



NATIONAL BUS RAPID TRANSIT INSTITUTE (NBRTI) PROGRAM REPORT

Background

In less than two decades, bus rapid transit (BRT) has progressed to one of the fastest growing transit modes in the nation. The potential for swift and cost-effective implementation makes BRT an attractive option for cities contending with increasing traffic congestion and constrained budgets for public transportation. Today, BRT is operating or in development in most major cities and is a modal alternative in nearly every planning study. The rise of BRT in the United States traces its roots back to several early initiatives of the Federal Transit Administration (FTA). Inspired by the impressive performance and cost-effectiveness of successful BRT systems in Latin America, FTA created a BRT Demonstration Program in 1998, partnering with several competitively selected transit agencies for the implementation, operation, and evaluation of BRT projects. As the need for a practical resource quickly arose within the emerging BRT community in the United States, FTA in January 2001 sponsored the National Bus Rapid Transit Institute (NBRTI), a program of research, innovation, training, and technical assistance in the field of BRT, housed at the Center for Urban Transportation Research (CUTR) at the University of South Florida (USF). This report documents NBRTI's activities from its inception in January 2001 to June 2023 (the final year of the program grant).

Objectives

The mission of NBRTI is to facilitate the sharing of knowledge and innovation for increasing the speed, efficiency, and reliability of high-capacity bus service through the implementation of BRT systems in the United States. The NBRTI Program is divided into three core areas.

- *Clearinghouse* – The NBRTI Clearinghouse provides a centralized source for current BRT-related information. NBRTI helps interested users retrieve general BRT information, as well as information on the progress of the BRT projects in the United States and worldwide. The clearinghouse also contains press clippings, technical reports, system evaluations, presentations, and other documents related to BRT.
- *Technical Assistance/Support* – NBRTI has been called upon to give technical assistance to numerous individuals and agencies, including metropolitan planning organizations, departments of transportation, transit agencies, private consulting firms, international organizations, elected officials, and others who are considering BRT applications. To promote the continued sharing of knowledge, NBRTI offers conference support through the planning and development of regional and national BRT conferences.
- *Research and Evaluation* – As requested by FTA, NBRTI conducts new research in areas related to BRT and develops "best practices" manuals and tools to assist the BRT community. Topic areas for further research may come from FTA, through committees of the Transportation Research Board (TRB) or the American Public Transportation Association (APTA), or directly from the BRT community.

Findings and Conclusions

Through research studies, decision tools, technology demonstrations, and evaluations, NBRTI helped to forge key industry relationships, catalyzed crucial early milestones such as the development of consensus-based standards, and produced a foundational body of knowledge for the advancement of BRT.

NBRTI employed workshops, conferences, publications, research, and knowledgeable staff to achieve the goals of the program. The full Program Report summarizes and describes the activities conducted under each of the program areas. Activities included a website, informational brochures and newsletters, a listserv, conference support, conference presentations, site visits, BRT system evaluations, research, journal publications and other articles, technical assistance to FTA, transit agencies, and local governments, and other activities.

The NBRTI Program Report also includes two additional short research efforts summarized in its appendices:

- *Evaluation of Alternative Fuel Vehicles in Bus Rapid Transit Service* – The study analyzed the operations and maintenance cost data collected from 11 BRT systems. The primary benefits of alternative fuel vehicles (AFVs) compared to diesel vehicles include a reduction in harmful emissions, decrease in vehicle operating costs, and (in some cases) decrease in noise pollution. Notable challenges associated with AFVs were also discussed.
- *Bus Rapid Transit Safety* – This study contains a detailed analysis of National Transit Database (NTD) Safety and Security data for BRT systems. From 2014 through 2022, 852 safety and security events occurred for the BRT mode: 77 security events and 775 safety events. The research also presented evidence of the shifted focus on equity implications and accessibility impacts, noting the importance these considerations in the planning and design for BRT systems.

Benefits

FTA's early BRT initiatives, along with the Small Starts and Very Small Starts federal funding programs, ushered in a national BRT boom that began in the early 2000s. Demonstrations and evaluations conducted by NBRTI have shown that by delivering benefits such as higher ridership, decreased travel times, improved service reliability, greater carrying capacity, and increased convenience, BRT can match the quality of light rail transit but with quicker implementation and for a fraction of up-front capital expenditures.

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All FTA research reports can be found at <https://www.transit.dot.gov/about/research-innovation>.