

# Bus Rapid Transit Systems: A Viable Transit Solution

BY WES GUCKERT, PTP

In July 2015, the United States' Maryland Governor terminated plans for Baltimore City's Red Line light rail system. Within days, the Lt. Governor announced that Bus Rapid Transit (BRT) should be considered as an alternative. Why? Simply put, cost. Light rail is notoriously expensive—to the tune of approximately \$150–\$250 million per mile. Comparatively, BRT—a mass transit solution initially developed in Latin America—is typically \$10–\$30 million per mile. In comparison, the Red Line in Baltimore City was projected to cost \$2.9 billion for 14 miles, or \$205 million per mile.



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Tight budgets are not just a Maryland or U.S. problem. Government agencies of all sizes and from many countries—from small counties all the way up to the federal level—are looking for ways to cut costs and balance budgets. The challenge remains that traffic congestion plagues many major, and smaller, cities.

One of the worst areas in the United States for traffic congestion is the Baltimore–Washington, DC region. The average automobile commuter in the region is delayed 74 hours each year, burning through 37 gallons of gasoline and costing each commuter \$1,495 dollars annually. By comparison, in 1982, commuters in the region averaged only a yearly delay of 14 hours. On the West Coast, congestion in Los Angeles, USA eats up a total of 207 hours wasted over the course of a year sitting in traffic—the equivalent of a week’s worth of vacation days. Recognizing that the population across the country is only projected to continue to grow, this situation isn’t going to get better on its own and without increased use of public transportation.

But, how does any city or state serve the transportation needs of a growing populous while providing a solution to help curb traffic congestion? Enter BRT, as part of the solution to an overarching public transportation plan. BRT meets what we, at the Traffic Group, refer to as the 80-20 Rule. This means BRT can often cost

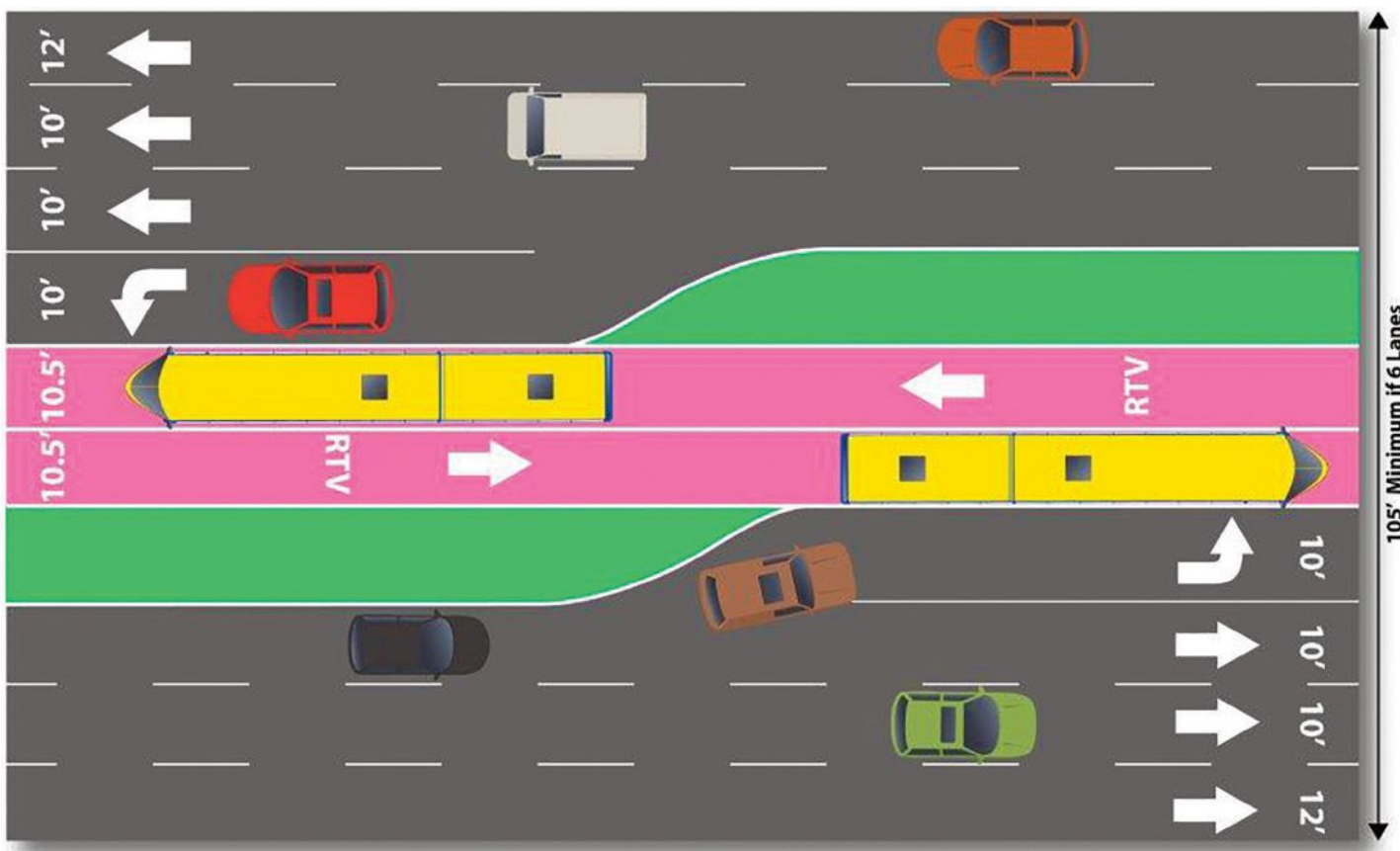
20 percent of a light rail system but can capture 80 to 85 percent of light rail riders. BRT has the potential to save taxpayers millions of dollars while simultaneously reducing traffic congestion and providing great transit.

In a high-traffic suburb outside of Washington, DC—an ideal place for a BRT system—The Traffic Group has been working with the Montgomery County Revenue Authority and the Montgomery County Executive’s Transit Task Force to develop a conceptual plan and cost estimate for a new bus rapid transit system in the County. At 150 miles, the BRT system being considered by the Transit Task Force has the potential to be the largest integrated system of its kind in the United States.

“It [BRT] can produce a 25 percent travel savings for commuters,” says Pete Tomao, of the Coalition for Smart Growth about Montgomery County, Maryland’s system. “Without other traffic, it can move much faster and reduce delays.”

### Amenities Are Key

This doesn’t mean trading quality for cost. A BRT solution has all the amenities of modern rail, such as Wi-Fi, level boarding, and off-vehicle payment systems. BRT is flexible and serves dual purposes: it can ride on dedicated lanes, but has the ability to leave



Cross-section from Montgomery County, MD, USA.



those lanes and take another route if necessary. Rail, by contrast, cannot switch routes once constructed.

BRT systems can be built in the median area of roadways, the same layout as many light rail systems.

A great Class A BRT system can be built in an area that comprises 27 feet in width without a station and another 13 feet with a station. Larger buses in dedicated lanes move faster along the route due to traffic signal priority systems, allowing for more people moving quicker from origin to destination. These dedicated lanes are considered critical to making a BRT system successful.

The most important lesson learned is that the “R,” or rapid, in BRT is critical—**keep it rapid**. Therefore, some important rules:

1. Transit stops in 1–2 mile intervals
2. High density (20–50 DU’s acre minimum) at transit stops
3. Do your best to have the dedicated lanes in the median area of a road
4. Traffic signal priority (TSP)
5. Level boarding, with at least 2 entry doors/vehicle
6. Off-vehicle payment systems

But BRT doesn’t just save costs or provide a viable alternative to light rail. There are strong environmental benefits as well. Not only does it remove cars off the road, but according to the Climate Bond Standard Board, a high quality BRT has been shown to be associated with the improvement of bus travel speeds and reliability and the smoothing of traffic flows, leading to greater mode shifting and reduced greenhouse gas emissions.

### BRT in Action

In the United States, BRT has resulted in upwards of a 400 percent return on investment along transit corridors. There are more than a dozen BRT systems being planned throughout the United States. Some of the most noteworthy systems can be found in Las Vegas, NV and Eugene, OR, to name a few, while the most state-of-the-art can be found in Cleveland, OH.

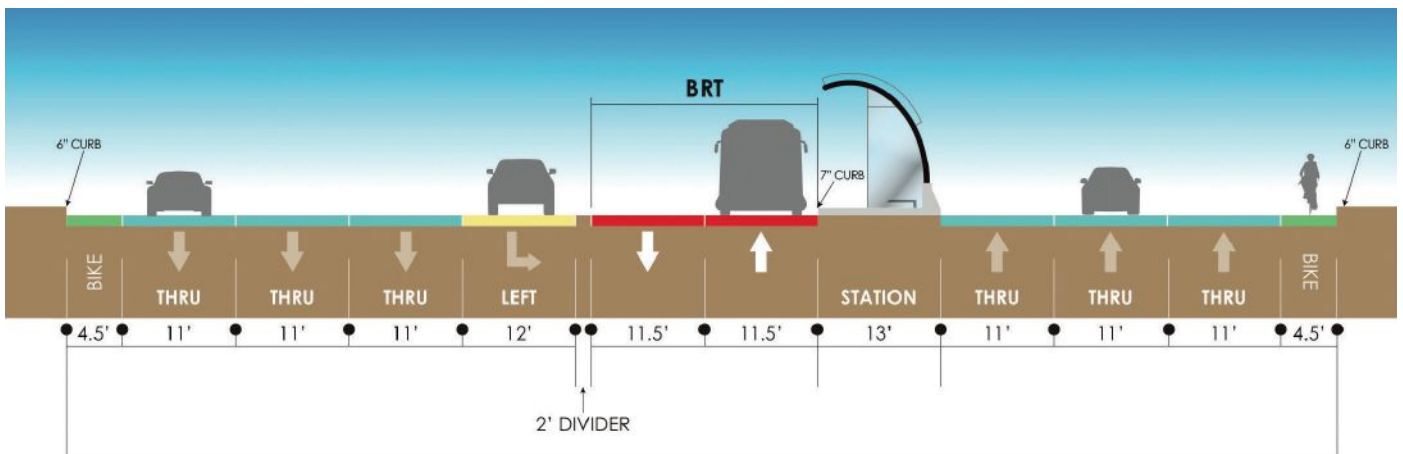


HealthLine Station in Cleveland, OH, USA.

JERRY MASEK, GREATER CLEVELAND RTA

The Cleveland system’s transit stops are iconic along its route—named the HealthLine—with paid naming rights by the Cleveland Clinic. The stations could be mistaken for metro or light rail stops with all the amenities. To top it off, economic growth and density along the HealthLine Corridor has generated billions in development, jobs, and taxes. Specifically, Cleveland’s BRT delivered more than \$4.8 billion in economic development in and around the route: a staggering \$114.54 gained for every dollar spent on creating and launching the HealthLine. Even more surprising is that the original investment in the BRT program was a modest \$50 million. And, ridership is thriving. In the seven years since opening, the HealthLine has carried more than 29 million riders. Annual ridership has increased about 60 percent over the previous bus line, which the HealthLine replaced in 2008.

One of the best BRT systems in North America can be found in the York region of Toronto, Canada. In all of the materials describing and marketing the BRT system, the region focuses on the lifestyle the service provides, not on the BRT itself. By doing so, the city is offsetting the “bus stigma” associated with BRT systems. Offering amenities typically found with new, state-of-the-art rail systems and convenience for riders (the rapid transit vehicles come every five



Crosssection from Toronto, Canada.

minutes during peak times), consumers realize the benefits of a BRT system. In conducting our own on-the-ground research, our firm has visited most of the 21st century systems in North America and believe the VivaNext System in the York region of Toronto can, quite frankly, be considered the best so far. But, perhaps the most famous BRT system worldwide is located in Bogota, Columbia, which carries 30,000 to 42,000 passengers *per hour*—not daily, not weekly, but *per hour*.

### Conclusion

The future of public transportation is encouraging. Millennials use public transportation more than any other generation. According to the *2015 National Community and Transportation Preference Survey*, conducted by the National Association of Realtors and the Transportation Research and Education Center at Portland State University, 40 percent of Millennials, compared to 28 percent of Gen-Xers and 28 percent of Baby Boomers, use public transportation. When polled about government transportation spending priorities, 59 percent of Millennials preferred to expand public transportation funding. The desire of future generations is trending towards greater use of public transportation, walking, and biking versus a heavy dependence on cars.

It is imperative that all jurisdictions consider BRT as an alternative to other transit systems and clearly as an alternative to light rail. Remember that BRT is not a substitute for local bus service—it is an add-on to local bus service.

So many things can be achieved with a great BRT system when properly designed. BRT allows for more transit riders and a more green, sustainable community. Not only can it help riders save precious time and money, but it can also connect more people to jobs and educational opportunities.

The bottom line: BRT systems present us with a transportation option that is economically feasible and proven to reduce traffic congestion, while still providing a solid transit solution. **itej**



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