖ Additional sources of revenues (Advertisement rights, parking charges and Premium FSI from Urban Transportation Fund)

Future scope: In future, this system will get integrated with MEGA by the addition of two lines running through east to west and north to south in the city. Upcoming Gujarat International Finance Tec-City (GIFT) would be easily accessible through this multimodal mix of Rapid Transport Systems.

eGovernace News

Training under Capacity Building Scheme

1. Training on E-Governance STeP training programme held at Hotel Narayani, Gandhinagar, in Dec-13.

   Total 31 participants were attended the Training of E-Governance STeP training programme.

2. Training on E-Governance STeP training programme held at Hotel Narayani, Gandhinagar, in Feb-14.

   Total 33 participants were attended the Training of E-Governance STeP training programme.

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Contact Address:

Gujarat Informatics Ltd.

Block No. 1, 8th Floor,

Udyog Bhavan,

Gandhinagar – 382010

Phone: 079–23256022

Fax: 079-23238925