Request for Proposal

HVAC Building Automation System Upgrade

Marquette County Transit Authority (MCTA)

Marquette, Michigan

RFP # 2023-1

Request for Proposal (RFP)

Direct Question To:	Mr. Bill Geller Executive Director at bgeller@marq-tran.com by 05/05/2023 Questions and answers will be posted at www.marq-tran.com by 05/10/2023
Date Issued:	04/21/2023
Date Due:	05/22/2023
Proposer Name:	_____
Submit To:	Marquette County Transit Authority 1325 Commerce Dr. Marquette, Mi 49855

<u>PROPOSER READ AND COMPLETE</u>

The undersigned certifies that he/she offers to furnish the materials and services in strict accordance with the requirements of this proposal including any specifications, proposal forms, and terms and conditions that may be attached and that prices quoted are correct.

Signature	Date

Federal ID#: _____
(Precede with "S" if Social Security #)

BACKGROUND INFORMATION

The Marquette County Transit Authority (hereinafter referred to as the ("MCTA")
BACKGROUND INFORMATION:

The Marquette County Transit Authority's (MTCA) mission is to provide safe, high-quality, efficient, and reliable transportation to Marquette County, Michigan, through nine fixed routes, five door to door service routes, two deviated fixed routes and contracts. Employees serve the public with a high standard of quality, safety, and responsiveness. MARQ-TRAN operates 36 vehicles and transported 370,400 passengers in FY 2015.

PART 1 - GENERAL

1.1   Related Sections

      1.   SECTION 23 09 93, BAS Sequences of Operations

1.2   References

      1.   American National Standards Institute (ANSI)

            1.   ANSI/ISA 5.5-1985 Graphic Symbols for Process Displays.

            2.   ANSI/IEEE 260.1 2004, Standard Letter Symbols for SI and Certain Other Units of Measurements (SI Units, Customary Inch Pound Units and Certain Other Units).

            3.   ANSI/ASHRAE 135-2016, BACnet® - A Data Communication Protocol for Building Automation and Control Networks.

1.3   Acronyms, Abbreviations and Definitions

      1.   Acronyms used in BAS.

            1.   BAS – Building Automation System

            2.   EMCS – Energy Management and Control System

            3.   GUI – Graphical User Interface

            4.   HVAC - Heating, Ventilation, Air Conditioning

            5.   I/O - Input/output

6.   ISA - Industry Standard Architecture

7.   O&M - Operation and Maintenance

8.   Niagara4 – Software framework for building device-to-enterprise applications and Internet-enabled products.

1.4   Standards Compliance

1.   All equipment and material to be from manufacturer's regular production, UL and/or ULC or CSA certified, manufactured to standard quoted plus additional specified requirements.

2.   Where UL and/or ULC or CSA certified equipment is not available submit such equipment to inspection authorities for special inspection and approval before delivery to site.

3.   Additional applicable codes and standards:

   1.   National Electrical Code -- NFPA 70.

   2.   Local Electrical Codes

   3.   Federal Communications Commission -- Part J.

1.5   Scope of Work

1.   Provide a new building system to control and monitor the building's mechanical and electrical systems.

2.   Provide control valves, control damper actuators / end switches (gravity, fire and smoke control dampers by others), flow switches, thermal wells for temperature control, air flow stations, and other control devices as necessary.

3.   Provide submittal data sheets, control drawings schematics (in Visio or AutoCAD), data entry, electrical installation, programming, start up, test and validation acceptance documentation, as-built documentation, maintenance manuals and system warranties.

4.   All labor, material, equipment and services not specifically referred to in this specification or on associated drawings that are required to fulfill the functional intent of this specification shall be provided at no additional cost to the Owner.

5.   The work covered by this specification and related sections consists of providing submittals, labor, materials, engineering, technical supervision, and transportation as required to furnish and install a fully operational BAS to monitor and control the facilities listed herein, and as required to provide the operation specified in strict accordance with these documents, and subject to the terms and conditions of the contract. The work in general consists of but is not limited to, the following:

   1.   Furnish and install all to achieve system operation, any control devices, conduit and wiring, in the facility as required to provide the operation specified.

2. Furnish complete operating and maintenance manuals and field training of operators, programmers, and maintenance personnel.

3. Perform acceptance tests and commissioning as indicated.

6. Setting in place of valves and dampers, access doors, flow meters, water pressure and differential taps, flow switches, thermal wells, air flow stations, and current transformers shall be by others.

7. Duct smoke detectors, smoke dampers, fire/smoke dampers, and associated actuators / end switches shall be provided under another Division of this specification. The Division 26 electrical contractor shall interlock these devices to the BAS for shutdown/monitoring unless otherwise outlined in the Sequences of Operations for this project. The BAS contractor shall coordinate where to land wires and programming as needed.

8. Switches, and power wiring to motors, starters, thermal overload switches, and contactors, is specified under another Division of this specification.

1.6   BAS Open System Design and Qualifications

1. Open System Design: It is the MCTA's expressed goal to implement an open Building Automation System that will allow products from different manufacturers and/or suppliers to be integrated into a single unified system in order to provide flexibility for expansion, maintenance, and service of the system. The BAS manufacturer / contractor must provide proof of open system design as outlined below.

2. Prior to award of the contract the BAS contractor is to provide proof of "Open System Design" with the following requirements:

   1. Provide proof of having a local office within 50 miles [80 km] of project for at least 5 years, staffed by trained personnel capable of providing installation, engineering, programming, servicing, commissioning, instruction, routine maintenance, and emergency service on systems.

   2. The controls system shall utilize the Niagara4 software framework.

      1. The Contractor shall have a minimum of 2 years' experience in the sales, installation, engineering, programming servicing and commissioning of Niagara4.

      2. Submit the Niagara Compatibility Statement (NiCS) via a letter from the manufacturer. The NiCS shall have no connectivity restrictions and all aspects of the Niagara Framework will be provided to maintain an Open System Design. The System as provided shall confirm with the following NiCS properties (Station Compatibility In, Station Compatibility Out, Tool Compatibility In, AND Tool Compatibility Out shall each have a value of "All").

   3. The controls system shall conform to the following guidelines for communication protocols.

      1. BACnet shall be used for all BAS provided controllers.

1. The manufacturer of the hardware and software components as well as its subsidiaries must be a member in good standing of the BACnet International and all controllers used shall be BACnet Listed with documentation on the BACnet website (https://www.bacnetinternational.net/btl/search.php)

2. The use of BACnet Communications protocol alone shall NOT warrant an "Open System Design." Manufacturers must adhere to all aspects of "BAS Open System Design and Qualifications" and "Acceptable System Manufacturers" sections to comply.

2. Modbus shall only be acceptable for third party devices.

3. LonTalk shall only be acceptable for sites with existing LonTalk controls architecture where the owner has explicitly stated that the LonTalk architecture must remain in place.

4. Fox protocol shall NOT be acceptable.

5. Proprietary communications protocols shall NOT be acceptable.

4. A software programming tool shall be provided for this project and adhere to the following guidelines:

1. All software tools needed for full functional use, including programming of controllers, Niagara4 Framework network management and expansion, and graphical user interface use and development, of the BAS described within these specifications shall be provided to the owner or his designated agent.

2. The software programming tool shall be free of charge and openly available for download from the internet.

3. For any manufacturer that does not have a free programming tool the manufacturer must provide the tool with this project for a minimum of 5 years with proof of availability via letter from the manufacturer.

4. Any licensing required by the manufacturer now and to the completion of the warranty period, including changes to the licensee of the software tools and the addition of hardware corresponding to the licenses, to allow for a complete and operational system for both normal day to day operation and servicing shall be provided.

PART 2 - PRODUCTS

2.1   Acceptable System Manufacturers and Contractors

1. Provide a building automation system supplied by a company regularly engaged in the manufacturing and distribution of building automation systems for a minimum of 5 years.

2. The manufacturer of the hardware and software components shall have a technical support group accessible via a tollfree number that is staffed with qualified personnel, capable of providing instruction and technical support service for networked control systems.

3. BACnet/IP communication protocol must be used for all BAS manufacturer provided controllers (including terminal devices such as VAVs, FCUs, etc.)

4. Any approved manufacturer that can supply both equipment and controls must provide controls pricing separately from equipment pricing.

5. Acceptable Manufacturers

    1. Distech Controls as installed by Mechanical Technologies Inc.

6. All other manufacturers/contactors besides the "Basis of Design" manufacturer (including those listed above) must submit a compliance matrix outlining "C – Comply", "D – Does Not Comply", and "E – Exclude" for the entirety of the 230900 and 230993 sections prior to bid award.

    1. Being listed as an approved manufacturer/contractor does not preclude the bidder from meeting all aspects and requirements of this specification.

    2. Those bidders not prequalified prior to review of bids will not be considered responsive. To be prequalified a bidder must be accepted to bid the project by the engineer either by a bid addendum or documented RFI response from the engineer. No other pre-qualifications shall be acceptable.

2.2   Quality Assurance

1. All new building automation system products on this project shall be provided by a firm that is a registered ISO 9001:201508 manufacturer, for a minimum duration of 5 years, at time of bid.

2.3   Computer Hardware

1. Provide the following computer hardware for this project:

    1. Onsite Server(s)

    2. Workstation Computer(s)

    3. Uninterruptable Power Supplies

2. Server Hardware Requirements

    1. The Server shall adhere to the following minimum requirements: the latest generation Intel Core i5 processor, 16 GB RAM, and a 1TB solid state hard drive. It shall include the latest Windows 64-bit operating system (Windows 10 pro or newer), VM support, and an ethernet adapter (10/100MB with RJ45 connector).Connection to the BAS LAN network shall be via an Ethernet network interface card, 100 Mbps.

2. The server shall support all network/building controllers, OWSs, and 3rd party mechanical / electrical systems connected to the Facility Management Control / Building Automation System Local Area Network.

3. Acceptable Manufacturers are:

    1. Dell

    2. Lenovo

    HP (Hewlett Packard)

3. Workstation Hardware Requirements

1. The Workstation shall adhere to the following minimum requirements: the latest generation Intel Core i5 processor, 8 GB RAM, and a 500GB solid state hard drive. It shall include the latest Windows 64-bit operating system (Windows 10 pro or newer), Microsoft Office programs, VM support, an ethernet adapter (10/100MB with RJ45 connector), 32X CD-ROM drive, and 2-USB ports.

2. A minimum 21", HDMI, DVI-D video interfaces, minimum 1024 x 768 resolution, 4x3 Widescreen, LED color monitor with a minimum 60 Hz refresh rate shall also be included.

3. A mouse and keyboard shall be provided.

4. Connection to the BAS LAN network shall be via an Ethernet network interface card, 100 Mbps.

5. Workstation(s) should be loaded with Programming Tools

6. Acceptable Manufacturers are:

    1. Dell

    2. Lenovo

    3. HP (Hewlett Packard)

4. Uninterruptable Power Supplies

1. Provide the OWS, Server, and each network/building controller with individual UPS to provide clean, reliable, noise-filtered power at all times and to protect and maintain systems operation throughout short term power interruptions of up to 15 minutes duration.

2. Acceptable Manufacturer is APC.

2.4   Remote Access and Cyber Security Best Practices

1. Remote Access

1. The BAS contractor shall comply with owner IT infrastructure security policies for remote access. The owner IT team shall provide VPN, firewalls, etc. as needed for secure remote access.

        2.   A VPN and firewall must be used for secure remote access.

  2.   Cyber Security Best Practices

        1.   Unless predetermined by the owner IT team the BAS network shall be separate from the owners IT infrastructure besides a single point connection for remote access (owner provided internet access). All ethernet switches and communication backbone required for a fully operational BAS shall be provided by the BAS contractor.

        2.   Refer to "Communication Backbone" section of this specification for further details on segmenting the network (VLANs, subnets) and when managed switches (with port security, network user interface, etc.) are required based on building size / type.

        3.   Do not use factory provided usernames and passwords. Update passwords and usernames regularly for strong system security.

        4.   Update software and firmware regularly.

        5.   Adhere to controls manufacturer hardening guidelines where applicable.

2.5   Operator Software

  1.   Real-Time Displays

        1.   Provide a visual graphical representation of buildings, floor layouts, each piece of mechanical equipment and/or mechanical system that duplicates the represented system, presented as a web page via any industry standard web browser, where applicable.

        2.   Graphics shall include at a minimum the value of each input, each output, each setpoint, alarms and graphical representation of trend logs.

  2.   On-Line Help

        1.   Provide a context sensitive, on-line help system to assist the operator in operation and editing of the system.

  3.   Security

        1.   Each operator shall be required to log on to that system with a user name and password in order to view, edit, add, or delete data.

        2.   System security shall be selectable for each operator.

        3.   The system administrator shall have the ability to set passwords and security levels for all other operators.

        4.   Each operator password shall be able to restrict the operators' access for viewing and/or changing each system application, full screen editor, and object.

        5.   Each operator shall automatically be logged off of the system if no keyboard or mouse activity is detected.

6.   This auto log-off time shall be set per operator password.

7.   All system security data shall be stored in an encrypted format.

4.   System Diagnostics.

    1.   The system shall automatically monitor the operation of all workstations, printers, modems, network connections, building management panels, and controllers.

    2.   The failure of any device shall be annunciate to the operator.

5.   Third-Party Windows-Based Programs

    1.   The system shall be capable of utilizing third-party Windows-based programs for such things as spreadsheet analysis, graphing, charting, custom report generation, and graphics design packages.

    2.   Graphics generation shall be done using standard Windows packages.

    3.   No proprietary graphics generation software shall be needed.

6.   Overrides

    1.   It shall be possible for the operator to override automatic analog and digital output commands.

    2.   Where the BAS software normally originates these outputs, the provision shall exist for the operator to terminate automatic BAS control of any particular output and to originate a manual analog or digital output command.

    3.   The provision shall exist for the operator to return analog or digital output command functions to automatic BAS software control.

7.   Password Protection

    1.   Provide security system that prevents unauthorized use unless operator is logged on.

8.   Trend Data

    1.   System shall periodically gather historically recorded selected samples of object data stored in the field equipment (global controllers, field controllers) and archive the information on the operator's workstation (server) hard disk.

        1.   Archived files shall be appended with new sample data, allowing samples to be accumulated over 3 years.

        2.   Systems that write over archived data shall not be allowed, unless limited file size is specified.

        3.   Samples may be viewed at the operator's terminal in a trend log.

        4.   Logged data shall be stored in spreadsheet format.

        5.   Operator shall be able to scroll through all trend log data.

2. Software shall be included that is capable of graphing the trend logged object data. Software shall be capable of creating two-axis (x,y) graphs that display up to six object types at the same time in different colours and these Graphs shall show object type value relative to time.

3. Operator shall be able to change trend log setup information such as time intervals and objects logged

9. Graphics

   1. The operator's workstation shall display all data associated with the project.

      1. Operator's workstation shall display all data using 3-D graphic representations of all mechanical equipment.

   2. System shall be capable of displaying graphic file, text, and dynamic object data together on each display.

      1. Information shall be labelled with descriptors and shall be shown with the appropriate engineering units.

      2. All information on any display shall be dynamically updated without any action by the user.

      3. Terminal shall allow user to change all field-resident BAS functions associated with the project, such as setpoints, weekly schedules, exception schedules, etc. from any screen no matter if that screen shows all text or a complete graphic display.

   3. Animated graphic objects shall be displayed as a sequence of multiple bitmaps to simulate motion.

   4. Analog objects may also be assigned to an area of a system graphic, where the colour of the defined area would change based on the analog objects value.

      1. For example, an area of a floor-plan graphic served by a single control zone would change colour with respect to the temperature of the zone or its deviation from setpoint.

   5. Separate Displays shall be supplied, specific to the project, to form the following overall presentation style.

   6. All Displays will be linked in a logical fashion using hyperlink style (single left mouse click on text/display object/dynamic to load linked display if programmed)

   7. Entire system shall operate without dependency on the operator's terminal. Provide graphic generation software at each workstation.

10. Alarms

   1. Operator's terminal shall provide audible, visual, electronic and printed means of alarm indication.

   2. Any alarm may be handled based on its individual or assigned class actions.

        1.   Displayed on the Alarm console.

                1.   The system shall be provided with a dedicated alarm window or console.

                2.   This window will notify the operator of an alarm condition, and allow the operator to view details of the alarm and acknowledge the alarm.

        2.   Alarm reports shall be viewable via the BAS system and available for delivery by electronic mail (e-mail) or printing.

    3.   System shall provide log of alarm messages. Alarm log shall be archived to the hard disk of the system operator's terminal.

        1.   Each entry shall include a description of the event-initiating object generating the alarm, time and date of alarm occurrence, time and date of object state return to normal, and time and date of alarm acknowledgement.

11.   Scheduling

    1.   Operator's terminal display of weekly schedules shall show all information in easy-to-read 7-day (weekly) format for each schedule.

    2.   Exception schedules (non-normal schedules, such as holidays or special event at the operator's terminal, the system user shall be able to change all information for a given weekly or exception schedule if logged on with the appropriate security access.

12.   Archiving

    1.   Store back-up copies of all controller databases in at least one OWS and the server.

    2.   Provide continuous supervision of integrity of all controller databases.

    3.   Data base back up and downloading to occur over LAN without operator intervention.

    4.   Operator to be able to manually download entire controller database or parts thereof.

13.   Reports

    1.   Provide a report facility to generate and format for display, printing, or permanent storage, as selected by the operator, the reports as specified in this section.

    2.   Provide the software to automatically generate any report specified; the user will be able to specify the type of report, start time and date, interval between reports (hourly, daily, weekly, monthly) and output device.

    3.   As a minimum, the following reports shall be configured on the system:

1. Dynamic Reports: To allow operator to request a display of the dynamic value for the user specified points which shall indicate the status at the time the request was entered and updated at an operator modifiable scan frequency.

2. Summary Report: To permit the display or printing of the dynamic values for the user specified points.

3. Trend Reports: To permit the trending of points selected by the operator, including as a minimum digital input and output, analog input and output, set points, and calculated values.

4. Historical Data Collection: Provision shall be made to ensure historical data is not lost.

5. Alarm Summary: Provide a summary of all points in alarm and include as a minimum; point acronym, point description, current value, alarm type, limit exceeded, and time and date of occurrence.

6. Disable Point Summary: Provide a summary of all points in the disabled state and include as a minimum point acronym and point description.

7. Run Time Summary: Provide a summary of the accumulated running time of selected pieces of equipment with point acronym and description, run time to date, alarm limit setting. The run time shall continue to accumulate until reset individually by means of suitable operator s) shall display all dates that are an exception to the weekly schedules.

8. Schedule Summary: Provide a summary of all schedules and indicate as a minimum, which days are holidays and, for each section, the day of the week, the schedule times and associated values; for digital schedules value will be on or off; for analog schedules value will be an analog value.

9. User Record Summary: Provide a summary of all user records to include as a minimum; user name, password, initials, command access level and point groups assigned.

2.6   BAS Controllers

1. All controllers on the job shall have the following minimum requirements:

    1. IP Communication (BACnet/IP)

        1. BACnet/IP communication protocol shall be used for all new BAS manufacturer provided controllers (including terminal devices such as VAVs, FCUs, etc.)

        2. Support for IPv4 addressing

        3. DHCP support and Auto DNS

        4. Baud rate of not less than 100 Mbps

        5. 2 - RJ45 ports each capable of supporting 10/100 Base-T.

            1. Supporting controller daisy chaining on the Ethernet network via integral switch functionality.

   2. Integrated fail-safe should allow for communication when the controller is powered down.

  6. All controllers shall be able to communicate peer-to-peer without the need for a Network Control Unit (such as JACE, NAE, etc.) and shall be capable of assuming all responsibilities typically assumed by a Network Control Unit.

   1. Any controller on the Ethernet Data Link/Physical layer shall be able to act as a Master to allow for the exchange and sharing of data variables and messages with any other controller connected on the same communication cabling. Slave controllers are not acceptable.

   2. The resulting network will be a 'Flat' topology with all devices (controllers, workstations, …) connecting at the same physical network level

2. Memory and Processing

  1. 512KB of RAM and 4GB of non-volatile flash memory.

  2. 32-bit microprocessor operating at a minimum of 600 MHz

  3.

3. Each individual controller shall have an embedded web-based HTML5 visual interface with the following functionality without reliance on any other controller for access:

  1. Typical and custom control processes

  2. Scheduling

  3. Energy management applications

  4. Alarm management applications

  5. Historical/trend data for points specified

  6. Maintenance support applications

  7. Graphical interface

4. Shall be capable of monitoring/controlling the following types of inputs/outputs:

  1. Digital inputs from dry contact closure, pulse accumulators, voltage sensing.

  2. Analog inputs of 4-20 mA, 0-10 Vdc, thermistor and RTD in the range 0 to 350,000 ohm.

  3. Digital outputs including Form C relay outputs and Triac outputs

  4. Analog outputs of 4-20 mA and 0-10 Vdc.

  5. A minimum of 10% spare capacity for each point type for future point connection.

5. Any software required for programming shall be unlicensed and openly available

6. Auto commissioning features shall be available for VAVs and FCUs to schedule automatic testing and record values (air flows, pressures, temperatures, etc.) for different operating modes. The auto commissioning feature shall be able to email reports and run commissioning on a specified schedule.

7. Power and Environmental Requirements:

   1. 24 VAC with local transformer power

   2. The controllers shall also function normally under ambient conditions of -40 ˚F [-40 ˚C] to 158 ˚F [-70 ˚C] and 0% to 90% RH (non-condensing).

   3. Provide each controller with a suitable cover or enclosure to protect the intelligence board assembly.

8. Code Compliance:

   1. "FIPS 140-2 Level 1 Compliant" cryptographic module

   2. BACnet Testing Laboratory (BTL listed) using Device Profile BACnet Building Controller (B-BC) with outlined enhanced features.

   3. UL916 Energy management equipment

   4. FCC rules part 15, subpart B, class B

   5. UL94-V0 flammability rating

2.7   Control Panels

1. Indoor control cabinets located in offices or dry/dust free environments shall be fully enclosed NEMA 1 Type construction with hinged door, and removable sub-panels or electrical sub-assemblies.

2. All outdoor control cabinets and control cabinets located in mechanical/electrical rooms shall be NEMA 4.

3. Control panels containing more than 4 controllers shall be provided with a terminal strip for field wiring. All control wiring inside the panel shall be between a terminal strip and controller inputs/outputs. All field control wiring shall be terminated at the terminal strip. Field control wiring inputs/outputs shall never be run directly to inputs/outputs of controller.

PART 3 - EXECUTION

3.1   Communication Backbone

1. To allow for future expandability, cyber security measures, optimal bandwidth, and enhanced data trending this project shall adhere to the below communication backbone requirements.

2. IP (CAT 5 / RJ45) Network

1.   BACnet/IP communication protocol shall be used for all BAS manufacturer provided controllers (including terminal devices such as VAVs, FCUs, etc.)

2.   For all buildings NOT exceeding 5 levels (including rooftops/cellars), 100m between ethernet connections, 250 controllers, or more than 1 type of operational technology residing on the same network (CCTV, lighting, access, etc.):

      1.   Ethernet Switches shall be provided as needed to support a fully functional BAS – fiber network shall not be required.

      2.   BACnet/IP communication for all BAS manufacturer provided controllers

      3.   Modbus TCP shall only be used for third party systems / equipment that do not support BACnet/IP

      4.   Modbus RTU and BACnet MS/TP only to be used for third party systems / equipment that do not support BACnet/IP provisions (VFDs, boilers, etc.)

3.   Modbus RTU and BACnet MS/TP (RS-485) Network

      1.   Only to be used for systems / equipment that do not have IP provisions (VFDs, boilers, etc.)

3.2   Co-ordination

1.   All work shall be performed at times acceptable to the Engineer/Construction Manager. Provide work schedule at the start of the job for the approval of the Engineer / Construction Manager. Schedule shall show when all staff and sub-contractors shall be on-site.

3.3   Electrical Work, Wiring and Safety

1.   Electrical work shall be in accordance ANSI/NFPA 70 and the local Electrical Code.

2.   Based on project location, Regional Regulation Compliance Certifications (CSA C22.1) will be required.

3.   Electrical wiring, terminal blocks and other high voltage contacts shall be fully enclosed or properly guarded and marked to prevent accidental injury to personnel.

4.   Control and interlock wiring and installation shall comply with national and local electrical codes, Division 26 00 00, and manufacturer's recommendations. Where the requirements of this Section differ from other Divisions, this Section shall take precedence.

      1.   Power wiring to mechanical equipment, variable air volume boxes, and motor controllers shall be provided by the Electrical contractor (Division 26).

      2.   EMT conduit shall be used in mechanical/electrical rooms and exposed spaces.

      3.   Rigid Galvanized Steel conduit shall be used outdoors.

      4.   Plenum rated cable shall be used in concealed spaces/hung ceilings.

5. All wiring associated with and required by the BAS shall be the responsibility of this contractor.

    1. The term "wiring" shall be construed to include furnishing of wire, conduit, and miscellaneous material and labor as required to install a total working system.

    2. If departures from the contract documents are deemed necessary by the contractor, details of such departures, including changes in related portions of the project and the reasons therefore, shall be submitted with the drawings to the Engineer for approval.

6. Terminate control and interlock wiring related to the work of this section. Maintain at the job site updated (as-built) wiring diagrams that identify terminations.

7. Install equipment, piping, and wiring or raceway horizontally, vertically, and parallel to walls wherever possible.

8. Provide sufficient slack and flexible connections to allow for piping and equipment vibration isolation.

9. Each run of communication wiring shall be a continuous length without splices when that length is commercially available.

10. Label communication wiring to indicate origination and destination.

3.4   Submittals

1. Schematic diagram of each controlled system. Label control points with point names.

2. Bill of Material for each controlled system. List each control system element in a table. Show element name, type of device, manufacturer, model number, and product data sheet number.

3. Specification sheets for each item including manufacturers descriptive literature, drawings, diagrams, performance and characteristic curves, manufacturer and model number, size, layout, dimensions, capacity, etc.

4. Control schematics with narrative description and control descriptive logic fully showing and describing operation and/or manual procedures available to operating personnel to achieve proper operation of the building, including under complete failure of the BAS.

5. Shop drawings for each input/output point showing all information associated with each particular point including sensing element type and location; details of associated field wiring schematics and schedules; point address; software and programming details associated with each point; and manufacturer's recommended installation instructions and procedures for each type of sensor and/or transmitter.

6. Riser diagrams showing control network layout, communication protocol, and wire types.

7. Network diagram of control, communication, and power wiring for BAS Server and OWS installation.

3.5   As-built Documentation

1. As-built documentation shall consist of 4 hard copies and one soft copy for all information described below

2. The final documentation package shall include:

    1. As-built Submittals: Final as built control submittals and technical data sheets.

    2. Programming, Sequences, and Graphics: All programming, sequences, and graphics saved to an external hard drive.

    3. Operation and Maintenance Manuals: Factory operating and maintenance manuals with any customization required.

    4. Test Procedures and Reports: The test implementation shall be recorded with a description of the test exercise script of events and documented as test procedures.

3.6 Warranty

1. The BAS system labor and materials shall be warranted free from defects for a period of 1 year after final commissioning and owner acceptance.

3.7 Training

1. BAS Contractor shall provide a minimum of 16 hours of training with course outline and materials for personnel designated by the owner.

2. If desired manufacturer provided training on the use and operation of all products provided within these specifications shall be available for purchase and attendance by the Owner or his designated agent. A list of training courses with detailed course outline and duration with the associated cost shall be provided as part of the BAS submittals.

3.8 Balancing and Commissioning

1. BAS Contractor shall provide a minimum of 16 hours of commissioning assistance with a commissioning agent and 16 hours of balancing assistance with a balancing agent. Balancing and commissioning agents shall NOT be provided by BAS contractor – BAS contractor is responsible for assistance only.

2. For projects without balancing and commissioning agents the BAS contractor shall self commission the system utilizing the allotted hours stated above.

3. Provide commissioning data sheets prior to acceptance testing.

3.9 Alternates

1. Maintenance Contract:

    1. The BAS Contractor shall present a two year maintenance contract for the Owner's acceptance within sixty days after installation of the system begins. Show the price for each year with all payment terms and conditions.

2. The Maintenance Contract shall include the following provisions: on-line diagnostic and troubleshooting service, quarterly software maintenance/consultation/database backup, repair and replacement as needed (T&M proposals), and emergency service (per predetermined agreement).

3. Maintenance Routines include, but are not be limited to the following: checking performance of equipment and components (with diagnostic testing, examination, adjustment, and calibration) and 2 training sessions per year.

4. The Maintenance Contract shall be renewable at the Owner's option and include provision for increased charges due to expansion of the system, changes in service coverage, and/or inflation.

End of Section

QUESTIONS

Questions on the RFP must be submitted to Bill Geller, MCTA Executive Director, at Bgeller@marq-tran.com by ___*month, day*___, 2021 and will be answered in writing. Questions, answers, and any addendums to the RFP will be posted on the MCTA's website at www.marq-tran.com and distributed to every firm sent an RFP, and to every firm who has submitted a proposal or question. Verbal comments are not part of this solicitation. Phone calls will not be accepted.

OFFER PREPARATION AND SUBMITTAL

Proposal Content
The following needs to be included with your proposal:

Price Proposal
The price offered must be on Attachment a – Price Proposal Form

The Attachment A -- Price Proposal Form, **must** be submitted with the proposal in a separate, sealed envelope. **Failure** to submit the Price Proposal Form in a separate, sealed envelope will result in the **immediate disqualification** of the proposer as non-responsive. This requirement is to prevent the possibility of the proposed price influencing the scoring of the other evaluation criteria.

Request for Proposal

Itemized Costs

A complete list of detailed, itemized costs related to the project/solution is required and must be attached to the Attachment A - Price Proposal Form.

Staff and Organization Structure
Describe the proposed staffing, functioning, and interrelationships with the MCTA during the project. Identify principal staff personnel by name and qualification as well as any key staff from subcontractors.

Prior Experience
Describe prior or present projects which would tend to substantiate your qualifications to perform this project. Include the name, address, and telephone number of the responsible person of the former client's organization who may be contacted as a reference.

Authorized Negotiators
Provide the names, telephone numbers, and email address of personnel of your organization authorized to negotiate with the MCTA.

Business Organization
State the full name and address of your organization and, if applicable, the parent or subsidiary entity that will perform or assist in performance of the work contained in your proposal or will provide any assistance. Indicate whether you operate as an individual, partnership or corporation; if as a corporation, include the state in which you're incorporated. All respondents must indicate their organization's federal identification number.

Proof of Insurance
Proposers must carry the necessary Workers' Compensation Insurance and include a certification to that effect with the proposal. Proposers must also carry adequate insurance to afford protection against all claims for damage to public or private property and injuries to persons arising out of performance of the work. Copies of completed certificates must be included with the proposal.

Proposal Submittal
All organizations must **mail four (4) copies** of their proposals plus one copy of their Price Proposal Form to Marquette County Transportation Authority, ATTN: Bill Geller, 1325 Commerce Dr. Marquette, MI 49855. The Price Proposal Form must be in a separate, sealed envelope. PAGE 2 OF THE RFP MUST BE SIGNED IN INK BY AN OFFICIAL OF THE SUBMITTING ORGANIZATION authorized to bind the proposer to the provision of the RFP and THE SIGNED PAGE 2 MUST BE RETURNED WITH THE PROPOSAL. Proposals will remain valid for 120 days after the proposal due date.

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Mailed proposals must be received by 5:00 p.m. EST on 05 /22/ 2023 at the Marquette County Transportation Authority at 1325 Commerce Dr. Marquette, MI 49855. Late submissions will

not be accepted. The MCTA reserves the right to postpone the due date for sound, documentable, business reasons.

This project is funded by the Federal Transit Administration (FTA) and the Michigan Department of Transportation (MDOT). It is subject to federal and state guidelines. The federal requirements of this project are Construction More Than $150,000 Michigan Department of Transportation 3163 (08/19 and are attached. A signed copy of page 1 of the federal contract clauses must be included with the proposal. The selected firm may have to have a 3rd party subcontract approved by MDOT. This solicitation will result in a firm, fixed price contract. Award will be to responsive and responsible firm.

MODIFICATIONS AND WITHDRAWLS OF OFFERS

Proposals may be withdrawn in writing at any time prior to the due date and time. A proposal may also be withdrawn in person by a proposing firm, provided the withdrawal is made prior to the due date and time. The proposing firm must sign a receipt of withdrawal. No proposal may be withdrawn after the due date unless there is material error in the proposal. Withdrawn proposals may be resubmitted, with or without modifications, up to the due date and time. The MCTA shall require proof of agency authority from the person withdrawing proposal.

PROPOSAL EVALUATION FOR AWARD

The proposals will be evaluated by the Selection Committee using the following selection criteria. The Selection Committee will consist of the agency Executive Director, (2) Operations Managers, and the Finance Officer. Representatives from the firm(s) in a competitive range may be invited to meet by video conference call or by conference phone call with the Selection Committee before the final selection is made. The presentation or conference phone call allows the Selection Committee to discuss any aspects of the proposal needing clarification. Evaluation scores may be adjusted based on the results of the presentations.

The MCTA reserves the right to reject any and all proposals in whole or part for sound documentable business reasons. The MCTA also reserves the right to award to other than the lowest price proposal and to waive any minor informalities or irregularities. The evaluation criteria are listed in order of importance.

Understanding of the Project's Context and Purpose: A determination will be made of the proposer's technical soundness, understanding of the project and ability to deliver a comprehensive solution to the requirements of the RFP.

Prior Experience: Evaluation will be based on references, samples of work and explanations of similar services.

<div align="right">Request for Proposal</div>

Capability and Qualifications: Evaluation will be on the capability of the proposer to complete the RFP requirements and on the qualifications of personnel assigned to successfully complete the project. The identified personnel that work on the project must be the same staff that are identified in the proposal.

BEST VALUE DETERMINATION

The Attachment A - Price Proposal Form, **must** be submitted with the proposal in a separate, sealed envelope. **Failure** to submit the Price Proposal Form in a separate, sealed envelope will result in the **immediate disqualification** of the proposer as non-responsive. This requirement is to prevent the possibility of the proposed price influencing the scoring of the other evaluation criteria.

After the Selection Committee scores the proposals, the envelopes containing the Attachment A - Price Proposal Form, will be opened and evaluated to determine which proposal represents the Best Value to MCTA. Best Value is defined by federal guidance as a competitive procurement process in which the grant recipient reserves the right to select the most advantageous offer by evaluating and comparing factors in addition to cost or price such that a recipient may acquire technical superiority even if must pay a higher price.

TIMELINE OF COMPLETION

The selected vendor will receive a notice to proceed from the MCTA.. **The entire project must be completed no later than 07/28/2023, therefore the proposer must also show capability and attest it can complete the job on that schedule**. MCTA is anticipating a start date of 05/29/ 2023.

TERMS OF PAYMENT

The prime contractor will complete the project AND submit an invoice to the Marquette County Transportation Authority at 1325 Commerce Dr., Marquette, Mi 49855 in order to guarantee payment. No payment will be submitted to the State of Michigan for reimbursement until the MCTA verifies that the project meets the bid specifications. Upon acceptance, the MCTA will submit a request to the State of Michigan which will take a minimum of forty-five (45) days to be processed. No payment will be made by the MCTA until the reimbursement check is received by MDOT. **All invoices shall be itemized**.

                                                                          Request for Proposal

PROPOSAL PROTESTS

All protests shall be addressed in writing to the MCTA. Protests about specifications must be received ten (10) days before the proposal due date. Post award protests may be received by MCTA at any time after proposal opening, but not later than five (5) working days after notification to all proposers of the contract award decision. The MCTA will review and respond within ten (10) days of receiving the protest. The MCTA is the final arbitrator on any question or dispute pertaining to proposals, proposal forms, and awards. This "disputes" clause does not preclude consideration of questions of law in connection with decisions provided for above; provided that nothing in this contract shall be construed as making final the decision of any administrative official, representative, or board on a question of law.

Proposal protests shall contain:
  a) The name and address of the protester
  b) Identification of the project
  c) A statement of the grounds for the protest and any supporting documentation. The grounds for protest shall be fully supported to the extent feasible. Additional materials in support of an initial protest may be permitted only at the sole discretion of the MCTA.
  d) The relief desired of the MCTA

SECTION THREE

CONTRACTOR FURNISHINGS

The contractor shall provide all supervision, labor, materials, supplies, parts, tools, transportation and equipment necessary to perform the scope of this project.

INDEMNITY PROVISIONS

The contractor shall indemnify, defend and hold harmless the MCTA, officers, employees and agents, from and against all losses, liabilities, penalties, fines, damages and claims (including taxes), and all related costs and expenses (including reasonable attorney's fees and disbursements and costs of investigation, litigation, settlement, judgments, interest and penalties), arising from or in connection with any of the following:
  a) the product provided, performance of the work, duties, responsibilities, actions or omissions of the contractor
  b) breach by the contractor or any representation of warranty made by the contractor in the contract

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c) occurrences that the contractor is required to insure against as provided for in this contract

d) death or bodily injury of any person, or the damage, loss or destruction of any real or tangible personal property, in connection with the performance of services by the contractor, by any of its subcontractors, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable; provided, however, that this indemnification obligation shall not apply to the extent, if any, that such death, bodily injury or property damage

e) any claim, demand, action, citation or legal proceeding against the Agency, its employees and agents which results from an act or omission of the contractor or any of its subcontractors in its or their capacity as an employer or person

SECTION FOUR

INSPECTION

Final inspection and acceptance of all work, reports, performance, and other deliverables required under this contract shall be performed at the place of delivery by MCTA.

ASSIGNMENT

Neither party may assign, directly or indirectly, all or part of its rights or obligations under this Agreement without the prior written consent of the other party, which consent shall not be unreasonably withheld or delayed.

IMPACT OF FEDERAL, STATE, AND LOCAL TAXES

The MCTA is exempt from Federal, State, and local taxes. The RCTA will not be responsible for any taxes levied on the respondent as a result of the contract resulting from this RFP.

DISPUTES

The parties shall attempt to resolve any dispute arising out of or relating to this contract through negotiations between senior executives of the parties, who have authority to settle the same. If the matter is not resolved by negotiation within 30 days of receipt of a written 'invitation to negotiate', the parties will attempt to resolve the dispute in good faith through an agreed Alternative Dispute Resolution (ADR) procedure.

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GOVERNING LAW

This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan. All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract.

EXAMINATION OF RECORDS

The proposer who is awarded the contract agrees that the auditor of the MCTA or an authorized representative from the State of Michigan shall have access to, and the right to examine, audit, excerpt, and transcribe any directly pertinent books, documents, papers, and records of the contractor relating to orders, invoices, or payments of this contract. All records relating to the awarded contract shall be retained for three (3) years after the date of final payment or completion of any required audit.

Compliance with this clause does not relieve a contractor from retaining any records required by other laws or regulations of federal, state, or local government units.

ATTACHMENTS

Attachment A - Price Proposal Form

Attachment B - Materials and Supplies more than $150,000.00
Michigan Department of Transportation 3165 (11/19)