Bus Rapid Transit

Definitions

Bus Rapid Transit 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.

Context and Policies

Bus Rapid Transit (BRT) is increasingly being adopted by cities looking for cost-effective mass transit solutions. BRT systems enhance bus performance through a combination of measures, including segregated bus lanes (busways), techniques to hasten boarding and alighting, bus priority at intersections, and effective coordination at stations and terminals. BRT systems can achieve speeds and capacities that equal or exceed rail rapid transit at lower costs (about 35,000 passengers in each direction) and can provide limited stop and express services.

Although there are many BRT systems operating worldwide with more under construction, the most extensive systems are in Latin America - in Curitiba (Brazil) and Bogota (Colombia).

Issues

Political backing is a key ingredient for success in all BRT systems as dedicating road space to exclusive use by public transport is often politically difficult, especially given the relative political strength of private motorists.

Although many technical and operational elements of BRT systems can be adapted successfully from one city to another, not all BRT strategies are transferable. The availability of institutional, technical and management skills may be the key to whether they will work locally with the same effectiveness.

The operational success of BRT systems depends on the ability of the system to handle passenger boarding and alighting efficiently, with little delay.

Signal priority systems, an essential element of any BRT system, can cause severe disruptions to traffic flow on major cross streets.

Vehicle design affects every aspect of system performance and cost, and their appearance, both external and internal, is a key contributor to the overall success of any BRT system.

Actions

BRT systems tend to be "custom made" and adapted to the needs of individual towns and cities - there is no "optimal" design. Nevertheless, solutions that work well in one city are often capable of being adapted to another city.

A key advantage of BRT is that the infrastructure and service can be implemented in phases over time, with full BRT service as the long-range goal.

A "full" BRT system has the following minimum characteristics:

- Segregated busways (and/or dedicated bus streets) located in the median of the roadway rather than in

Photo credits: Curitiba BRT © Revista ESCALA, Número 186. 2001

Resources

Documents

- **Accra BRT (Ghana Urban Transport Project Project Information Document)**, 2007, Ajay Kumar, World Bank (USA)
- **An intelligent transport system for controlling traffic lights on bus-rapid transit (BRT) routes in Johannesburg**, 2008, M Bernath, J Counihan and R Van Olst, University of the Witwatersrand (South Africa)
- **Bus Rapid Transit Developments in China: Perspectives from Research, Meetings, and Site Visits in April 2006**, Georges Darido, National Bus Rapid Transit Institute, Federal Transit Administration (USA)
- **Bus Rapid Transit Impacts on Land Uses and Land Values in Seoul, Korea**, 2009, Robert Cervero and Chang Deok Kang, UC Berkeley Center for Future Urban Transport, CA (USA)
- **Bus Rapid Transit in Latin America**, 2008, Jason Junge and Michael Groh, University of Minnesota (USA)
- **Bus Rapid Transit: A Cost-Effective Mass Transit Technology**, 2009, Walter Hook, ITDP (USA)
- **Bus Rapid Transit: A Handbook for Partners**, 2006, George Gray, Norman Kelley and Tom Larwin, San José State University, CA (USA)
- **Bus Rapid Transit: Planning Guide**, 2007, Lloyd Wright and Walter Hook, ITDP (USA)
- **Bus rapid transport and urban development**, 2005, L G Willumsen and E Lillo, Steer Davies Gleave, London (UK)
- **Characteristics of Bus Rapid Transit for Decision-Making**, 2004, Roderick B. Diaz (editor) Federal Transit Administration (USA)
- **Comparitive assessment of BRTS in Asian Cities**, 2008, Clean Air Initiative for Asian Cities (Philippines)
- **Considerations with regard to a BRT for Tshwane**, 2007, P.A. Pienaar, J. van den Berg and G. Motuba, Transport Development Division, City of Tshwane Metropolitan Municipality (South Africa)
- **Impact on the Existing Corridor due to**

the kerb lane;

- An integrated "network" of routes and corridors;
- Enhanced stations that are convenient, comfortable, secure, weather-protected and provide level access between the platform and vehicle floor;
- Special stations and terminals to facilitate physical integration between trunk routes, feeder services, and other mass transit systems (if applicable);
- Pre-board fare collection and fare verification;
- Fare- and physical-integration between routes, corridors, and feeder services;
- Entry to system restricted to prescribed operators under a reformed business and administrative structure ("closed system");
- Comfortable vehicles with easy access and egress (level boarding), sufficient seating and standing capacity to meet demand (often articulated or bi-articulated buses) and low-emission vehicle technologies (Euro III or higher);
- System management through centralised control centre, utilising ITS applications such as automatic vehicle location;
- Special physical provisions to ease access for physically-disadvantaged groups, such as children, the elderly, and the physically disabled;
- Clear route maps, signage, and/or real-time information displays that are visibly placed within stations and/or vehicles and a distinctive marketing identity for the system.

Media

- **Bus Rapid Transit: Bogotá**, 2008, Clarence Eckerson, StreetFilms.org (USA)
- **Curitiba's BRT**, 2009, Elizabeth Press, StreetFilms.org (USA)
- **India's first Bus Rapid Transit System**, 2007, YouTube (USA)
- **Making Things Happen with Bus Rapid Transit**, 2004, Peter Midgley and William Vincent, BTI (USA)
- **Mobilien: Paris' Version of Bus Rapid Transit**, 2008, Elizabeth Press, StreetFilms.org (USA)
- **The wheels start turning on the Bus Rapid Transit system**, 2009, CMTV (South Africa)

Recommended Links

- **Ahmedabad Municipal Corporation - BRTS** (India)
- **BRT China (in Chinese)** (China)
- **Bus Rapid Transit 101** (USA)
- **Bus Rapid Transit: Bus System Design Features** (Canada)
- **Bus Rapid Transit (BRT) Overview** (Philippines)
- **Bus Rapid Transit Policy Center** (USA)
- **China Bus Rapid Transit** (China)
- **Lagos BRT (LAMATA)** (Nigeria)
- **National BRT Institute** (USA)
- **Rea Vaya** (South Africa)
- **TransMilenio** (Colombia)

Wikipedia - BRT

- **Implementation of New Public Transport Corridor (Case Study: Jakarta BRT Systems)**, 2005, Alvinsyah and Zulkati, University of Indonesia (Indonesia)
- **Influences of operational issues on the operational cost of BRT buses and BRT systems**, 2008, Joaquín C Nicolai and Dietmar M Weiss, Daimler Research Centre Berlin (Germany)
- **N2 BMT lane - a first for South Africa**, C. R. Tichauer and M. Watters, Provincial Government Western Cape (South Africa)
- **Recent Developments on Bus Rapid Transit in Africa**, 2008, Christof Hertel, ITDP Europe (Germany)
- **The Benefits and Costs of a Bus Rapid Transit System in Mexico City**, 2008, Gretchen Stevens, Instituto Nacional de Ecología (INE) (Mexico)
- **The Issues and Realities of BRT Planning Initiatives in Developing Asian cities**, 2006, Moazzem Hossain, Malaysia University of Science and Technology (Malaysia)

Presentations

- **A Critical Look at Bus Rapid Transit Systems in India: Early Progress and Lessons**, 2008, Madhav Pai, CST (India)
- **Analysis of policy processes to introduce Bus Rapid Transit systems in Asian cities**, 2006, Naoko Matsumoto, Institute for Global Environmental Strategies (Japan)
- **BRT in China: A brief review**, 2009, Xiaomei Duan and Karl Fjellstrom, Guangzhou Municipal Technology Development Corp (China)
- **BRT in India**, 2009, Dario Hidalgo and Madhav Pai, EMBARQ (USA) and CST (India)
- **BRT in Metro Manila - Options & Possibilities**, 2001, Dr. Ricardo G. Sigua, University of the Philippines (Philippines)
- **BRT System in Delhi**, 2008, Delhi Integrated Multi-Modal Transit System Limited (India)
- **BRT: A Historical Perspective**, 2005, Peter Midgley, gTKP (Switzerland)
- **Bus Rapid Transit (BRT) in Gauteng, South Africa**, 2009, Hannes van der Merwe, City of Johannesburg (South Africa)
- **Bus Rapid Transit (BRT) in India**, 2009, Madhav Pai, EMBARQ (USA)
- **Bus Rapid Transit in Indian Cities (Ahmedabad, Bhopal, Delhi, Indore, Jaipur, Mumbai, Mysore, Pune, Rajkot and Visakhapatnam)**
- **Bus Rapid Transit in Jakarta: evaluating the factors that impede or facilitate**, 2006, Dr. Heru Sutomo, Gadjah Mada University (Indonesia)
- **Bus Rapid Transit Project: City of Tshwane**, 2009, Hilton Vorster, City of Tshwane (South Africa)
- **CAI-Asia and Sustainable Urban Mobility in Asia (SUMA): Bus Rapid Transit Systems**, 2007, Sophie Punte and Bert Fabian, Clean Air Initiative for Asian Cities Center (Philippines)
- **Lagos BRT**, 2009, Dayo Moberola, LAMATA (Nigeria)

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