

Memorandum



Date: October 8, 2020

Agenda Item No. 2(B)(3)
October 20, 2020

To: Honorable Chairwoman Audrey M. Edmonson
and Members, Board of County Commissioners

From: Carlos A. Gimenez
Mayor

A handwritten signature in blue ink, appearing to read "Carlos A. Gimenez", written over a faint, larger version of the same signature.

Subject: Convertibility from Bus Rapid Transit Service to Heavy Rail Transit Service of the Bus Rapid Transit Stations Along the South Corridor Transitway

This report has been prepared by the Department of Transportation and Public Works (DTPW) in response to Resolution No. R-878-20 adopted by the Board of County Commissioners (Board) at the August 31, 2020 Board meeting. Resolution No. R-878-20 directed the County Mayor to prepare a report explaining the measures that have been taken to ensure the convertibility of the South Dade Transitway Corridor Bus Rapid Transit (BRT) System to at-grade Metrorail, to describe what measures or requirements have been included in Contract No. CIP155-DTPW19-DB, Project No. DB19-DTPW-01 entitled “Design-Build Services for the South Corridor (South Dade Transitway) Rapid Transit Project” to ensure that the County can convert the BRT system to at-grade Metrorail at a future date and to explain whether there are any technologies, infrastructure or components that would need to be constructed, installed or purchased in the future in order to convert the South Corridor BRT system to at-grade Metrorail.

Background

In August 30, 2018, the Miami-Dade County Transportation Planning Organization (TPO) adopted TPO Resolution #31-18 selecting BRT as the Locally Preferred Alternative for transit service along the South Dade Transitway from the Dadeland South Metrorail station to Florida City, an approximately 20-mile corridor. On June 7, 2019, the DTPW issued a Request for Design-Build Services under full and open competition to solicit competitive bids and proposals for the design and construction of the South Corridor Rapid Transit Project (the Project), which is one of the six corridors included in the TPO Strategic Miami Area Rapid Transit (SMART) Plan. The design-build award to OHL USA, Inc. (OHL USA) was approved by the Board through Resolution No. R-890-20.

Development of Concept Plans

During the developmental stages of the concept plans immediately following the issuance of TPO Resolution #31-18, DTPW underwent multiple workshops to discuss the elements that could be planned and designed in order to maximize the opportunity for conversion from BRT service to at-grade Metrorail, referred to in the Design Criteria Package (DCP) as Heavy Rail Transit (HRT). As a result of the collaboration between DTPW and its design consultants, various design elements were reviewed with respect to which ones could be fixed (remain unchanged at the time of conversion), modified (built-upon) and removed. The main elements that were considered with modifiable features included the vault structure and platform. Requiring the vault structure to be designed as a modular system would allow for its expansion, as shown in Figures 1 and 2 below.

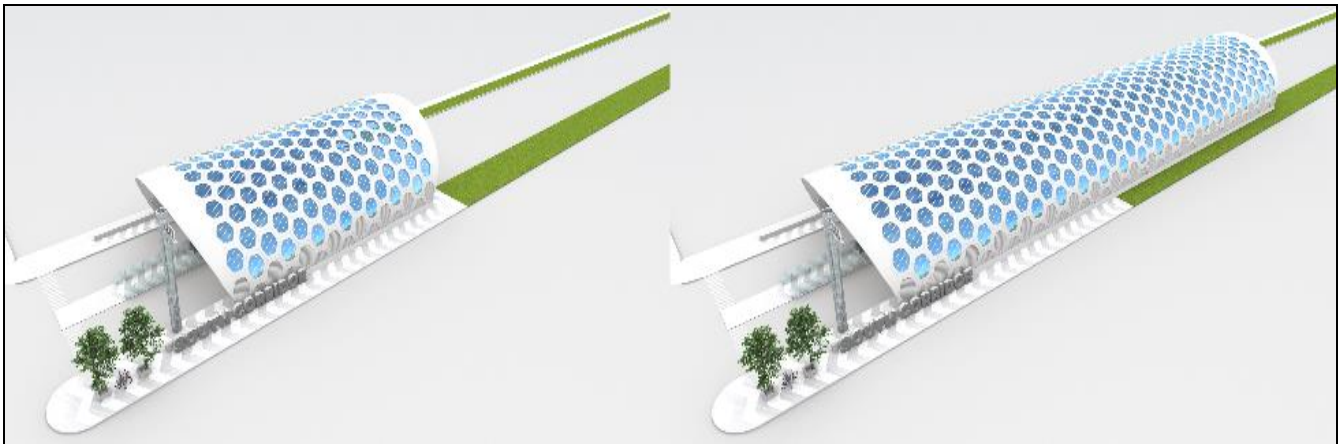


Figure 1 - Potential Expansion of Modular Vault Station Structure from BRT to HRT

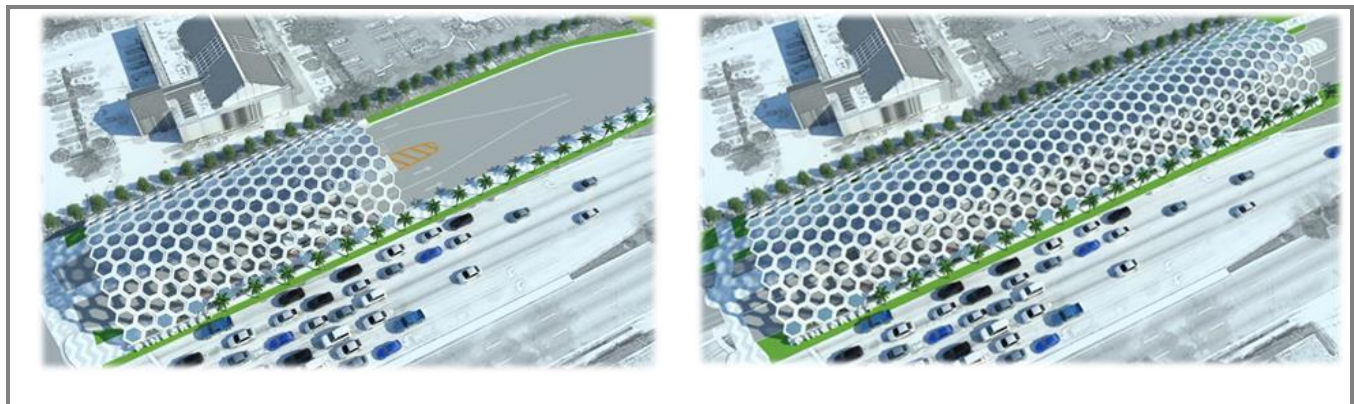


Figure 2 - Potential Expansion of Modular Vault Station Structure from BRT to HRT

Additionally, the height and width of the vault as designed for BRT service could be set to consider the vertical and horizontal clearances required for HRT service. Similarly, the platform could be lengthened, widened and raised to meet County HRT criteria.

Development of Design Criteria Package

Once the concept design was finalized, project requirements were established to ensure the final design would accommodate provisions for convertibility of the stations. For the procurement phase, DTPW prepared a DCP to outline the requirements of the Project by way of detailed performance and prescriptive requirements, attachments and reference documents. Included as Attachment 2 to this report are certain sections of the DCP which include the requirements to allow for the conversion of the Project to HRT. Per the DCP design objectives, one of the prescriptive requirements mandates that the OHL USA design not preclude the future conversion of the stations from BRT to at-grade HRT. This was also identified as a DCP Project Commitment to be fulfilled by OHL USA. In addition, the DCP lists the two following primary key characteristics that the BRT vault structure design must comply with to facilitate future conversion to HRT:

- The development of the vault structure must be modular in order to provide for the most repetition and greatest ease of construction; the modular system would allow flexibility in expanding the vault with minimal deconstruction of an existing system; and
- The dimensions of the interior width, height and overall length of the vault must comply with the minimum HRT/future train envelope; HRT train criteria was provided as a Reference Document to the Design-Build Firm.

Furthermore, the DCP requires OHL USA to submit as part of their design-construction package a typical station cross section package and necessary plan sheet(s) demonstrating that their design does not preclude, to the best extent possible, future conversion of the station to at-grade HRT. The plans must identify the final configuration for elements of HRT including, but not limited to, platform height, platform length, vertical clearance for overhead catenary, horizontal clearance and expansion of vault modular system.

In addition to the features mentioned above, proposed upgrades to the Transitway intersections will entail a grade crossing warning system that will operate in conjunction with the existing traffic signals at each intersection. This system will include the installation of automatic gates, flashing lights, signals, signage and pavement markings similar to those included in Section 8 of the Manual on Uniform Traffic Control Devices for railroad and light rail transit grade crossings. With the installation of these “railroad style” grade crossings, drivers will become conditioned to expect a bus to traverse the intersection when the gate arm is in the down position. This feature is another element that could be preserved with the conversion of BRT to HRT.



Figure 3 – Roadside view of Transitway grade crossing gates (Rendering)

The South Dade Corridor BRT is expected to be complete by Fall 2022 and will provide significant transit solutions to the South Dade community. The requests from the TPO, the Board and the community to build a Project that has the ability to convert to at-grade Metrorail are a key component of the Project.

Pursuant to Ordinance No.14-65, this memorandum will be placed on the next available Board Meeting. If additional information is required, please contact Alice N. Bravo, P.E., Director, DTPW, at (786) 469-5406.

Attachments:

- Attachment 1 - TPO Resolution #31-18
- Attachment 2 - Selected Pages of the Design Criteria Package (DCP)

- c: Abigail Price-Williams, County Attorney
- Gerri Bonzon-Keenan, First Assistant County Attorney
- Jennifer Moon, Deputy Mayor/Budget Director
- Office of the Mayor Senior Staff
- Aileen Bouclé, Executive Director, Transportation Planning Organization
- Javier A. Betancourt, Executive Director, Citizens' Independent Transportation Trust
- Melissa Adames, Director, Clerk of the Board
- Eugene Love, Agenda Coordinator

TPO RESOLUTION #31-18

RESOLUTION SELECTING THE LOCALLY PREFERRED ALTERNATIVE (LPA) FOR THE SOUTH DADE TRANSITWAY CORRIDOR OF THE STRATEGIC MIAMI AREA RAPID TRANSIT (SMART) PLAN

WHEREAS, the Interlocal Agreement creating and establishing the Miami-Dade Metropolitan Planning Organization (MPO), for the Miami Urbanized Area, now known as the Transportation Planning Organization (TPO), requires that the TPO provide a structure to evaluate the adequacy of the transportation planning and programming process; and

WHEREAS, in 2016, the TPO Governing Board adopted Resolution #06-16, which established transit as the “highest priority” in Miami-Dade County. Subsequently, the Governing Board unanimously adopted Resolution #26-16, which approved the Strategic Miami Area Rapid Transit (SMART) Plan in order to implement mass transit projects throughout the County; and

WHEREAS, the SMART Plan includes six (6) rapid transit corridors along with a network of Bus Express Rapid Transit (BERT) services; and

WHEREAS, implementation of the vital rapid transit corridors, in whole or in part, will provide needed transportation alternatives and relief from traffic congestion in Miami-Dade County; and

WHEREAS, the South Dade Transitway Corridor is one of the six (6) SMART Plan rapid corridors, which stretches approximately 20 miles from the Dadeland South Metrorail Station to SW 344th Street in Florida City; and

WHEREAS, under TPO Resolution #47-17, the Governing Board prioritized and advanced the development of the South Dade Transitway Corridor (along with the North Corridor) to Priority I in the Long Range Transportation Plan (LRTP); and

WHEREAS, the South Corridor (formally known as South Miami-Dade Transit Corridor) includes a long history of transportation planning. In 2006 a locally preferred alternative was selected by the Governing Board (formally the MPO/Resolution #30-06), as a modified enhanced bus rapid transit (BRT) that included a Metrorail extension to SW 104th Street, and a long-range provision of further extending Metrorail south, as ridership demand warrants; and

WHEREAS, the Project Development and Environment (PD&E) studies for the six SMART Plan corridors have been approved and are presently in progress, with the Miami-Dade Department of Transportation and Public Works serving as the lead agency for the South Dade Transitway Corridor,

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BOARD OF THE TRANSPORTATION PLANNING ORGANIZATION IN ITS ROLE AS THE MPO FOR THE MIAMI URBANIZED AREA, that this Board hereby selects bus rapid transit (BRT) as the locally preferred alternative for the South Dade Transitway Corridor of the Strategic Miami Area Rapid Transit (SMART) Plan and further directs the TPO Executive Director to take any and all necessary steps and actions in order to accomplish the conversion of the South Dade Transitway from BRT to at-grade Metrorail upon reaching an average weekday ridership of 35,000 daily trips on the South Dade Transitway.

The adoption of the foregoing resolution was moved by Board Member Jeff Porter. The motion was seconded by Board Member Smith Joseph, and upon being put to a vote, the vote was as follows:

Chairman Esteban L. Bovo, Jr.-Aye
Vice Chairman Francis Suarez-Nay

Board Member Juan Carlos Bermudez	-Aye	Board Member Vince Lago	-Nay
Board Member Jose "Pepe" Diaz	-Aye	Board Member Daniella Levine Cava	-Nay
Board Member Audrey M. Edmonson	-Nay	Board Member Roberto Martell	-Aye
Board Member Dan Gelber	-Absent	Board Member Joe A. Martinez	-Aye
Board Member Oliver G. Gilbert, III	-Absent	Board Member Jean Monestime	-Aye
Board Member Perla T. Hantman	-Aye	Board Member Dennis C. Moss	-Nay
Board Member Carlos Hernandez	-Aye	Board Member Jeff Porter	-Aye
Board Member Sally A. Heyman	-Aye	Board Member Shelly Smith Fano	-Aye
Board Member Eileen Higgins	-Aye	Board Member Rebeca Sosa	-Aye
Board Member Barbara J. Jordan	-Nay	Board Member Javier D. Souto	-Aye
Board Member Smith Joseph	-Aye	Board Member Xavier L. Suarez	-Nay

The Chairperson thereupon declared the resolution duly passed and approved this 30th day of August, 2018.

TRANSPORTATION PLANNING ORGANIZATION

By Zainab Salim
Zainab Salim, Clerk
Miami-Dade TPO





1.0 Introduction

1.1 Design Objectives

The Miami-Dade Department of Transportation and Public Works (DTPW) has issued a Request for Design-Build Services (RDBS) to solicit competitive bids and proposals for the design and construction of the South Corridor (South Dade Transitway) Rapid Transit Project (the Project). The Project plans to improve and enhance the infrastructure, operations and safety along the South Corridor, which is one of the six corridors included in the Miami-Dade County Transportation Planning Organization's (TPO) Strategic Miami Area Rapid Transit (SMART) Plan. In August 2018, the TPO selected Bus Rapid Transit (BRT) as the Locally Preferred Alternative for transit service along this corridor, which runs along the South Dade Transitway from Dadeland South Metrorail station to Florida City for approximately 20 miles.

DTPW has prepared a Design Criteria Package (DCP) to detail the requirements of the Project, by way of detailed performance and prescriptive requirements, Attachments, and Reference Documents. The Project will implement a fixed transitway BRT system that optimizes transit service operations and safety; and avoids, minimizes and mitigates adverse impacts to mixed traffic, pedestrian, and bicyclist operations and safety. The Project includes several enhancements and improvements along the corridor, including new BRT stations, rehabilitation of existing stations, improvements to terminal stations, and other corridor improvements, which are further defined in this DCP. The demolition of various existing features may be required in order to construct all components of the work as described in this DCP.

These enhancements and improvements aim to:

- Improve corridor mobility and connectivity to job and activity centers;
- Improve corridor safety and operating efficiency; and
- Accommodate future population growth in south Miami-Dade County by providing patrons with high-quality and cost-effective transit service.

The Project shall:

- Meet schedule, budget and quality goals;
- Incorporate low maintenance and sustainable materials in a creative and innovative design and via construction techniques;
- Utilize materials that have been carefully evaluated for long-term performance and maintenance;
- Promote the safe, efficient and effective implementation of access control and accountability measures for BRT vehicles and pedestrians in station areas;
- Include wayfinding, messaging systems, ticketing systems, and other technologies to assist BRT passengers and transit operations;
- Be constructed entirely within the County's right-of-way, with the exception of FDOT construction projects or intersection improvements located in FDOT right-of-way;
- Maintain existing transit operations, including service, timing and scheduling, at all times during the construction of the stations;
- Coordinate and facilitate the incorporation of Art in Public Places (AIPP) features;
- Be designed to not preclude the future conversion of the stations from BRT to at-grade heavy rail transit (HRT);
- Comply with Buy America provisions;



Commitment and Description	Responsibility		
	DTPW	D-B Firm	Shared
control and water quality protection must be used throughout all phases of construction.			
5. During the final design phase of the Project, DTPW and the Design-Build Firm shall coordinate any comments or improvements emerging from BPAC for construction feasibility as it relates to bicycle-related elements, including bike racks.			X
6. The Project shall obtain sustainability certification. Project shall meet or exceed Envision "Silver" certification or any other appropriate or relevant rating standard.		X	
7. Project shall take into account the future conversion of the stations to accommodate an at-grade HRT system.		X	

2.3 Permits and Inspections

The Design-Build Firm is responsible for verifying and obtaining all permits necessary for the Project. The Design-Build Firm shall obtain permits or permit modifications while acting as an authorized representative for DTPW for permitting purposes only. The Design-Build Firm's Project schedule shall include reasonable and ample time for the permitting process and to obtain permits. The Design-Build Firm shall be responsible for any necessary permit time extensions or re-permitting in order to keep the permits valid throughout the construction period.

Preparation of complete permit packages shall be the responsibility of the Design-Build Firm. If any permitting agency rejects or denies the permit application, it is the Design-Build Firm's responsibility to notify DTPW immediately and to make whatever changes necessary to ensure the permit is approved, at no additional cost to DTPW.

The Design-Build Firm is required to pay all application, processing and permit fees. Miami-Dade County shall add the DTPW's Dedicated Allowance Accounts for Permit Fees to the Design-Build Firm's price proposal. DTPW has allocated dedicated allowance accounts for reimbursement of permit fees. The cost of any additional permit fees in excess of the dedicated allowance account shall be the responsibility of the Design-Build Firm. Any fines levied by permitting and/or regulatory agencies for noncompliance with permit requirements shall be the responsibility of the Design-Build Firm. No delay claims shall be allowed for non-compliance with the permit requirements.

The Design-Build Firm shall be responsible for preparing designs and proposing construction methods that are permissible and that meet the requirements of this DCP. All permits required for a particular construction activity shall be acquired prior to commencing the particular construction activity. Any delays due to incomplete or erroneous permit application packages, agency rejection, agency denials, agency processing time, or any permit violations is the responsibility of the Design-Build Firm and will not be considered reason for a time extension or additional compensation.

create an environment that encourages ridership through high-performance design and operational qualities.

The structure must have the following key characteristics:

- The section of the vault must be curvilinear, whether elliptical, compound arched, semicircular or another curving form, with the curve starting and ending at the top of the side crash barrier/perimeter wall as shown in the Indicative Concept Plans. (Segmented vaults or other curved sections with vertical side walls, colonnades or any other vertical or horizontal structures do not comply.)
- The development of the structure of the vault shall be modular in order to provide for the most repetition and greatest ease of construction, in order to reduce cost and to maintain the greatest visual consistency along the corridor.
- The dimensions of the interior width, height and overall length of the vault must comply with the minimum BRT/future train envelope, minimum platform widths, minimum lane widths and minimum safety offsets as noted within this document.
- The dimensions of the vault shall provide for future conversion to train service without any requirement of conversion or remodeling of the existing vault structure beyond its extension to meet the required greater length.
- The vault must be transversally and longitudinally symmetrical over the BRT station platform.
- The BRT station that occurs below the vault shall have an open and visually unobstructed interior, allowing it to accommodate the BRT operations along the corridor and provide a safe and comfortable environment for passengers.
- The bottom of the vault shall be designed to deter unsafe activities, such as climbing up the vault or entering the platform from any point except adjacent to the ticketing machines.
- The vault structure shall be perforated with repeating transparent or translucent glazed openings to provide daylight to the platform area. Entirely opaque designs will not comply.
- The modular glazed openings located above the platform area shall be filled with a continuous transparent or translucent glazing material that covers the entire opening and shall be hurricane impact tested.
- All exterior glass shall be impact resistant in window and storefront assemblies each having the required Miami Dade County Notice of Acceptance (NOA) for high velocity hurricane wind and large and small missile impact loads.
- Material, glazing, tint, and finish of the transparent glazed openings shall be coordinated with DTPW.
- The horizontal line of modules immediately above the continuous crash barrier/edge wall shall be open to allow for cross-ventilation.
- Modules along the bottom of the vault immediately above the continuous crash barrier/edge wall shall contain screens or other features to deter dangerous activities, such as climbing on the vault, or entering the interior of the space from the side.
- The BRT station vault shall provide continuous and sufficient rain coverage to passengers walking along platforms and boarding and alighting buses at bus bays.
- The vault shall provide adequate weather protection against wind driven rain when the intrusion angle is within 30 degrees from the zenith, measured from the outside edge of the open area located furthest from the longitudinal centerline of the vault and measured from the open ends of the vault.

- Clear station identification signage shall be provided on both interior sides of the vault, clearly visible from BRT riders inside their bus, and shall be graphically coordinated and consistent with the exterior station identification signage.

The stations shall provide WiFi access for waiting passengers, Next Bus Arrival Messaging, and the latest fare collection technologies to include ease of payment via open pay methods. All station components shall adhere to ADA requirements. If there is a conflict in ADA requirements in the Governing Regulations, the more stringent between FDOT standards and State of Florida (Accessibility Code) shall take precedence.

The Design-Build Firm is responsible for the design and construction of BRT stations which shall include, but not be limited to, all components listed in the keynote legend of the Typical Station Layout included in Attachment A-05 Master Plan for Site Concept Layout and shall meet all criteria and requirements in this DCP.

BRT station design and construction shall take into consideration the probable future expansion and/or modification of facilities, elements, features and/or components to accommodate at-grade HRT.

The Design-Build Firm shall submit of a typical station section and plan sheet demonstrating that their design does not preclude, to the best extent possible, future conversion from the BRT Station to at-grade HRT, identifying the changes required considering the following elements provided in Reference Document R-26 Heavy Rail Transit (HRT) Criteria and as noted below:

- Platform height of 43.13 inches (top of floor)
- Platform length of 456-ft (6-car train)
- Platform width of 26-ft
- Track center line 5-ft and 4-inches from edge of platforms
- Vertical clearance of 20-ft and 6-inches for overhead catenary or power electrification system
- Horizontal clearance per R-26
- Dynamic envelope per R-26
- Grade profile
- Top of pavement shall be the top of rail elevation within the station limits.
- Expansion of vault modular system

3.5.1 Architecture

The BRT stations shall be designed to maximize passenger safety and ease of circulation of the passengers entering the station and shall provide adequate seating at the center platform and inside the air-conditioned vestibule. All dimensions shall be verified in the field to confirm that the Project's elements will fit as intended. Minor dimensional adjustments may be required and should be anticipated. The Design-Build Firm shall bring any discrepancies to the attention of DTPW immediately and in writing prior to proceeding with any work.

The air-conditioned vestibule shall be off-centered on the platform, with respect to width, with a protective railing to provide an ADA-compliant clear path for passengers moving from one end of the platform to the other. Inside the vestibule, a clear space shall be provided for wheelchairs. The clear space shall be a minimum of 30 inches by 48 inches and provide adequate space for a wheelchair turning radius of 60 inches. The air-conditioned vestibule shall be a transparent on all sides to enhance passenger safety and