



Intracity bus rapid transit and trolley buses



Guangzhou, China
Photo: Ko Sakamoto

Bus rapid transit and trolley buses explained

Bus rapid transit (BRT) is a mass transit system using designated right-of-way lanes. BRT systems offer similar performance and speed of service as metro systems but use buses rather than rail vehicle technology. BRT is one way to improve the quality of operating conventional buses.

Performance, evaluated

Capacity	High (20,000 to 35,000 people per hour per direction)
Geographical range	Low to high (from up to 5km to beyond 20 km)
Implementing cost	Medium (up to 1 million USD per km)
Payback period	Low to medium (within 5 to 10 years)
Applicable city size	Medium and large (from 500,000 to more than 5 million inhabitants)
Applicable stage of development	Least developed, developing and developed countries
Examples	<ul style="list-style-type: none">• Guangzhou, China, which now boasts one of the world's largest BRT systems, carrying 800,000 people daily• Ahmedabad, India, which was financed partly by a national grant and is one of the largest in India• Bogotá, Columbia• Sao Paulo and Curitiba, Brazil

Strengths of bus rapid transit

- Lower implementing costs than other forms of mass transit. An LRT typically costs four times more and an MRT is ten times more per kilometre.¹
- Provides greater operating flexibility in accommodating future growth of the city more quickly and at less cost than metro or rail systems.
- Popular with all income groups and profitable at relatively low fares.

¹ World Resource Institute, Embarq website "What is Bus Rapid Transit?" Available from www.embarq.org/en/node/28 (accessed on 16 November 2011).

- Provides a higher speed service due to segregation from the main traffic. Developments such as signal prioritizing and interchanges that improve speed and capacity can be added on a staged basis.
- Reduces the level of pollutants and noise levels.
- Supports more sustainable urban form through the densification of major corridors.

Challenges to using bus rapid transit

- Lack of political support.
- Limited technical and institutional capacity to support development.
- Lack of knowledge and understanding of the benefits of BRT schemes among policymakers.
- Strong lobbying pressure from taxi and paratransit operators.²

Limitations

- Requires separate lanes that need to be effectively enforced.
- Some locations physically do not permit a full separate lane for a BRT system.

Implementing strategies

- Highlight that the political rewards for those that commit to a BRT system can be high.³
- Develop an urban transport agency responsible for the formalisation and regulation of the service.
- Review the financial models of cities that have successfully introduced a BRT system.
- Consider engaging the private sector in the development and operation of services with specific performance based indicators such as environmental performance of vehicle used, safety, and punctuality.
- Consider international sources of funding to support the construction and operation.

Further reading

Bus Rapid Transit Planning Guide, by Institute for Transportation and Development Policy (New York, 2010). Available from www.itdp.org/index.php/microsite/brt_planning_guide/

Sourcebook Module 3a: Mass Transit Options, by L. Wright and K. Fjellstrom (Eschborn, GTZ (GIZ), 2004).

² Paratransit is an alternative mode of flexible passenger transportation that does not follow fixed routes or schedules.

³ Lloyd Wright, *Sourcebook Module 3b: Bus Rapid Transit* (Eschborn, GIZ, 2005b).