

# Bus Rapid Transit (BRT)

## Smart Transit For The Smart Growth Community

Public transportation is a key ingredient for smart growth. But in many fast growing areas, communities are being built without meaningful transit access, even though growth and density could support substantial transit ridership.

Adding transit later, particularly rail transit, is extremely expensive and often cost prohibitive. Through better planning more willingness to consider cost-effective options, communities can ensure that transit capacity is available as growth occurs. Communities need to consider BRT.



*French BRT Vehicle Taking on Passengers*

### *What is BRT??*

BRT is a roadway-based rapid transit system that looks and feels like a subway but uses roads. Passengers walk to comfortable stations, enter using a pre-paid fare card, walk to the platform, board through multiple doors, and quickly move to their destination.



*French BRT*

Like a subway, BRT vehicles arrive and depart every few minutes, making service schedules unnecessary. Information systems keep passengers informed of arrivals and departures. Vehicles are low emission hybrid electric or

CNG and in the future will be powered by zero-emission fuel cells, thus reducing air pollution.



*BRT Passenger Information System*

### *Why BRT?*

No single mode of transit will be the best solution for every situation. But BRT offers the best hope to provide meaningful transit service on a broad scale, particularly to expanding communities. The main reasons for this are cost and capacity.

Smart growth policies should find ways to leverage road investments to enhance transit capacity and opportunities for transit oriented development (TOD). Through integrated planning, roads and transit can be tied together, providing high quality transit at a fraction of the cost of rail.

One of the best examples of this thinking is in Curitiba, Brazil. There, planners carefully integrated city growth with a BRT system, resulting in one of the most effective public transportation systems in the world, regardless of mode.



*Using BRT, Curitiba, Brazil has become a world model for sustainable growth.*

BRT's cost advantages are highlighted by the differing solutions pursued in two of the nation's most congested regions: Los Angeles and Washington's Virginia suburbs. In Los Angeles, a BRT demonstration project that began operating in 2000 currently attracts over 55,000 new passengers per day. At least one third of these passengers had never taken public transportation before. Capital costs were \$195 thousand per mile.

By contrast, a proposed MetroRail extension in Virginia would cost an astronomical \$167 million per mile, or 856 times as much as LA's BRT

demonstration! Plus, it would attract only 71,900 new passengers per day and would take more than a decade to build.



*LA's Metro Rapid – popular and cost effective*

These cost advantages are further highlighted by BRT's ability to provide very high capacity. According to a recent Federal Transit Administration study, Bogota's Transmilenio, New York's Lincoln Tunnel XBL, and the Sao Paulo BRT system each have peak capacities of at least 25,000 passengers per hour. The Curitiba system carries up to 15,000 passengers per hour, as does a system in Ottawa, Canada. By contrast, the proposed Virginia extension of MetroRail would have a maximum capacity of just 9,600 passengers per hour.



*TOD in Washington State*

### *BRT Is Smart Growth!*

BRT can be built in phases, providing almost immediate relief and offering cost-effective future expansion options. As in LA, existing roads would provide initial right-of-way (ROW). Dedicated ROW can be added quickly, either as stand-alone projects or in coordination with planned road improvements. Magnetic or optical guidance can keep vehicles on course, minimizing lane width and enabling precision docking at stations.

Dedicated ROW also offers the potential for multiple use. Unlike rail, the ROW could

double as HOV or HOT lanes and would provide emergency vehicles with congestion free corridors.



*Dedicated lane offers congestion-free ROW*

When operating off of dedicated ROW, signal priority systems would allow vehicles to move through traffic lights. Experience has shown that this helps other vehicles move through the lights as well, thus reducing congestion and pollution.

Passengers could use fare cards or other advance boarding techniques. Rail-like stations could enhance the passenger experience and attract significant mixed-use, pedestrian and bike-friendly development.

Perhaps most important, BRT can get people where they want to go, when they want to get there. BRT can connect current and emerging activity centers with existing roads and new ROW. Because it is not stuck on a track, BRT can offer a unique blend of express and local service, enabling better trip planning and more attractive service.

### *Conclusion*

BRT is catching on because it works. It provides 21<sup>st</sup> century mobility at a price we can afford. This is why people choose to ride BRT, why more and more communities are investing in BRT, and why the smart growth community should consider BRT as an important part of their toolkit.

### *Who is BTI?*

This paper was prepared by the Breakthrough Technologies Institute (BTI), a DC-based non-profit that promotes environmentally sound energy and transportation technologies, including fuel cells in stationary and transportation applications and cost-effective transit options. Our BRT program is funded by the W. Alton Jones Foundation.

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