



ITS for Bus Rapid Transit

Bus Rapid Transit (BRT) is an innovative, high-capacity, lower-cost transit solution that can achieve the performance and benefits of more expensive rail modes. This integrated system incorporates Intelligent Transportation System (ITS) applications and dedicated lanes to efficiently transport passengers and meet a variety of local conditions.¹

- Traffic Signal Priority (TSP)
- Real Time Traveler Information
- Video and Sensor Technology
- Automated Scheduling and Dispatch Systems

The featured benefits, costs, and lessons learned are based on ITS project evaluations contained in the ITS Databases at: www.itsknowledgeresources.its.dot.gov. **Click on each example to learn more.**

KEY FEATURES AND BENEFITS



Real-Time Traveler Information

Trips made with a multimodal real-time transit information application in West Virginia indicated an average reduction in transit stop wait time of 63%.



Real-Time Data for Operations

Automatic Passenger Counting and Automatic Vehicle Location in Pennsylvania improved bus schedule adherence by 20% and reduced passenger wait time by 10%.



Video and Sensor Technology

California buses equipped with cameras to enforce transit-only parking reduced bus delays by 3-20%.

Traffic Signal Priority

- Actuated control TSP using Genetic Algorithm in North Carolina decreased intersection bus delays by 60%.
- Connected Vehicle Smart TSP Project in Utah reduced late arrivals by 40% and increased reliability by 12%.
- Connected vehicle-enabled TSP algorithm in Virginia resulted in reduced delays of up to 75%.
- Simulated results of TSP on major bus corridor in California showed reduced total travel time of up to 9% and control delay of up to 20%.

SYSTEM COSTS



\$

Connected vehicle system installed to support TSP for 24 intersections over an 11-mile urban corridor in Utah cost \$575,900.

\$

Bus Transit Management System (BTMS), which monitors bus movements in real-time to reduce bus bunching and passenger wait times, fitted on 1,800 fleet vehicles in Illinois cost \$8.8 million.

\$

Connected vehicle system with TSP applications for 20 traffic signals in Georgia cost about \$15,000 per intersection, or a total of \$309,000.