


DEPARTMENTAL INPUT
CONTRACT MEASURE ANALYSIS
AND
RECOMMENDATION

Date: July 14, 2017

To: Gary T. Hartfield, Division Director
Internal Services Department
Small Business Development Division

From: Jesus Valderrama, Jr. 
Chief
Contract Services Division

Department: Department of Transportation and Public Works

Contract Title: Train to Wayside Communication Equipment Installation at Metrorail Stations

Contract No.: IRP204-DTPW17-CT1

Estimate Amount: \$8,762,266.00

Funding Source: Peoples Transportation Plan (PTP)

Small Business Enterprise – Goods & Services – 2.89% Analysis for Recommendation

DESCRIPTION OF PROJECT:

The TWC Project will require the Modification, upgrade or replacement of the existing HANNING & KAHL (H&K) (HANNING Communication System) HCS-V-RT Wayside Equipment located in the Metrorail Train Control rooms at the Earlington Heights, Intermediate Track House (ITCH), Airport Station, and Lehman Facility Test Tracks, and the addition new Train to Wayside equipment at main-line stations that control interlockings, tail tracks and pocket tracks to enable the following:

- Compatibility with the enhanced Data Codes that will be included with the Hitachi Metrorail Vehicle HCS Cab Control Unit.
- Integration with the following equipment to support automated route selections and cancellations based on information that will be received from the Hitachi Rail car TWC equipment:

- Alstom Vital Processor Interlocking (VPI) controller – Used in the Earlington Heights station, Airport Station, Lehman Center Test Track and the Intermediate Track House.
- Genesis Controller – Used in the Okeechobee and Palmetto Station Train Control rooms.
- Vital Relay Control equipment at all main-line interlockings and tail tracks with the exception of the stations listed in the previous two statements.
- Integration with the VPI controller shall require modification to the vital software that controls safe train movement through the controlled interlockings.
- Integration with the US&S Genesis controller shall require the modification of the controller or the addition of additional ancillary control hardware and software.
- Integration with Vital relays shall require the additional hardware to ensure safe control of all main-line interlockings.
- Install transponders at all interlockings, pocket tracks and tail tracks.
- Integrate all Wayside TWC equipment with the Metrorail Control Center.

CONSIDERATIONS FOR ANALYSIS:

1. The project involves the addition of TWC hardware at all stations that control interlockings and pocket tracks on the main-line that not already equipped with existing TWC equipment. The hardware will consist of receiver equipment to be installed in the Train Control and Communications (TCC) Rooms.
2. Install transponders at the Allapattah and Brownsville stations to enable automatic route selection at the EHT transition for trains approaching EHT from Brownsville and Allapattah when the automatic routing feature is selected at Central Control. The route alignments will be triggered by the train-consist Route Number and/or Train Number-Destination. Transponders will also be installed at all other interlockings, pocket tracks and tail tracks. A minimum of 87 transponders will be installed.
3. Modify the existing H&K TWC TCC room equipment at the Airport station, Intermediate Track House, Earlington Heights Station and the Lehman Test Track to support the expanded data set that will be transmitted from the Ansaldo/Hitachi car borne equipment. Modifications shall consist of Hardware, Firmware and Software changes as necessary to process the expanded vehicle data set.
4. Add next train departure indications and station enunciation at all terminal stations and pocket tracks.
5. The TWC system shall interface with all other required systems, including Central Control to display required information and to send required commands. The Metrorail existing SCADA Ethernet Network shall be utilized to provide a seamless interface to the Metrorail Central

Control Facility, and have a fully operational automatic TWC system (vehicle – wayside – Central Control).

6. The Contractor shall be responsible for field verifying all components and wiring, prior to start of any other work (drawings might not reflect actual components or wiring), identifying all wiring in the existing TWC System, tagging all wiring prior to removal, and reconnecting existing tagged wiring to the new TWC System.
7. The Contractor shall coordinate all work related liaison with the DTPW authorities whose approval is required to permit the project to proceed.
8. Systems integration is a key requirement. The Contractor shall ensure that all equipment shall meet the requirements of the contract for integrating with existing equipment.
9. Provide training to include all necessary training materials. At least 40 persons are to be trained and the maximum class size shall be 8 persons. TWC drawings, TWC maintenance and operations manual are the minimum required for training materials deliverables.
10. The contractor shall recommend a list of spares that shall be provided to ensure that critical equipment replacement is available at the time of system acceptance.
11. The contractor shall comply with all requirements of the awarded conformed contract.
 1. Contractor Minimum Qualifications: 10 years of experience and work in Rail Safety systems is required because the prime contractor will be working on safety sensitive equipment that directly impacts the safe movement of trains during operation. An example of the function of the safety system will be to prohibit the movement of trains that violate safe separation distances. Experience in the configuration, programming, testing and certification of safety sensitive (Vital) equipment will be required. The longer time provides an assurance that a proposer or bidder has the prerequisite experience to work on this project.
 2. Trades: Low voltage (less than 90 Volts) will be required – installation of communications cables on the metrorail guideway and in the Train Control rooms at the stations High Voltage (120 Volts or more) will be required – installation of equipment supply power

Analysis for Small Business Enterprise – Goods and Services Recommendation				
Item	Goods & Services	Prime Contractor	Sub-Contracto	SBE Availabili
1.	GOODS: <ul style="list-style-type: none"> ▪ Train to Wayside TCC Hardware ▪ Wayside Transponders ▪ PLC or pother Control Hardware in the main-line stations 	X X X		X
2.	SERVICES <ul style="list-style-type: none"> ▪ Firmware updates to existing TWC H&K Hardware ▪ Software updates to existing TWC H&K Hardware at the MIC, ITCH, EHT and Test Track ▪ Programming of the VPIs at EHT Station ▪ Programming of the Genesis at Okeechobee and Palmetto Stations ▪ Programming of PLC or other control equipment ▪ Integrate TWC with existing Train Control equipment ▪ Tests of equipment to ensure operational functionality with existing equipment ▪ Provide training 	X X X X X X X	X	

BREAKDOWN OF SBE-GOODS & SERVICES – 7%

Item	Amount
Wiring, Conduits & Electrical Equip &	\$604,608.62
Total	\$604,608.62