MEPNN Supplier Scouting Opportunity Synopsis

Section 1: General Information

Scouting Number	2025-273
Item to be Scouted	Managed Hub Ethernet Switch
Days to be scouted	30
Response Due By	09/19/2025
Description	The managed hub Ethernet switch (MHES) provides wire-speed Ethernet connectivity at transmission rates of up to ten gigabits per second to and from adjacent MHES within the traffic control network.

Section 2: Technical Information

Type of supplier being sought	Manufacturer
Reason	BABA
Describe the manufacturing processes (elaborate to provide as much detail as possible)	Product must meet FDOT Standard Specification requirements; see attached file. Requirements include: 684-2.3.1 Optical Ports: Ensure that all fiber optic link ports are modular SFP/SFP+ ports that operate at 1310 or 1550 nanometers in single mode and support 100Base-FX, 1000Base-X, and 10GBase-X. Ensure that the optical ports are Type LC unless otherwise shown in the Plans. Do not use mechanical transfer registered jack (MTRJ) type connectors. Provide an MHES having a minimum of six optical Gigabit Ethernet ports as required to interface adjacent network devices. Optical ports must be capable of 100M, 1G, and 10Gbps data rates unless otherwise shown in the Plans. Ensure the MHES is configured with the number and type of ports detailed in the Contract Documents. Furnish hot-swappable fiber optical transceivers. Provide optical ports designed for use with a pair of fibers; one fiber will transmit (TX) data and one fiber will receive (RX) data. The optical ports must have an optical power budget of at least 15 dB, or as detailed in the Contract Documents. 684-2.3.2 Copper Ports: Provide an MHES that includes a minimum of twelve gigabit Ethernet copper ports unless otherwise shown in the Plans. All copper ports must be Type RJ-45 and auto-negotiate speed (e.g., 10/100/1000 Base) and duplex (i.e., full or half).
Provide dimensions / size / tolerances / performance specifications for the item	Product must meet FDOT Standard Specification requirements; see attached file. Requirements include: 996-3.3.6 Mechanical Specifications. Ensure the MHES is no greater than 1-Rack Unit tall. Every conductive contact surface or pin shall be gold-plated or made of a noncorrosive, nonrusting, conductive metal. Do not use self-tapping screws on the exterior of the assembly. All parts shall be made of corrosion-resistant materials, such as plastic, stainless steel, anodized aluminum, brass, or gold-plated metal. 996-3.3.7 Electrical Specifications. MHES must shall operate on a nominal voltage of 120 VAC. Supply an appropriate voltage converter for devices that require operating voltages of less than 120 VAC. The MHES shall have diagnostic LEDs, including link, TX, RX, and power LEDs. 996-3.3.8 Environmental Specifications. Ensure that the MHES has an operating temperature range of -34 degrees Celsius to 74 degrees Celsius. Ensure that the MHES can withstand 90 percent non-condensing relative humidity at 40 degrees Celsius.

List required materials needed to make the product, including materials of product components	Product must meet FDOT Standard Specification requirements; see attached file. Requirements include: Optical ports, copper ports, 120 VAC. Every conductive contact surface or pin shall be gold-plated or made of a noncorrosive, nonrusting, conductive metal. All parts shall be made of corrosion-resistant materials, such as plastic, stainless steel, anodized aluminum, brass, or gold-plated metal.
Are there applicable certification requirements?	Yes
Certification(s) required	IEEE
Details	Product must meet FDOT Standard Specification requirements; see attached file. The Managed Hub Ethernet Switch (MHES) shall be compliant with the Code of Federal Regulations Section 200.216 Prohibition on certain telecommunications and video surveillance services or equipment https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200/subpart-C/section-200.216. Networking Standards: The MHES shall comply with all applicable IEEE networking standards for Ethernet communications, including: 1. IEEE 802.1Q Standard for Local and Metropolitan Area Networks - Bridges and Bridged Networks used with port-based VLANs and RSTP. 2. IEEE 802. 1p for QoS. 3. IEEE 802.3 standard for LAN and MAN access and physical layer specifications. 4. IEEE 802.3u supplement standard regarding 100 Base TX/100 Base FX. 5. IEEE 802.3x standard regarding flow control with full duplex operation. 6. IEEE 802.3z supplement standard regarding 1000 Base X.
Are there applicable regulations?	Yes
Details	Product needs to be compliant with Federal BABA rules. See Section 4 for contact information.
Are there any other stndards, requirements, etc.?	Yes
Details	Product must meet FDOT Standard Specification requirements; see attached file.
Additional Technical Comments	

Section 4: Business Information

Estimated potential business volume	Estimated 50 annually
Estimated target price / unit cost information (if unavailable explain)	Approximately $6,500-8,200 each. Price based on previous non-domestic products.
When is it needed by?	5 months
Describe packaging requirements	No packaging requirements. Best available. Delivered undamaged. Specifics discussed in negotiation.
Where will this item be shipped?	Florida

Additional Comments

Is there other information you would like to include?	Agency providing funds: Florida Department of Transportation Name/POC for BABA related questions: Melissa Hollis or Karen Byram Email address of contact: Melissa.Hollis@dot.state.fl.us or Karen.Byram@dot.state.fl.us

SECTION 684
NETWORK DEVICES

684-1 Description.

Furnish and install network devices as shown in the Plans. Meet the requirements of Section 603.

684-2 Materials.

684-2.1 General: Meet the following requirements:

Managed Field Ethernet Switch*.....Section 996
Managed Hub Ethernet Switch.....Section 996
Device Server*.....Section 996
Wireless Communication System*.....Section 996
Media Converter*.....Section 996
Cellular Modem*.....Section 996
*Use products listed on the Department's APL.

684-2.3 Managed Hub Ethernet Switch: Ensure that the managed hub Ethernet switch (MHES) provides wire-speed Ethernet connectivity at transmission rates of up to ten gigabits per second to and from adjacent MHES within the traffic control network.

Ensure that the ITS network administrator will be able to manage each MHES individually and as a group for switch configuration, performance monitoring, and troubleshooting.

Ensure that the MHES is fully compatible and interoperable with field devices and the traffic control system network.

Ensure the MHES includes any license(s) required to utilize all Layer 3 features.

Ensure the MHES provides a switched Ethernet connection for each connected device and at least one open RJ45 Ethernet port for technician access.

684-2.3.1 Optical Ports: Ensure that all fiber optic link ports are modular SFP/SFP+ ports that operate at 1310 or 1550 nanometers in single mode and support 100Base-FX, 1000Base-X, and 10GBase-X. Ensure that the optical ports are Type LC unless otherwise shown in the Plans. Do not use mechanical transfer registered jack (MTRJ) type connectors.

Provide an MHES having a minimum of six optical Gigabit Ethernet ports as required to interface adjacent network devices. Optical ports must be capable of 100M, 1G, and 10Gbps data rates unless otherwise shown in the Plans. Ensure the MHES is configured with the number and type of ports detailed in the Contract Documents. Furnish hot-swappable fiber optical transceivers. Provide optical ports designed for use with a pair of fibers; one fiber will transmit (TX) data and one fiber will receive (RX) data. The optical ports must have an optical power budget of at least 15 dB, or as detailed in the Contract Documents.

684-2.3.2 Copper Ports: Provide an MHES that includes a minimum of twelve gigabit Ethernet copper ports unless otherwise shown in the Plans. All copper ports must be Type RJ-45 and auto-negotiate speed (e.g., 10/100/1000 Base) and duplex (i.e., full or half).

684-3 Installation.

684-3.1 General: Install network devices at the locations shown in the Plans. Ensure that network devices are mounted securely and are fully accessible by field technicians. Ensure that

all unshielded twisted pair/shielded twisted pair Ethernet network cables are compliant with the EIA/TIA-568-B standard.

684-4 Field Acceptance Testing.

684-4.1 General: Conduct field acceptance testing in accordance Section 611.

684-4.3 MHES Field Acceptance Testing: Conduct inspection and testing at the installed equipment location according to the approved test plan. Perform the following:

1. Verify that physical construction has been completed as detailed in the Plans.
2. Inspect the quality and tightness of ground and surge protector connections.
3. Verify proper voltages for all power supplies and related power circuits.
4. Connect devices to the power sources.
5. Verify all connections, including correct installation of communication and power cables.
6. Verify network connection and MHES configuration using a laptop PC.

684-5 Warranty.

Ensure that network devices have a manufacturer's warranty covering defects for 1 year from the date of final acceptance. Ensure that the manufacturer will furnish replacements for any part or equipment found to be defective during the warranty period at no cost to the Department or the maintaining agency within 10 calendar days of notification.

684-6 Method of Measurement.

The Contract unit price for each network device, furnished and installed, will include furnishing, placement, and testing of all equipment and materials, and for all tools, labor, hardware, operational software packages and firmware, supplies, support, personnel training, shop drawings, documentation, and incidentals necessary to complete the work.

684-7 Basis of Payment.

Price and payment will be full compensation for all work specified in this Section.

Payment will be made under:

Item No. 684-	1-	Managed Field Ethernet Switch-each.
Item No. 684-	2-	Device Server-each.
Item No. 684-	5-	Media Converter-each.
Item No. 684-	6-	Wireless Communication System Device-each.
Item No. 684-	7-	Managed Hub Ethernet Switch-each
Item No. 684-	8-	Cellular Modem-each

SECTION 996

INTELLIGENT TRANSPORTATION SYSTEM DEVICE AND AUXILIARY COMPONENT MATERIALS

996-1 Description.

996-1.1 General: This Section governs the requirements for all permanent intelligent transportation system devices, surge protection devices for traffic control devices, pull boxes, splice boxes, fiber optic splice vaults, camera lowering devices, and traffic control system auxiliaries. All equipment shall be permanently marked with manufacturer name or trademark, part number, and date of manufacture or serial number.

996-1.2 Product Acceptance: All specified products shall be items listed on the Department's Approved Product List (APL), unless otherwise noted below. Manufacturers seeking evaluation of products for inclusion on the APL shall submit an application in accordance with Section 6 and include the following documentation. A separate application must be submitted for each product to be evaluated, showing that the product meets the applicable requirements.

Table 996-1

Documentation	Requirements
Assembly and Installation Instructions	Include any surface preparations, assembly/installation instructions, operation manual, troubleshooting guides, and repair procedures.
Independent Laboratory Test Results	Product meets requirements of this Section.
Product Label Photo	Labeling shows the manufacturer's name, trademark, and product model number/name. Label shows the date of manufacture and/or the manufacturer's batch number. Additional label requirements, as listed within this Section.
Product Photo	Displays the significant features of the product as required in this section.
Compliance Matrix	Include completed compliance matrix at https://www.fdot.gov/traffic/traf-sys/product-specifications.shtm
Manufacturer's Product Specifications	Include product specifications showing electrical requirements, voltages, etc.
Product Drawings or Cut Sheet	Show mounting points, mechanical details, block diagrams, schematics, etc.
Parts List	List major parts and field serviceable components.

996-1.3 Abbreviations: The following abbreviations are used in this Section:

Alternating Current (AC)
Closed Circuit Television (CCTV)
Direct Current (DC)
Hypertext Transfer Protocol (HTTP)

International Electrotechnical Commission (IEC)
Internet Protocol (IP)
International Organization for Standardization (ISO)
Local Area Network (LAN)
Network Time Protocol (NTP)
Pan, Tilt, Zoom (PTZ)
Telecommunications Industry Association (TIA)
Uniform Resource Locator (URL)
Ultraviolet (UV)

996-3 Network Devices.

996-3.1 General: Network devices shall be listed on the Department's Approved Product List (APL). Manufacturers seeking evaluation of their product shall submit an application in accordance with Section 6. All network devices shall be capable of secure local and remote access for configuration, operation, monitoring, and firmware updates.

996-3.3 Managed Hub Ethernet Switch:

996-3.3.1 Description: The Managed Hub Ethernet Switch (MHES) shall be compliant with the Code of Federal Regulations Section 200.216 Prohibition on certain telecommunications and video surveillance services or equipment https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200/subpart-C/section-200.216.

The MHES shall provide Ethernet connectivity at transmission rates of 10/100/1000/10000 megabits per second. The MHES shall support half and full duplex Ethernet communications. The MHES must support 12000 IPv4 routes and 2000 IPv6 routes and all routing protocols shall be in performed hardware to ensure maximum speed.

The MHES shall support management individually and as a group for switch configuration, performance monitoring, and troubleshooting. The MHES shall include Layer 2 capabilities, including, QoS, IGMP v2, rate limiting, security filtering, and general management.

The MHES shall include full Layer 3 capabilities, including Open Shortest Path First (OSPF) routing protocol, Routing Information Protocol (RIP), and Protocol Independent Multicasting (PIM). The MHES includes all license(s) required to utilize all Layer 3 features.

996-3.3.2 Networking Standards: The MHES shall comply with all applicable IEEE networking standards for Ethernet communications, including:

1. IEEE 802.1Q Standard for Local and Metropolitan Area Networks - Bridges and Bridged Networks used with port-based VLANs and RSTP.
2. IEEE 802. 1p for QoS.
3. IEEE 802.3 standard for LAN and MAN access and physical layer specifications.
4. IEEE 802.3u supplement standard regarding 100 Base TX/100 Base FX.
5. IEEE 802.3x standard regarding flow control with full duplex operation.
6. IEEE 802.3z supplement standard regarding 1000 Base X.

996-3.3.3 Optical Ports: All fiber optic link ports operate at 1,310 or 1,550 nanometers in single mode. Provide Type LC connectors unless otherwise directed. MTRJ type connectors are not allowed.

MHES shall provide a minimum of 6 optical ports capable of transmitting data at 10/100/1000/10000 megabits per second. MHES shall provide optical ports designed for use with a pair of fibers; one fiber will transmit (TX) data and one fiber will receive (RX) data. The optical ports shall have an optical power budget of at least 15 dB.

996-3.3.4 Copper Ports: MHES shall include a minimum of 12 10/100/1000 Base TX copper ports. All copper ports shall be Type RJ-45 and shall auto-negotiate speed (i.e., 10/100/1000 Base) and duplex (i.e., full or half). All 10/100/1000 Base TX ports shall meet the specifications detailed in this section and shall be compliant with the IEEE 802.3 standard pinouts.

996-3.3.5 Management Capability: MHES shall support all Layer 2 management features and all Layer 3 features as defined by this Section. Layer 2 and Layer 3 features must include:

1. Port-based VLAN and VLAN tagging that meets or exceeds specifications as published in the IEEE 802.1Q standard and has a minimum 4-kilobit VLAN address table.
2. A forwarding/filtering rate that is a minimum of 14,880 packets per second for 10 megabits per second, 148,800 packets per second for 100 megabits per second, and 1,488,000 packets per second for 1000 megabits per second.
3. A minimum 4 kilobit MAC address table.
4. Support of IGMPv2.
5. Support of remote and local setup and management via SSHv2 and secure Web-based GUI.
6. Support of SNMP version 2 and version 3.
7. Support of RADIUS or TACACS+.
8. Support of RMON of the Ethernet agent and the ability to be upgraded to SMON, if necessary.
9. Support of SCP or SFTP and either NTP or SNTP. Ensure that the MHES supports port mirroring for troubleshooting purposes when combined with a network analyzer.
10. Sampled Flow Network Monitoring export protocol capable of being turned on or off on individual Ethernet ports without affecting traffic.
11. OSPF routing protocol. 12000 IPv4 routes and 2000 IPv6 routes.
12. RIP.
13. Virtual Router Redundancy Protocol (VRRP).

996-3.3.6 Mechanical Specifications. Ensure the MHES is no greater than 1-Rack Unit tall.

Every conductive contact surface or pin shall be gold-plated or made of a noncorrosive, nonrusting, conductive metal. Do not use self-tapping screws on the exterior of the assembly. All parts shall be made of corrosion-resistant materials, such as plastic, stainless steel, anodized aluminum, brass, or gold-plated metal.

996-3.3.7 Electrical Specifications. MHES must shall operate on a

nominal voltage of 120 V_{AC}. Supply an appropriate voltage converter for devices that require operating voltages of less than 120 V_{AC}. The MHES shall have diagnostic LEDs, including link, TX, RX, and power LEDs.

996-3.3.8 Environmental Specifications. Ensure that the MHES has an operating temperature range of -34° Celsius to 74° Celsius. Ensure that the MHES can withstand 90 percent non-condensing relative humidity at 40° Celsius.