Flagler Street Enhanced Bus Service Executive Summary



PARSONS BRINCKERHOFF

Overview

The Flagler Street Enhanced Bus Service Implementation Plan builds on earlier enhanced bus service (EBS) corridor studies and plans in the Miami area, namely for the NW 27th Avenue and Biscayne Boulevard corridors, and proposes a plan for the operation of EBS along the Flagler Street corridor. The objective of the plan is to improve transit service along the corridor by providing high-frequency service and enhanced passenger amenities, (i.e. bus stop shelters/benches) thereby improving the transit experience of existing riders and attracting new riders that would have otherwise used a private automobile to complete their trip. The Flagler Street Enhanced Bus Service Implementation Plan was developed by the Miami-Dade Metropolitan Planning Organization in coordination with Miami-Dade Transit (MDT).

The proposed EBS corridor spans the length of Flagler Street between Downtown Miami and 107th Avenue. Between 24th Avenue and Downtown Miami, the EBS would be operated on SW 1st Street in the eastbound direction and on Flagler Street in the westbound direction, as these streets constitute a one-way pair between these two points. West of 107th Avenue, the EBS would turn south towards Florida International University where it would terminate at the new FIU Transit Terminal on SW 8th Street between SW 109th and SW 110th Avenues.

Along the Flagler Street corridor, EBS would provide high-frequency service to Downtown Miami, Mall of the Americas, FIU, and the Miami western suburbs of Fontainebleau and Sweetwater. Additionally, along the western half of the corridor, strategically located park-and-ride lots are proposed that would attract commuters that currently travel along the corridor to and from Downtown Miami by car. EBS along the Flagler Street corridor would be provided using 60-foot articulated alternative fuel buses with low floors that would facilitate faster boarding and alighting. The vehicles would be uniquely branded in conjunction with EBS stations and stops so that the service would stand out among other MDT services operating in the corridor. Other physical elements of the EBS would include transit signal priority, queue jump lanes, directional dedicated bus lanes during the peak, park-and-ride lots, and improved passenger amenities at EBS stations and stops such as real-time information, shelters and benches, and lighting.

Service Characteristics

While the existing service (Route 11 and Route 51 – Flagler MAX) along the Flagler Street corridor has experienced ridership increases during the morning and evening peak periods, the demand for transit service along the corridor remains high throughout the day, evening, and weekends. This consistent demand suggests that the Flagler Street corridor is a prime candidate for EBS. The Flagler Street EBS would provide frequent bus service with headways at 10 minutes during the peak and 20 minutes during the off-peak, Monday through Friday. The EBS would operate from 5 AM to 9:30 PM Monday through Friday. EBS would not be operated on weekends, but the corridor would continue to be served by local bus service.

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Service Characteristics (continued)

The proposed EBS would be complemented by local service operated at 15 minute headways between Downtown Miami and 79th Avenue during the peak, off-peak, nights, and Sundays. On Saturdays, the local service headway would be 12 minutes between these two points. Service between Mall of the Americas/79th Avenue and FIU would be provided every 30 minutes during the peak, off-peak, and Sundays. On Saturdays, the local service headway would be 24 minutes between these two points.

The combination of EBS and local service would provide composite headways between 79th Avenue and Downtown Miami of 5 minutes during the peak and 8.5 minutes during the off-peak period, Monday through Friday. Composite headways between 79th Avenue and 107th Avenue would be 7.5 minutes during the peak and 12 minutes during the off-peak on weekdays.

EBS service would also facilitate better connections to north-south routes that intersect the Flagler Street corridor, including Routes 12, 17, 27, 37, 42, 57, and 137. This would greatly increase accessibility to the EBS beyond the immediate Flagler Street service area.

Transit Signal Prioritization

Transit signal priority (TSP) is a vital component to the proposed EBS. TSP gives priority to transit vehicles by adjusting the signal cycle at an intersection as the vehicle approaches so that the delay for a transit vehicle is reduced or eliminated. TSP creates time savings for transit trips and also improves on-time performance for routes as it reduces bus wait time at intersections. TSP is typically applied when there is significant traffic congestion, and hence delays to buses, along a roadway. Green light prioritization can be managed so that it is applied only when a vehicle is running behind schedule or if there are a certain number of riders on-board a vehicle. TSP is recommended for all signalized intersections along the proposed Flagler Street corridor EBS route.

Queue Jump/Queue Bypass Lanes

Queue jumps are a type of transit priority improvement that use a dedicated lane for buses to bypass vehicles at signalized intersections. Queue jumps can be implemented either in an existing right-hand turn lane or an adjacent dedicated bus lane. When transit vehicles are allowed to bypass traffic at an intersection, a reduction of transit travel time/increase in travel speed and improvement to service reliability is the result. An application of bus queue jumps has shown to produce up to a 15% reduction in travel time through intersections.

A queue jump lane allows a bus to enter into a lane that could also be utilized as a right turn lane, and stop at the near side of an intersection. An early green signal on a separate traffic signal is given to the bus to move through the intersection and into an existing travel lane before the general traffic begins to move through the intersection. A queue jump bypass lane does not use a separate green signal, but continues through the intersection with general traffic into a receiving lane on the far-side of the intersection before entering into an existing through travel lane.

An analysis was conducted to identify potential intersections for queue jump/ bypass lanes. All of the intersections along the Flagler Street corridor were analyzed, and a total of 10 intersections (18 directional sites) were selected for the first phase of queue jump/bypass lane implementation.



Flagler Street Roadway Configuration

Perhaps the most complex time savings component of the Flagler Street corridor EBS is the Restricted Curbside Bus Lane with Reversible Center Lane for Automobiles. This element involves changing the traffic patterns of a 4.8 mile stretch of the corridor in order to implement a restricted curbside lane. Current capacity levels would be maintained by converting the center lane to a peak direction reversible through lane and prohibiting left-turns between 24th Avenue and 72nd Avenue during peak travel periods. The curbside lanes would only be restricted to bus use during peak periods in the peak direction. The restricted lanes would be in the eastbound direction in the AM peak and in the westbound direction during the PM peak. Buses traveling in the opposite direction during peak periods and all bus operations during off-peak periods would operate in mixed traffic.

This roadway configuration would greatly improve bus travel time along the corridor and would make transit a more attractive alternative to a private automobile in terms of travel time as it grants buses free-flow access for a large span of the corridor during peak times when congestion is highest.



* Red X will change to two green arrows during off-peak periods

Park-and-Ride Lot Network

A network of park-and-ride locations are recommended to increase the service area of the corridor by providing an option for commuters who prefer to avoid paying high parking prices in Downtown Miami by driving to one of the proposed park-and-ride locations on the western half of the corridor and utilizing the EBS to/from Downtown Miami. Site selection for park-and-ride lots in the Flagler Street corridor included identifying locations that had a good level of connectivity (i.e. primary roads, highways, etc.) for easy access to the lots, adequate space for the construction of the lot or use of an existing underused parking lot, and locations on or near the proposed Flagler EBS.

Four sites were selected for potential park-and-ride sites along the Flagler Street corridor:

- New Panther Bus Transit Terminal at FIU
- Flagler Street at SW 107th Avenue
- Flagler Street at SW 99th Court
- Mall of the Americas multimodal facility

EBS Branding

A major component of EBS is the unique branding that is tailored for rapid service throughout the MDT network. The branding for the proposed EBS has been established based on the previously completed Biscayne Boulevard Enhanced Bus Service Implementation Plan. The distinct brand identity is known as Rapid Bus Service, and will be implemented on Flagler Street as well as the other selected EBS corridors throughout Miami-Dade County to signify fast convenient transit service that is direct and has limited station stops.



EBS Station Concepts

In combination with the unique branding for EBS buses, specially branded stations and stops are also a component of EBS. The stations will be branded using the same branding scheme as employed on EBS buses so that they are easily recognizable as part of the EBS network. Passenger amenities will also be improved at EBS stations and stops to include enhanced shelters and seating, station markers or totems, ticket vending machines for expedited boardings, real time information displays, trash receptacles, bicycle parking, and public art.

Two different types of stations are recommended for implementation along the Flagler Street EBS corridor:

- A full station concept complete with all amenities that has a footprint of 25' x 15', for implementation at higher ridership stops where space permits a station of this size, and;
- A slim station concept designed for locations where ridership is lower, or where there is little available right-of-way. This station has a footprint of 26' x 8' and fewer amenities due to space restrictions.





Capital and Operating Costs

As part of the Flagler Street Enhanced Bus Service Implementation Plan, capital and operating cost estimates were calculated in order to determine the feasibility of the project and to provide a solid foundation for its implementation when approved. Capital costs for the project include the buses required to operate the service in addition to spares to cover maintenance requirements, EBS station and stops, roadway infrastructure improvements, signal and infrastructure requirements for TSP, and queue jump lanes. The estimate also includes professional services such as engineering and environmental services, project management, surveys, and legal services used during the design and construction phases. The capital cost estimate also includes a contingency amount to account for uncertainty that can occur throughout the design and construction phase of the project.

The operating and maintenance (0&M) cost estimate includes the projected costs for the annual operation of the proposed EBS and local service in addition to the maintenance and general upkeep of the stations and stops.

Total Capital Costs	Net Projected Change in Total Annual O&M Costs
\$35,592,000	\$942,000

Project Implementation

The schedule is divided into two main phases:

- Immediate to Short Term (5 years) includes implementation of combined EBS and local bus service along Flagler Street corridor between Downtown Miami and the FIU Transit Terminal and continued local service west of FIU. Implementation would include EBS branding on buses and EBS stations/stops; transit signal priority along the Flagler Street corridor; first tier of queue jump lanes and park-and-ride lots.
- Short to Medium-Term (5 10 years) includes Curbside Bus Lane with Reversible Center Lane for automobiles running way configuration and the second tier of queue jump lanes and park-and-ride lots.

While the project is proposed to be implemented in two distinct phases– immediate to short-term, and short to medium-term–it is also recommended that the time span of each phase be minimized so that the corridor and the larger regional transit network might benefit from the full implementation of EBS improvements as soon as possible.

A milestone schedule has been developed to illustrate the timeframe for implementation of the Flagler EBS improvements that are recommended for the short to medium term.

SCHEDULE Miami-Dade MPO/Miami-Dade Transit Flagler Enhanced Bus Service																															
	Phase I												Phase II																		
	Year 1								Year 2							Year 1							Year 2								
Project Development																															
Preliminary Design																															
Develop Cost Estimate, Schedule																															
Review Preliminary Design								Τ																				Т			
Develop Categorical Exclusion/PD&E and Submit								Τ																				Т	Τ		
Final Design																															
Submit Request/Receive FTA Approval for FFGA																												Т			
ROW Acquisition Process																															
Issue Request for Bids, Make Award of Construction Contracts																															
Construction																															
Construct Fixed Infrastructure																															
Finalize Real Estate Acquisitions																															
Acquire And Test Vehicles																															
Revenue Operations / Closeout of Project																															
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Project close-out																															