Bus Rapid Transit Corridor Planning in Tampa

By John Mason and Patrick Wolfe

Hillsborough Area Regional Transit Authority (HART), the transit provider for Hillsborough County and the cities of Tampa and Temple Terrace in Florida, has long sought to provide premium transit services to its patrons. HART first looked at developing a light rail program, before turning its attention to lower-cost transit alternatives such as flex bus (route deviation) services and bus rapid transit (BRT). In 2007, HART hired HDR for its Transit Emphasis Corridor Improvement Planning and Design Services project. The project was intended to plan and design BRT improvements for one north-south and one east-west corridor—providing faster, more reliable transit service in the two corridors.

BRT Defined

Bus Rapid Transit (BRT) attempts to combine the lower capital costs and flexibility of buses with the quality of service, frequency and travel-time advantages of rail transit. BRT can be adapted to a broad variety of physical and operating environments, ranging from dedicated, fixed-guideway operations to mixed-traffic operations in arterial streets and downtowns.

Because cost was an issue for HART, a mixed-traffic, arterial BRT strategy was proposed. HART remained committed to the high-quality level of service riders would expect from a rail-based transit system, so the BRT project was to include convenience features such as transit signal priority and real-time passenger information. These will be discussed in more detail later.

Cost also drove the decision to shape the project around requirements of the Federal Transit Administration (FTA) Very Small Starts program. This is a funding mechanism for bus, rail and ferry improvements that are deemed "simple, low-risk projects." One significant benefit of seeking Very Small Starts funding is that it carries a simplified evaluation process compared to the main Small Starts program. To comply with Very Small Starts guidelines and improve travel times and reliability of HART's new BRT service, the following elements were incorporated into the project:

- Bus stop consolidation
- Service improvements (expanded hours of operation, more frequent service)
- Bus preferential treatments (traffic signal priority, off-board fare collection)
- Enhanced passenger stations (shelters, real-time passenger information, streetscaping)
- Custom low-floor buses (40-foot to 42-foot vehicles)

Corridor Overview

HART previously evaluated five potential corridors for enhanced bus service: Nebraska Avenue, Florida Avenue, Hillsborough Avenue, Dr. Martin Luther King Jr. Boulevard and Columbus Drive. HDR refined the evaluation to identify the two highest priority corridors, with connections to major activity centers as well as HART's bus transfer centers.

The first proposed corridor would operate north-south on Nebraska Avenue and Fletcher Avenue between HART's Marion Street Transit Center in downtown Tampa and the University Area Transfer Center

near the University of South Florida. The Nebraska Avenue portion is served by Route 2, HART's highest ridership route.

The BRT project includes adding convenience features such as transit signal priority and real-time passenger information so BRT riders can expect the same high-quality level offered by a rail-based transit system.

The second corridor would operate east-west between the Tampa International Airport, the Netp@rk Transfer Center and the city of Temple Terrace using east Hillsborough Avenue and west Dr. Martin Luther King Jr. Boulevard. The two corridors would connect at Nebraska Avenue between Hillsborough Avenue and Dr. Martin Luther King Jr. Boulevard. This connection would enable passengers to make an easy transfer between routes.

The two corridors would serve Hillsborough County's largest activity centers (Westshore, downtown Tampa and University of South Florida) as well as numerous community and governmental facilities.

Project Details

The BRT service along each corridor was designed to be a premium service overlay to the local service. BRT buses would run every 10 minutes during the weekday peak and every 15 minutes during off-peak periods. Because the BRT service stops only at select stations, local service would continue to be operated on each corridor with buses running every 30 minutes during the peak and 60 minutes during the off-peak. BRT service would not be operated on weekends or holidays.

The two BRT corridors would also feature several enhancements, including:

- Transit signal priority (TSP)
- Real-time passenger information
- Enhanced passenger stops

TSP is being deployed in transit systems throughout the United States to improve transit travel times and schedule reliability by reducing transit delays at signalized intersections. TSP works by extending the green time by a few seconds at the beginning or end of the green phase. The HART BRT project would be the first demonstration of TSP for the Tampa Bay region. If the test case is deemed a success, it would be the first step toward a broader implementation of TSP for HART's local bus service.

An Intelligent Transportation Systems (ITS) program being developed for the BRT project focuses on relaying bus arrival and departure information to passengers waiting at BRT stations as well as on board the BRT buses. At stations, signs would be updated every minute to give awaiting passengers information on the next arrival time. For on-board announcements, the buses would also be equipped with automated next-stop arrival information signs and annunciation equipment.

HDR planners developed a conceptual plan that identified the number and precise location of enhanced stops (near-side, far-side, mid-block, in-lane, pull-off lane, etc.), the types of passenger amenities at each stop, and potential roadway and pedestrian improvements. HDR architects then designed conceptual plans for three stop prototypes based on station size. These plans identified location of passenger amenities, real-time information systems, other displays and signage for all stops, ticket vending machines and bus pull-off bays for select stops.

Ridership Forecasts

Because HART was exploring the possibility of pursuing FTA Very Small Starts funding for the east/west BRT project, the ridership forecasting approach followed the technical procedures and guidelines outlined by FTA. In the

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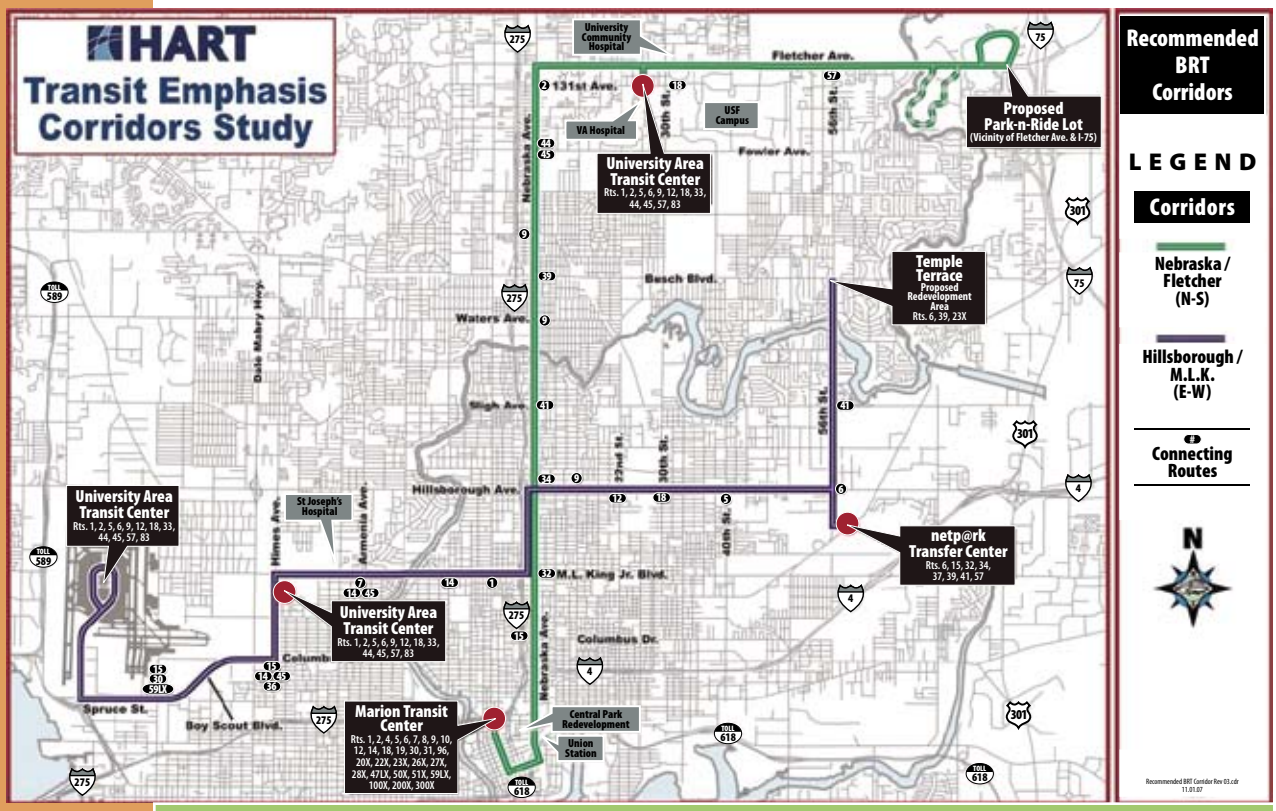

HART's goal for this project was to provide faster, more reliable transit service for one north-south and one east-west corridor.

opening year, over 2,950 daily boardings were projected for the north-south BRT corridor, for a total of 6,600 benefiting riders. Another 1,500 daily boardings were projected on the east-west BRT corridor, which would have 4,300 benefiting riders.

Financing

Significant funding has been identified to finance the improvements. In August 2007, Hillsborough County approved a $500 million transportation bond program that included $31 million for design and construction of the north/south BRT corridor, and $3 million for design of the east/west BRT project. HART has identified additional monies, including $5.5 million from the federal Surface Transportation Program, over $3.4 million from Section 5309 discretionary funds and 5307 federal formula grant funds, and $1.2 million from state and local sources.

Next Steps

In June 2008, HART's board of directors approved a contract amendment authorizing work to begin on the planning, development and engineering phase of the north-south BRT corridor. HART intends to apply for federal Very Small Starts funding for the east-west BRT corridor later this year.

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