

TRANSIT IDEA STRATEGIC INITIATIVE On BUS RAPID TRANSIT (BRT)

The panel for the Transit IDEA program has endorsed a Bus Rapid Transit (BRT) strategic initiative and focus area as part of the Transit IDEA program. Proposers are encouraged to seek the participation of BRT Consortium agencies in developing Transit IDEA proposals and testing prototypes on BRT demonstration projects. Table 1 lists the participating transit agencies and their BRT projects.

BACKGROUND

The Bus Rapid Transit (BRT) program is a Federal Transit Administration (FTA) initiative to promote **integrated bus-transport system** concepts with customer features normally found only in rail systems, but with lower investment costs. The more advanced BRT concepts include a number of customer friendly features, such as

- shorter travel times through the use of exclusive guideways and priority at intersections,
- station stops with shorter dwell times
- easy access for all customers through level boarding and wider vehicle doors,
- prepaid fare collection, and
- real-time passenger information displays of next bus arrival times.

To achieve the “rapid” feature, the BRT must have short dwell times. Shorter dwell times can be obtained with faster boarding of all customers, including those using wheelchairs. Shorter dwell times have been demonstrated for all customers with level boarding. Level boarding requires **precision docking** of the bus at the station. Precision docking guides the bus to a quick and safe docking at the station platform.

The current U.S. methods of securing wheelchairs on buses are not compatible with the short dwell times essential for BRT. Since BRT systems are similar in many aspects to rail and automated guideway transit (AGT) systems, perhaps Americans with Disabilities (ADA) requirements and practices for BRT systems could follow the ADA

rail or AGT wheelchair practices. In Europe and Canada, bus customers using wheelchairs, baby strollers, or shopping carts are provided a protective compartment for a friendly and safe journey. To achieve short dwell times the BRT **accommodation of passengers in wheelchairs** needs to be addressed.

Precision docking and level boarding with guided buses has been operational for about 10 years in Germany, using mechanical guidance technology. More recently, precision docking and level boarding has been developed using optical guidance technology, and is in revenue service in France. Electromagnetic guidance technology to achieve precision docking and level boarding was demonstrated in England in 1996, and is currently being used by service vehicles in the Eurotunnel. Both optical and magnetic technologies have been developed and demonstrated in vehicle guidance applications in the United States, and may be applicable to precision docking.

Two BRT high-priority research needs have been identified by the Transit IDEA Panel for the BRT Strategic Initiative element of the Transit IDEA program. These are **precision docking** so that level boarding can be achieved, and an approach for **wheelchair accommodations** that will provides a safe, friendly, and fast journey for all BRT customers. These high-priority research needs were identified and discussed in a teleconference call with BRT Consortium agencies, FTA, and a working group of the Transit IDEA panel. The following two sections outline the research needs for these two areas, which could be addressed by potential Transit IDEA proposals.

The new Strategic Initiative part of the Transit IDEA program would still rely on the basic tenets of the IDEA model, but, through strategic partnerships with organizations in the transit industry, would bring special focus to specific issues of strategic significance. FTA and BRT Consortium agencies would be involved in the partnership with the Transit IDEA program for the BRT Strategic Initiative. By testing and using methods of precision docking or of wheelchair accommodations as part of a funded BRT demonstration project, it provides for the testing and demonstration of the method and follow-on funding for deployment, as part of a larger BRT project. The BRT demonstration projects are funded with FTA capital funds and demonstration funds.

PRECISION DOCKING

Objective

The objective of this initiative is to develop and test various bus guidance systems for meeting the precision docking requirements for BRT vehicles.

Requirements

The following requirements should be met by the bus guidance system.

1. It must be capable of being installed on buses available for the BRT program.
2. It must be capable of reliable docking of the bus at the station platform with a horizontal gap of no greater than 3 inches (the ADA rail requirement) and ideally with a gap of no greater than 1 inch (the ADA AGT, requirement). This requirement should be met when the bus is at rest in at the station.
3. The vertical misalignment of the station platform and bus entrance level must be less than plus or minus five-eighths of an inch (the ADA rail requirement), and ideally the vertical misalignment would be less than plus or minus one-half inch (the ADA AGT requirement). This requirement should be met when the bus is at rest at the station.
4. The guidance technology must safely dock the bus at station stops. At no time during the docking and departing maneuvers should any part of the bus body contact the station platform.
5. The guidance technology must be capable of operating in temperature ranges and climates found in the BRT consortium locations.

WHEELCHAIR ACCOMMODATIONS

Objective

The objective of this initiative is to develop and test an appropriate approach for accommodating passengers using wheelchairs on BRT buses.

Requirements

The following requirements must be met.

1. The approach must be capable of being used on potential BRT systems.
2. The approach must provide the same level of safety required by the ADA regulations for light rail and AGT systems.
3. The approach must provide for the same number of passengers in wheelchairs as required by the ADA regulations for light rail and AGT systems.
4. The approach must accommodate the mobility devices as defined in the ADA regulations.
5. The approach must be acceptable to the wheelchair user community.
6. The approach will need to be acceptable to the FTA and the Access Board.

Table 1
BRT Consortium Projects and Agencies

City	Sponsor	Description	Schedule	
Boston, MA	Massachusetts Bay Transportation Authority (MBTA)	The Silver Line project consists of locally funded exclusive lanes on Washington Street (Phase 1, Section B) (under construction and opening in 2003) connected to two tunnel sections: 1. South Boston Piers to Logan Airport (Phase 1, Section A)(in FFGA)(under construction and opening in 2003), and 2. Downtown Boston (Phase 2)(in Preliminary Engineering)(2008). The Silver Line will have direct transfers to MBTA's Red, Orange and Green lines and permit much faster service to Logan Airport.	Phase 1: 2003; Phase 2: 2008	
Charlotte, NC	City of Charlotte	Independence Corridor. This project includes an exclusive busway in the median of Independence Boulevard. Approximately 2.6 miles of the busway already exists. Phase 2 will add one additional mile in 2004 and Phase 3 will potentially have a total of 13.5 miles after 2006. A corridor study is underway.	Phase 2: 2004; Phase 3: 2006	
Cleveland, OH	Greater Cleveland Regional Transit Authority	GCRTA proposes to rebuild a five-mile section of Euclid Avenue by 2003 to provide for exclusive transit lanes, landscaping, transit shelters, street furniture, etc. The exclusive lanes will carry a fleet of new low-floor articulated dual mode buses. This project is now in final design.	2003	
Dulles Corridor, VA	Virginia Department of Rail & Public Transportation	This project, in preliminary engineering, is part of a multi-year, multi-phase effort to bring Metrorail to the corridor. The Bus Rapid Transit project phase (2003) would be an intermediate phase to the ultimate Metrorail phase (2010). Bus Rapid Transit would operate on the congestion-free Dulles Airport Access Road and use median stations built for the Metrorail extension.	2003	
Eugene-Springfield, OR	Lane Transit District	A 10-mile East-West pilot corridor from east Springfield to west Eugene. LTD proposes to use exclusive lanes in a variety of configurations, limited stops, proof-of-payment fare collection, low-floor guided buses, feeder services, park and ride, and ITS technologies. Phase 1, downtown Eugene to downtown Springfield is scheduled for 2002 and funded through the Bus Capital Program and has been approved for implementation. Phase 2 is scheduled in 2004. LTD is expected to pursue New Starts funding for Phase 2 and subsequent phases.	Phase 1: 2002; Phase 2: 2004	

Hartford, CT	Connecticut Department of Transportation	A nine-mile, 12-station, two-lane exclusive busway is to be built on active and inactive rail rights-of-way and open in 2003. There will be five intermediate points of access. Project is in preliminary engineering.	2003	
Honolulu, HI	City and County of Honolulu	CityExpress!, Phase 1 of Honolulu's BRT project, which started in March 1999, is a limited stop service overlaid on current local service routes running in whole or in part along the same alignment, with additional transit priority measures and improved express service stations to be added in subsequent phases. Phase 2 (In-Town BRT) and Phase 3 (Regional BRT) of Honolulu project are under consideration by FTA to initiate New Starts preliminary engineering.	Phase 1: 1999 Phase 2: 2004 Phase 3: 2008	
Los Angeles, CA	Los Angeles County Metropolitan Transportation Authority (LACMTA) & Los Angeles City Department of Transportation	Rapid Bus, Los Angeles' initial phase BRT project was implemented in June 2000 on two corridors: Ventura and Wilshire/Whittier Boulevards. The Rapid Bus services operates in mixed traffic but includes traffic signal preference within the City of Los Angeles, limited stops, and low floors for fast boarding. Los Angeles MTA is also seeking FTA New Starts funding for a Wilshire Boulevard BRT project with exclusive lanes and is following FTA's New Starts process for a BRT project with exclusive lanes in the San Fernando Valley corridor.	Phase I Rapid Bus: 2000	
Miami, FL	Miami-Dade Transit Agency	MDTA proposes to extend their existing 8.5 mile South Miami-Dade Busway another 11.5 miles to Florida City by 2003. The additional section would have 22 new stations. The project is in preliminary engineering.	2003	
San Juan, PR	Puerto Rico Highway and Transportation Authority	Fast shuttle bus service operating over HOV lanes on the new 2.5-mile Rio Hondo Connector linking the Bayamon Tren Urbano Station and the Rio Hondo Tren Urbano Plaza. The project will also include seamless fare collection with Tren Urbano, traffic signal preference, and other ITS technologies. This FFGA project is under construction and is expected to be operational in 2002.	2002	
Santa Clara, CA	Santa Clara Valley Transportation Authority (SCVTA)	The line 22 corridor is approximately 27 miles long and serves six Silicon Valley cities. Line 22 has a running time of over two hours. SCVTA plans to reduce travel times by 25% by route modifications, infrastructure, traffic signal preference, queue jump lanes, fare prepayment, low-floor-articulated buses, and ITS technologies. The project is expected to be operational in 2002.	2002	
Pittsburgh, PA	Port Authority of Allegheny County	The five-mile West or Airport Busway opened to service in September 2000. The West Busway was built on a former rail right-of-way and will include a new connection to downtown Pittsburgh.	2000	
Albany, NY	Capital District Transportation Authority	The "Best Bus" will operate on five miles of New York Route 5 between the downtowns of Albany and Schenectady. Project features traffic signal preference, infrastructure, and queue jump lanes will save ten minutes.	2002	

Chicago, IL	Chicago Transit Authority	The X49 Western Avenue Express began operation in December 1998. The X49 uses limited stops to cut travel time by 25%. Ridership has increased by 17%.	1998	
Montgomery County, MD	Montgomery County, MD	The six mile Viers Mill Road priority project will include route modifications, queue jump lanes, shoulder operations and ITS technologies.	2002	
Oakland, CA	Alameda-Contra Costa Transit District	The 16 mile San Pablo corridor runs through six East Bay cities and includes a variety of bus priority improvements and vehicle and station design improvements to cut running and dwell time.	2002	