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**REQUEST FOR PROPOSALS
D610-023-RW
ARTERIAL DYNAMIC MESSAGE SIGN ASSEMBLY**

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ATTACHMENTS:

- ATTACHMENT A: MISSOURI SERVICE-DISABLED VETERAN BUSINESS PREFERENCE**
- ATTACHMENT B: SIGNATURE AND IDENTITY OF BIDDER**
- ATTACHMENT C: WORKER ELIGIBILITY VERIFICATION AFFIDAVI**
- ATTACHMENT D: APPLICANT AFFIDAVIT FOR SOLE-PROPRIETORSHIP OR PARTNERSHIP**

ATTACHMENT E: MISSOURI PRODUCT PROCUREMENT ACT
ATTACHMENT F: BID BOND

LIST OF ACRONYMS

| | |
|--------------|---|
| MHTC | Missouri Highways and Transportation Commission |
| MoDOT | Missouri Department of Transportation |
| RFP | Request for Proposals |

INTRODUCTION

This Request For Proposal (**RFP**) seeks proposals from qualified organizations (**Offeror**) to furnish the described items to the Missouri Highways and Transportation Commission (**MHTC**). Nine (9) copies of each proposal must be mailed in a sealed envelope to 2309 Barrett Station Road, Ballwin, MO 63021, Missouri Department of Transportation, or hand-delivered in a sealed envelope to the Procurement Office at 2309 Barrett Station Road, Ballwin, MO 63021. Proposals must be returned to the offices by **Thursday, August 27, 2009** no later than **10:00 a.m. CST**.

MHTC reserves the right to reject any and all bids for any reason whatsoever. Time is of the essence for responding to the RFP within the submission deadlines.

PROPOSAL

- (1) The Offeror shall provide a fee proposal to MHTC on the **PRICE PAGE** in accordance with the terms of this RFP.
- (2) The Offeror agrees to provide the items at the fees quoted, under the terms of this RFP.

Authorized Signature of Offeror: _____

Date of Proposal: _____

Printed or Typed Name: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

Electronic Mail Address: _____

ACCEPTANCE

This proposal is accepted by MHTC.

(Name and Title)

Date

**SECTION (1):
GENERAL DESCRIPTION AND BACKGROUND**

- (A) **Request for Proposal:** This document constitutes a RFP from qualified organizations to provide Arterial Dynamic Message Sign Assemblies to MHTC and the Missouri Department of Transportation (**MoDOT**).
- (B) **Background:** The Missouri Department of Transportation (MoDOT) seeks proposals to provide Arterial DMS Assemblies. Each Offeror is solely responsible for a prudent and complete personal examination and assessment of the requirements and specifications, and/or any other existing condition, factor, or item that may affect or impact on the performance of the Arterial DMS boards as described and required by the Contractual Requirements. The Offeror shall not be relieved of responsibility for performance under the contract for any reason whatsoever, including, but not limited to (1) the Offeror's failure to comprehend specifications as supplied (2) the Offeror's failure to solicit pertinent data or information, etc.
- (C) **Fiscal Year:** The fiscal year runs from July 1-June 30, period of service will be from Date of Award through August 30, 2010, with the option(s) to extend the contract for up to two(2) one year periods, at the sole discretion of the Missouri Department of Transportation.

**SECTION (2):
SCOPE OF WORK**

- (A) **Services:** The Offeror shall provide competitive, sealed proposals for the provision of arterial dynamic message sign assemblies as set forth by this RFP.
- (B) **Specific Requirements:** The Offeror will provide to MoDOT nine (9) copies of a program proposal which will include but not limited to the following:
 - Shop drawings of devices
 - Schematic of typical communication layout
 - Timeline (per pricing page)
 - Cost (per pricing page)
 - Specification compliance confirmation per line item (does or does not meet)
- (C) **Administration of Program:** The Offeror will consult MHTC's representative regarding any problems involved with the administration of the items provided pursuant to this RFP.

FUNCTIONAL SPECIFICATION FOR ARTERIAL DYNAMIC MESSAGE SIGN ASSEMBLY

1. GENERAL

1.1. Description

This specification describes a front access dynamic message sign (DMS) assembly. The DMS assembly shall include the DMS, horizontal structural brackets, mounting hardware, electrical distribution, surge suppression and all miscellaneous hardware and incidental components (including internal cables) required to deliver a fully operational subsystem. The entire assembly shall be housed in a fully wired aluminum weatherproof enclosure.

The assembly also includes a sign controller to be mounted in a cabinet mounted on the sign support structure or in a ground mounted cabinet located near the sign. In most cases, the cabinet will be ground mounted. Others will install the sign and provide the support structure and controller cabinet. Cables connecting the controller to the sign shall be provided, but will be installed by others.

The sign shall conform to NEMA TS 4, except for requirements of NEMA TS 4 that conflict with the requirements in this specification.

The sign shall be fully compatible with MoDOT's existing Gateway Guide software. The full cost for any software modifications required to allow the sign to be fully compatible is the responsibility of the sign manufacturer. For information on the Gateway Guide software, contact Gateway Guide staff directly.

When displaying 12-inch characters, the sign shall be readable from any point on the approach roadway up to 560 feet away under all normal weather and lighting conditions.

All DMS equipment components, modular assemblies, and other materials located in the DMS housing shall be removable, transportable, and capable of being installed by a single technician in a bucket truck. Structural members and components thereof are not included in this requirement. Like items shall be identical, both within and among signs.

All components furnished under this functional specification shall be current production equipment and of recent manufacture. To ensure overall system compatibility, all DMS's shall be from the same manufacturer.

1.2. Manufacturer Qualifications

The DMS manufacturer proposed to furnish displays and controllers for this project shall have been in business continuously for a minimum of five years prior to the date of bid opening. Further, the proposed manufacturer shall have furnished permanently installed LED DMS systems similar to the system specified here in for a minimum of three projects, each with at least five signs and controllers. Each of these signs and controllers shall have satisfactorily operated for a minimum of one year prior to the date of bid opening. The names, current addresses and phone numbers of individuals who can certify satisfactory operation of signs meeting the above stated requirements shall be provided with the bid.

1.3. Item Identification

Manufacturer model numbers shall be permanently affixed on all replaceable components. The manufacturer shall supply an Excel spreadsheet in the current MoDOT format containing the manufacturer's name, device type (i.e., DMS), Location Identifier, model number, part number and serial number as separate fields.

1.4. Mechanical

The total weight of the DMS assembly shall not exceed 2000 lb (909 kg).

1.5. Electrical

The presence of ambient radio signals, magnetic or electromagnetic interference, including those from power lines, transformers, or motors within 1 ft (0.3 m) of any components of the system, shall not impair the performance of the system. The system shall not radiate any electrical or electromagnetic signals that could adversely affect any other electrical or electronic device.

All system electronics shall be 100 percent solid-state technology with the exception of the ventilation fans.

All high voltage (exceeding 24 Volts DC) components used in the sign shall be UL listed.

2. DYNAMIC MESSAGE SIGN COMPONENTS

2.1. DISPLAY ELEMENTS

2.1.1. Display

Each DMS shall be of the full matrix type. The matrix shall be a minimum of 27 pixels high (rows) by a minimum 105 pixels wide (columns). The pixels shall be spaced uniformly with the same spacing vertically and horizontally to the rows (i.e., no pitch or slant is allowed). The outside border around the DMS display shall be approximately 12 inches (305 mm).

2.1.2. Light Emitting Diodes

Display pixels shall incorporate amber LED technology. The discrete LED's shall have a viewing cone of 30 degrees. The shop drawing submittal for the sign shall include the manufacturer's procedure for ensuring that the NEMA TS-4 requirements for uniform brightness and uniform color are met.

2.1.3. Display Modules

All module surfaces, which are visible from outside the DMS, excluding the LED pixels, shall be painted flat black in order to provide maximum display contrast and readability. There shall be a minimum of two pixels per module.

Display modules shall be removable from the DMS with either simple hand tools or without any tools. All wiring interconnecting the individual display modules shall be modular harness assemblies with latching push- on/pull-off or twist on/off connectors.

The removal of any combination of one or more display modules shall not alter the structural integrity of the DMS assembly. Nor shall the removal of any combination of display modules affect the operation of the remaining operational modules in any way.

Pixels shall consist of two interlaced strings of LEDs.

LED's shall be soldered to circuit boards with through-hole type of circuit board mounting. Surface mounting of LED's will not be allowed.

To minimize the chance of LEDs being pushed out of alignment with the sign's optical axis, LED's must be mounted no more than 1/100 inch from the front side of the printed circuit board. The LED's must be mechanically protected, so that there is no contact with them when the module is gripped or dropped.

Display modules shall be attached to the support frame with captive fasteners in such a way that their position does not change when the sign is subjected to severe vibration.

The LED leads and the circuit board traces shall dissipate heat produced by the LEDs. Circuit traces that connect to the LEDs shall be two ounce copper plating or thicker. The width of traces that connect to those LED leads that carry heat from the LED chip shall be maximized.

Both sides of the board shall be protected with acrylic conformal coating. The coating on the front of the board is to seal the gap between the LEDs and the board, and shall be applied so as not to coat the LED housing above the gap. The LEDs may not be potted.

The peak current provided at maximum brightness must be 20 mA or, if adjustable, must be set at 20 mA when installed. If the maximum current is adjustable, the adjustment mechanism shall not permit values above 30 mA.

The top of the display modules shall tilt forward seven degrees. The amount of the forward tilt may be adjustable, in which case the adjusting mechanism must be calibrated and each position labeled. The mechanism that adjusts the tilt must rely on pins or bolts, not friction, to hold the modules at the desired angle.

2.2. DISPLAY ELECTRONICS

2.2.1. Driver Circuitry

The driver circuitry shall be able to detect abnormal current values, including short circuits and open circuits, while a single pixel is being illuminated. The state of the LED's (on or off) in each pixel of the sign shall be read by the sign controller so it can report the actual message, including static, flashing and alternating messages, that is visibly displayed on the sign in a WYSIWYG format. This pixel read shall take place while a message is displayed on the sign without disturbing the message in any way and will include any half-out, full-out, half stuck on or fully stuck on pixels. Any flashing, flickering, blinking, dimming, or other disturbance of the message during this pixel status read shall be cause for rejection of the sign. This functionality shall be specifically demonstrated during factory acceptance testing along with other testing as required in Section 5.

2.2.2. Brightness Control

Pulsed drive current shall be used at the maximum brightness level. Pulse Width Modulation (PWM) shall be used to dim the sign to achieve the proper brightness level for a given ambient light condition. As part of the shop drawing submittal, a complete schematic of the LED power and driver circuits shall be provided for review by the Engineer. Multiplexing of the LED's shall not be allowed.

The DMS shall have photocells that detect when the sun is directly in front of the DMS or directly behind it. Those photocells, or a separate photocell, shall also distinguish night from day. These photocells shall not be affected by man-made light sources, such as highway lighting and/or headlights. They shall be easily accessible for maintenance.

2.2.3. Temperature Control

The DMS shall be designed so that the air temperature on the backside of the display modules never exceeds 140 degrees F (60 degrees C). A thermostat located in the middle of the top line of display modules shall shut down the LED display if the temperature rises above 140 degrees F (60 degrees C) and restore power when the temperature has dropped to 120 degrees F (50 degrees C). This shall be independent of the controller.

The sign shall also have one or more temperature sensors that report the sign temperature to the sign controller, which shall in turn report the temperature to the central software.

2.2.4. DMS Power Supplies

The maximum operating temperature of all power supplies shall be at least 150 degrees F (65 degrees C). All regulated power supplies shall have a minimum power factor of 0.95.

The LED display modules shall be operated at low internal DC voltage not exceeding 24 Volts.

The power supplies shall be short circuit protected by DC power OFF, and shall reset automatically after 5 seconds of AC power OFF. The power supplies shall also be protected by a suitable inrush current allowance to be recommended by the manufacturer and approved by the Engineer.

The power supplies shall have an efficiency rating of at least 75 percent.

2.3. ENCLOSURE

The sign shall be designed so that all service is performed from the front of the sign by one technician using a bucket truck. Permanent lifting angles or lugs shall be attached to the DMS enclosure for moving and mounting.

2.3.1. Structural Performance

The structural design of the LED DMS enclosure shall conform to current AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals*. Additional design criteria are as follows:

- Wind Velocity = 80 mph (130 kilometers per hour)
- Gust Factor = 1.3
- Housing shall support a front face ice load of four pounds per square foot.

The performance and stability of the sign shall not be impaired due to vibration, wind, vacuum pressure, and/or other normally encountered forces created by the effects of traffic. The shop drawing submittal shall include structural design calculations for the enclosure, signed and stamped by a registered professional engineer in the state of Missouri. Include calculations demonstrating that wind gusts cannot cause the glazing to detach from the sign nor to contact the display modules.

2.3.2. Dimensions

The nominal dimensions of the sign enclosure shall not exceed 20 ft (6.1m) in width x 6.5 ft (2 m) in height x 2.5 ft (0.75 m) deep. The depth includes any rear ventilation hoods.

2.3.3. Material

The DMS enclosure shall be assembled from a continuously welded aluminum alloy 3003-H14 or 5052-H34 skin of at least 1/8 inch (3.5 mm thick). The enclosure shall not have sharp edges or corners and the inside and outside edges shall be free of burrs. Internal supports shall be of extruded aluminum alloy 6061-T6 members welded to form a support structure to provide rigidity and structural integrity. All metallic parts shall be corrosion resistant.

The DMS facial area shall be treated with a flat-black, factory-applied, Kynar fluoropolymer resin based coating providing a minimum life span of 10 years. The rest of the housing shall be white UV protected and weatherproof enamel. Company or vendor logos may not appear anywhere on the exterior of the sign housing. As part of the shop drawing submittal, the manufacturer may propose an alternate means of protecting the metal surfaces. Such alternates shall be subject to the approval of MoDOT.

2.3.4. Welding

The DMS housing shall be fabricated, welded and inspected in accordance with the requirements of ANSI/WS D1.2-90 Structural Welding Code-Aluminum (1990). Compliance with this requirement shall include, but is not limited to:

- All manufacturing personnel who perform welding on the DMS housing shall be certified to AWS D1.2-90 for all weld types required for housing fabrication. The DMS manufacturer's submittal shall contain a copy of each welder's certification and the manufacturer's certified welding procedures.
- DMS housing welding shall be inspected on a daily basis by a Certified Welding Inspector (CWI), who shall complete daily written reports on DMS welding progress, housing weld integrity, and any corrective action taken. These reports shall be archived by the DMS manufacturer and shall be available for immediate review upon request by the Engineer.

2.3.5. Display Face

The front face of the DMS shall be composed of hinged windows that can be easily opened to give access to all serviceable components within the sign. The seams between windows shall not detract from the appearance of the sign nor interfere with the legibility of the message.

Windows shall be made of clear polycarbonate panels with black aluminum masks. The polycarbonate shall be at least 3/16-inch thick. The polycarbonate shall transmit at least 85 percent of the light emitted by the LED's. The manufacturer's technical data sheet for the material utilized for the front face shall be provided as part of the submittal package. The polycarbonate manufacturer shall guarantee that:

- The yellowness index (ASTM test D-1925) of the material shall remain below 5.0 for three years from the date of purchase, and below 10.0 for five years.
- The light transmission (ASTM test D-1003) of the material shall not decrease more than three percent in three years from the date of purchase, nor more than seven percent in five years.

The mask over each window shall be at least 0.04 inches thick. The aluminum mask shall have the same finish as the rest of the front of the sign and shall provide openings directly in front of each pixel. Pixel openings shall be of sufficient size as to not interfere with LED light output.

2.3.6. Ventilation

The DMS enclosure ventilation shall include intake, exhaust, filtration, fan assembly and environmental control.

The number and size of the vents shall be determined by the manufacturer to be of sufficient size to provide adequate ventilation. Intake vents shall use louvers that close to prevent the entry of dirt and insects when the ventilation system does not require outside air. The exhaust vents shall be equipped with dampers for the same purpose. The intake vents shall be located to prevent the direct intake of truck exhaust.

A removable two-stage air filter system shall be installed behind each intake vent. The filter filtration area shall completely cover the vent opening area such that no incoming air bypasses the filter. Brackets shall support the filter at the vents and be located to facilitate easy replacement. Filter replacement shall not require the use of tools.

The DMS enclosure shall be equipped with electric fans with ball or roller bearings. The capacity of each fan and the number of fans shall be sufficient to insure adequate ventilation if one fan becomes inoperable. An analysis shall be presented in the submittal material, which shall document that the proposed system meets

these requirements. The fans shall be mounted within the housing and vented. The number, placement, and size of the electric fans shall be determined by the manufacturer. Fans shall be replaceable without the need to remove other components.

The fans shall be controlled by the DMS controller or a thermostat. If the fans are controlled by the DMS controller, there shall be parameters in the controller's database, which will specify the turn-on temperature and the shutdown temperature. Both parameters shall be in the range of 70 degrees (20 degrees C) to 120 degrees F (48 degrees C).

The DMS shall have a window defogging system that is turned on and off by the DMS controller or a thermostat. The system shall use heated air blown on the inside of the windows. Heating strips on the windows or frames shall not be acceptable. The defogging system shall be capable of removing all condensation from a completely fogged window within five minutes.

2.3.7. Mounting Brackets

Housing shall be provided with multiple mounting brackets in the form of I-beams or Z-extrusions which shall be bolted to the housing exterior rear wall, to facilitate attachment of the DMS to its support structure. Mounting brackets shall be extruded aluminum. Mounting brackets shall be attached to the DMS structural frame members, not just the exterior sheet metal. Mounting brackets shall be attached to the DMS using galvanized high-strength steel bolts. The attachment points shall be sealed and watertight. The mounting brackets shall be designed and fabricated such that the installing contractor can drill into them without penetrating the DMS housing and compromising the housing's ability to shed water.

2.3.8. Weep Holes

Provide screened weep holes in the bottom of the sign.

2.4. ELECTRICAL SERVICE

2.4.1. Electrical Distribution Panel

The primary electrical service panel shall be rated for 120/240 VAC, single phase, 3 wire and 100 amperes maximum with a 2 pole main circuit breaker and a 1-pole circuit breaker for each branch circuit and a copper ground bus. The panel shall have an interrupt rating of not less than 10 KA. The panel shall be General Electric Model AQF1121AB or AQF1121AT or an equivalent approved by MoDOT. Separate circuits shall be provided for the utility outlets. 120 VAC load shall be balanced. Incoming terminals shall be capable of a conductor range from 8 AWG (10 mm²) to a 4/0 AWG (120 mm²).

2.4.2. Radio Interference and Surge Protection

Surge protection shall be provided on all ungrounded conductors leaving the sign housing. All devices shall be readily accessible for ease of replacement.

A two-stage surge protector and radio interference filter shall be on all incoming power lines. The two stages shall be electrically separate, so that the first stage protects all equipment using the power, while both the first and second stages protect electronic equipment. There shall be no maximum load for the first stage. The second stage shall be capable of protecting equipment drawing a total of 10 amps. The protector shall clamp both the main line and the main neutral at 250 volts, both relative to each other and relative to the cabinet ground. The response time shall be such that the actual voltage never exceeds 250 volts. The surge protector shall suppress surges of up to 20,000 amps (8 x 20 microsecond waveform). The clamping voltage shall change by no more than five percent after 20 such surges.

For each conductor used for communication and control, provide surge protection in the sign. Furnish a cable termination panel with surge protectors that match those in the sign, which the installation contractor can install in the cabinet along with the sign controller.

2.4.3. Conduit and Wiring

Wiring and other electrical work shall comply with the *National Electrical Code*. Wires and cables shall be neatly held in place.

2.4.4. Grounding

Provide two grounding lugs, each electrically bonded to the sign housing. They shall be near the lower left and lower right corners of the sign housing's rear wall.

2.5. CONTROLLER

Furnish a sign controller for the installation contractor to install in an equipment cabinet on or near the sign support structure. The sign controller installed in said cabinet shall provide full local control of the sign. The controller must have sufficient memory and processing power to perform all the functions described in the specifications, including full functionality of the service software. Sign controller shall be a 19-inch rack mountable and have a 15-inch maximum depth.

2.5.1. Watchdog Timer

The controller shall have a watchdog circuitry that automatically resets the controller when it locks up. There shall be a means for the controller to recognize and report the fact that it was reset by the watchdog timer.

2.5.2. Memory

The controller shall have nonvolatile memory in the form of plug-in PROM integrated circuits. This memory shall contain the software and test messages.

The controller shall also have changeable memory that retains the data in memory for a minimum of one year following a power failure. It shall contain the library of messages, library of fonts, message display schedule and changeable operating parameters.

2.5.3. Clock

The controller shall have a time-of-year clock with a lithium battery backup. The battery shall keep the clock operating properly for at least 10 years without external power. The clock shall automatically adjust for leap year through hardware, software or a combination of both. It shall be set by the sign controller's microprocessor. The clock shall be accurate to within 1 minute per month.

2.5.4. Communication Interfaces

Communication between the central computer and the sign shall be by UDP Internet Protocol over Ethernet or through an RS-232 serial connection. The controller must be IP addressable with an Ethernet port to allow for the Ethernet connection. The controller shall have an EIA-232 communications port to allow for the serial connection. This port shall be capable of operation at all standard data rates up to 19,200 bits per second and shall be set to 9600 bits per second.

The controller shall also have a second EIA-232 communication port for communication with a technician's laptop computer connected directly to the controller. The port shall be capable of operation at all standard data rates up to 19,200 bits per second and shall be set to 9600 bits per second.

In addition, the controller shall have communication interfaces with the equipment in the sign, for such things as sign control, temperature monitoring, and brightness adjustment.

2.6. EXTERNAL CABLING

Cables running between the cabinet with the controller and the sign shall be as required to produce a fully functional system. The cables shall be rated for outdoor use.

3. CONTROLLER SOFTWARE

3.1. Display Presentation

The DMS controller shall control the driver modules in such a way as to create the desired display on the sign.

Messages shall be communicated and stored using the Markup Language for Transportation Information (MULTI), as defined in the most recently adopted edition of the NTCIP Standard 1203, National Transportation Communications for ITS Protocol (NTCIP) Object Definitions for Dynamic Message Signs (DMS). The sign's method of operation must be consistent with that standard.

Space allocated to each character shall be proportional to the character's true width. Software shall handle such details as centering text on a line, right justification, left justification, and appropriate spacing of letters and words. Software shall also control flash, and alternating between pages of a two and three-page display.

There shall be a default value for each parameter supported. The manufacturer shall pre-load these default parameters with values approved by the Engineer.

3.2. Modes of operation

Signs shall be able to display a static message, a flashing message, or a multi-page message as described below.

- **Static message:** The message chosen shall be displayed constantly on the sign face until the sign controller is instructed to do otherwise.
- **Flashing message:** A selected portion of the chosen message shall be displayed and blanked alternately at durations controllable in one-second increments.
- **Multi-page messages:** The chosen message shall display up to three different pages (each page consisting of up to three lines of text) alternately at durations separately controllable in one-second increments.

3.3. Fonts

A user shall be able to create and display messages using at least four fonts, each stored in the controller. Two of the fonts shall be stored in the controller by the manufacturer. Provide a font comparable to that shown in Figure 7-1 of Federal Highway Administration publication # FHWA-TS-90-043. Also, provide a similar bold font. The user shall be able to create at least two additional fonts, download them to the controller, and store them there.

3.4. Display Selection

In the absence of instructions to the contrary from the control ports, the controller shall implement a display selected from those stored in its memory based upon date and time as specified in the schedule. It shall use a schedule stored in random access memory plus its time-of-year clock to select the proper display. The schedule system shall permit different schedules for different days of the week plus special schedules for special days, such as holidays.

The display of the scheduled message may be over-ridden by instructions sent from the control ports. A computer shall be able to cause the controller to implement a particular display selected from the messages

stored in its memory, or a new display sent from the computer using MULTI. The computer shall also be able to edit or completely replace a message stored in the controller's memory, or revise the message schedule. In addition, it shall be able to cause the controller to report its schedule or the text of any message stored in its memory.

Software shall incorporate fail-safe procedures to check messages received and shall not change a message stored in memory, the display currently on the sign, the schedule stored in memory, or the current time unless the message is received correctly and constitutes a valid command.

3.5. Schedule Operation

The schedule is activated by activating a message (i.e., setting an object with the syntax of MessageActivationCode or MessageIDCode) with the dmsMessageMemoryType set to schedule(6), the dmsMessageNumber set to 1, and the dmsMessageCRC set to 0x00 00 (and a sufficiently high activation priority if it is a MessageActivationCode object).

During schedule operation, the run-time priority applies to the operation of the schedule and the run-time priority of the referenced message is ignored. Thus, the run-time priority is constant for all scheduled messages and the central system can set this priority by modifying the value of dmsRunTimePriority.6.1.

The values of dmsMessageMultiString.6.1, dmsMessageBeacon.6.1, and dmsMessage PixelService6.1 are copied from the message called by the most recently called action and thus reflect the most recently called message that would be called by the scheduler whether or not the scheduler is running.

The activation priority of any scheduled message shall be 200 in the absence of a potential future object to specifically set this value.

One may activate the schedule for a defined duration by setting the duration in the activation code.

To get the scheduler to blank the sign, a blank message must be scheduled.

3.6. Brightness Control

Manual and automatic dimming modes shall be provided, enabling the user to select the desired mode of operation. The dimming system shall select one of several levels from the sensed ambient light. The set points for each of the ambient light levels shall be set by the user via software. A user shall be able to send a command via the control ports to select a specific brightness level or to direct the controller to select an appropriate brightness based on current lighting conditions.

For each brightness level, a technician shall be able to easily determine what fraction of the full brightness current is applied to the LED's. The technician must be able to set the current value for a given brightness level to any value between 25% and 100% of the maximum current in five percent increments, and must be able to easily change these settings via computer commands.

3.7. Communication

Controller hardware and software shall permit the communication with the central computer using polled operation, in which the sign controller informs the central computer of its current status in response to a query from the central computer. The sign controller never communicates except when polled.

The controller shall be able to receive commands simultaneously over two ports (one for the central computer and one for a laptop), process the commands in the order received, and respond to each command only via the port on which it was received.

3.8. Diagnostic Test

Upon command, the controller shall test all systems, including but not limited to the electrical operation of all drivers and check for over current and under current pixels, photocells, ventilation, and displays. It shall communicate the result to the computer that issued the command using an NTCIP compliant method.

3.9. Power Interruptions

The contents of the controller's memory shall be preserved by battery power during power interruptions, and the controller shall resume operation automatically when power is restored. Upon recovering from a power interruption, the controller shall report to the central computer that it has just recovered from a power interruption. It shall also consult a configuration parameter set by the user to determine whether to blank its display or to display the message that it would have been displaying if no power failure had occurred. There shall be separate configuration parameters for long and short power failures, as well as a parameter specifying the maximum duration of a power failure classified as short.

3.10. Test Messages

Test messages shall be stored in the controller's permanent memory. The test messages shall be functionally equivalent to the following:

- **All pixels on simultaneously.** This is to determine whether there are pixels or display modules that are not the same brightness as the rest.
- **Each module shows a unique display indicating which row and column it is in.** This test display is to determine whether any module is displaying what a different module should be displaying.
- **A display that alternates the two previous displays** at approximately ten second intervals. This is to enable an observer to identify which display module has a brightness problem.
- **A display that illuminates every pixel, one at a time,** in rapid succession. This is to be used in conjunction with the current sensors to automatically test each pixel for abnormal current consumption.
- **One display for each font,** showing every character composing the font.

The test messages shall include any other displays required to carry out the manufacturer's recommended procedures for maintenance and troubleshooting.

3.11. Watchdog Timer Interface

The software shall regularly reset the watchdog timer so that it does not inappropriately reset the controller. When it starts operating, the software shall check the status of the watchdog timer and, if the timer indicates that it reset the controller, the controller shall report that fact to the central computer.

3.12. Temperature Monitoring

Via the communication ports, a user shall be able to set a temperature threshold. When the highest temperature reported by the temperature sensors in the sign exceeds this threshold, the controller shall issue a temperature warning to the central computer.

3.13. NTCIP Requirements

The controller shall communicate using NTCIP. Supply full documentation of all manufacturer-specific objects supported by the sign controller. This shall be in the form of a CD-ROM containing ASCII versions of a MIB in ASN.1 format. The MIB shall contain accurate and meaningful description fields and supported ranges indicated in the syntax field of the object-type macros. MoDOT shall have the right to use the documentation described above for system integration purposes, regardless of what parties are involved in the system integration effort.

The controller must adhere to the version of the following standards that is current at the time of bidding. A later version may be used if approved by the Engineer.

Information level:

The following objects defined in NTCIP 1201:

- All objects in the Global Configuration Node.
- The following objects in the Global Time Management Node: globalTime; globalDaylightSaving; maxTimeBaseScheduleEntries; timeBaseScheduleTable; maxDayPlans; maxDayPlanEvents; timeBaseDayPlanTable.
- All objects in the Report Parameters Node.
- eventConfigLogOID
- eventConfigAction
- eventClassDescription

The following objects, if defined in NTCIP 1203

- Sign Configuration and Capability Objects
 - dmsSignAccess
 - dmsSignType
 - dmsSignHeight
 - dmsSignWidth
 - dmsSignTechnology
 - vmsCharacterHeightPixels
 - vmsCharacterWidthPixels
 - vmsSignHeightPixels
 - vmsSignWidthPixels
 - vmsHorizontalPitch
 - vmsVerticalPitch

- vmsMaxNumberPages
- vmsMaxMultiStringLength
 - Font Objects
- numFonts
- fontTable and subsidiary objects
- maxFontCharacters
- characterTable and subsidiary objects
- fontMaxCharacterSize
- MULTI Configuration Objects
 - defaultFlashOn
 - defaultFlashOff
 - defaultFont
 - defaultJustificationLine
 - defaultJustificationPage
 - defaultPageOnTime
 - defaultPageOffTime
 - defaultCharacterSet
 - dmsColorScheme
 - dmsSupportedMultiTags
 - Message Objects
 - messageIDCode
 - messageActivationCode
 - dmsNumPermanentMsg
 - dmsNumChangeableMsg
 - dmsMaxChangeableMsg
 - dmsFreeChangeableMemory
 - dmsNumVolatileMsg
 - dmsMaxVolatileMsg
 - dmsFreeVolatileMemory
 - dmsMessageTable and subsidiary objects
 - dmsValidateMessageError
- Sign Control Objects
 - dmsControlMode

- dmsSWReset
- dmsActivateMessage
- dmsMessageTimeRemaining
- dmsMsgTableSource
- dmsMsgRequesterID
- dmsMsgSourceMode
- dmsShortPowerRecoveryMessage
- dmsLongPowerRecoveryMessage
-
- dmsResetMessage
- dmsCommunicationLossMessage
- dmsTimeCommLoss
- dmsPowerLossMessage
- dmsEdDurationMessage
- dmsActivateMsgError
- dmsMultiSyntaxError
- dmsMultiSyntaxErrorPosition
- dmsMultiOtherErrorDescription
- dmsActivateMessageState
- Brightness Objects
 - dmsIllumControl
 - dmsIllumMaxPhotocellLevel
 - dmsIllumPhotocellLevelStatus
 - dmsIllumManLevel
 - dmsIllumBrightnessValues
 - dmsIllumBrightnessValuesError
 - dmsIllumLightOutputStatus
- Scheduling Action Objects
 - numActionTableEntries
 - dmsActionTable and subsidiary objects
- Sign Status Objects, to the extent supported by the sign hardware.
 - statMultiFieldRows
 - statMultiFieldTable and subsidiary objects

- watchdogFailureCount
- dmsStatDoorOpen
- shortErrorStatus
- controllerErrorStatus
- dmsPowerStatusMap
- dmsPowerNumRows
- dmsPowerStatusTable and subsidiary objects
- fanFailures
- pixelFailureTableNumRows
- pixelFailureTable and subsidiary objects
- pixelTestActivation
- dmsPixelStatusTable and subsidiary objects
- dmsPixelFailureTestRows
- dmsPixelFailuresMessageRows
- dmsLightSensorStatusMap
- dmsLightSensorNumRows
- dmsLightSensorStatusTable and subsidiary objects
- dmsTepSensorStatusMap
- dmsTemSensorNumRows
- dmsTempSensorStatusTable and subsidiary objects
- powerSource
- tempMinAmbient
- temptMaxAmbient
- tempMinSignHousing
- tempMaxSignHousing
- tempSensorWarningMap
- tempSensorCriticalTempMap
- Graphic Definition Objects
 - dmsGraphicMaxEntries
 - dmsGraphicNumEntries
 - dmsGraphicVertSpacing
 - dmsGraphicHorzSpacing
 - dmsGraphicMaxSize
 - availableGraphicMemory

- dmsGraphicBlockSize
- dmsGraphicTable and subsidiary Objects
- dmsGraphicsBitmapTable and subsidiary objects

Any mandatory objects that are required by NTCIP1203 but that are missing from the above list shall also be supported.

The standardized range is defined by the size, range, or enumerated listing indicated in the object's syntax and/or through description text in the object's description field of the relevant standard, every object required by these specifications shall support all values within its standardized range except:

| OBJECT | MINIMUM PROJECT REQUIREMENTS |
|--------------------------------|-----------------------------------|
| Max Time Base Schedule Entries | 28 |
| Max Day Plans | 14 |
| Max Day Plan Events | 12 |
| Max Event Log Configurations | 50 |
| Event Configuration Mode | 2, 3, and 4 |
| Max Event Log Size | 200 |
| Max Event Classes | 16 |
| Max Group Address | 1 |
| Number Fonts | 4 |
| Max. Font Characters | 100 |
| Number Action Table Entries | Equal to message capacity of sign |

The module table required by Clause 2.2.3 of NTCIP 1201 shall contain at least one row with moduleType equal to 3 (software).

Displaying a blank sign shall be achieved in the same way that any message is displayed (i.e., by using an object that has a syntax of either MessageActivationCode or MessageIDCode). However, a new memory type, dmsMessageMemoryType equal to 'blank (7)', shall be created to support this operation. It shall function as follows:

- The dmsMessageNumber for this memory type shall be reflective of the RunTime Priority and shall be between 1 and 255, inclusive.
- The CRC for this memory type shall be 0x00 00 and the normal CRC algorithm shall not be applied to blank messages.
- The dmsMessageMultiString shall be an octet string of length 0.
- The activate priority for any MessageActivationCode using this type of memory shall be used as the actual activation priority.

The software shall implement the following tags (opening and closing where defined) of MULTI as defined in NTCIP 1203

- Fields for 12 hour time, day of month, month, and four digit year
- Flash
- Font
- Justification Line
- Justification Page
- Moving Text
- New Line
- New Page
- Page Time
- Hexadecimal Character

Application level: NTCIP 1102 and NTCIP 1103. Communication with the signs shall use SNMP only.

Transport level: NTCIP 2202.

Subnetwork level: NTCIP 2104

4. TECHNICIAN LAPTOP SOFTWARE

Provide laptop software that enables a technician to test all features and functions of the sign, and to set and change all of the sign's operating parameters. Provide MoDOT with the specifications for the computers to run this software. This software shall be delivered on a CD or DVD so that it can be installed on MoDOT's computers. Provide the appropriate license that may be required to use the software on up to 10 computers.

5. TESTING

All DMS components and assemblies furnished by the manufacturer shall be subject to testing and monitoring to determine conformance with all applicable requirements and to ensure proper operation of the equipment and subsystem. Test procedures shall be submitted to the Engineer for review and approval prior to conducting any testing.

5.1. Factory Testing

The DMS subsystem factory test shall be held at the manufacturer's facility. The manufacturer shall provide all the necessary measurement devices, which can be utilized to verify that the assembly is compliant with the requirements.

5.2. Compatibility Testing

Unless the sign controller uses firmware identical to that already used in a DMS controller by the Gateway Guide system, demonstrate that the proposed controller and firmware are 100 % compatible with the gateway Guide central software. Gateway Guide operators shall be able to use all features of the proposed signs to the same extent that they can monitor and control the existing signs. Any cost associated with central software changes other than database changes must be paid by the manufacturer. The demonstration shall be conducted at the Gateway Guide Transportation Management Center using the proposed controller and software and a testbed composed of a few display modules, a photocell, a temperature sensor, and a fan.

5.3. Field Testing

Upon delivery of the sign to the jobsite, the manufacturer and a MoDOT representative shall conduct a visual inspection of the DMS to check for manufacturing and installation defects. The installation contractor may witness this testing if he or she chooses. The DMS shall be powered during this preliminary inspection. Provide a generator and all necessary power and communication cables. The test procedure shall be designed to uncover manufacturing and installation defects of all types. Among the aspects that must be tested are the following:

- All diagnostic routines provided by the manufacturer.
- Proper operation of every pixel, including uniform brightness at all brightness levels and proper current consumption.
- Proper wiring of the display modules, checked by displaying a text message that identifies the modules proper row and column positions.
- Appropriate brightness for day and night conditions, and brightness from the sun at its worst condition for the location.
- Absence of leaks.
- Proper aiming of the display modules.
- Proper entry of memorized messages.
- Proper operation of sign monitoring.
- Proper operation of temperature sensors, fans, defogging system, and lights.
- Proper grounding.
- Correct wiring of sensors and alarms to the controller's inputs.
- Proper control using the laptop software provided in this project.

5.4. Software Testing

Demonstrate that the laptop software works exactly as described in the user manual, and that it is able to utilize all features and functions of the signs.

6. MAINTENANCE TRAINING

Train MoDOT's maintenance staff, providing all material and manuals required for each participant. The maintenance training shall be provided for a minimum of 8 hours for at least twenty maintenance personnel with an electronics background. The training shall include operation instructions, theory of operation, circuit description, field adjustments, preventive maintenance procedures, troubleshooting, operation of diagnostic and configuration software (if applicable), and repair of components.

At least 30 days prior to commencement of the training courses, submit detailed course curriculums, time requirements, draft handouts, and resumes of instructors. MoDOT will review and request modifications of that material as appropriate. The courses shall be conducted at a MoDOT provided location, and at a time and date mutually agreed upon by MoDOT and the manufacturer. The training material generated for each course shall contain manuals and other handouts for each attendee, which shall serve not only as subject guidance, but also as quick reference material for future use by the students. All course material, in reproducible form, shall be delivered to the Engineer immediately following course completion.

7. INSTALLATION SUPPORT

7.1. On-Site Training

Train the installation contractor for the unpacking, assembly, mounting to the sign truss, positioning, connection to the communication network and testing of the DMS assembly. Tell the contractor what types of cables are to be run between the controller cabinet and the sign, and how they should be terminated. The contractor shall not perform any work until the manufacturer has certified the contractor as qualified. A MoDOT representative shall be present to observe the training

7.2. Support during Installation

Provide both on-site and telephone support. Provide a technical assistance hot line from the hours of 8:00 AM to 5:00 PM CST Monday through Friday. Provide assistance to installation contractor on Acceptance Testing, including but not limited to viewing angle, tilt angle, and other sign performance specifications. On-site assistance shall be provided to the installation contractor on final connections, configuration and Acceptance Testing of each sign.

8. DELIVERY

The bid price shall include delivery and off loading to the ground at a location in Missouri to be specified by the installation contractor in coordination with the Engineer. Coordinate the delivery time and location with both the contractor and the Engineer.

Delivery of replacement components will be to the Gateway Guide TMC. Delivery date and time shall be coordinated with the Engineer.

9. DOCUMENTATION AND GUARANTEE

9.1. Documentation and Drawings

Provide twelve sets of complete shop drawings, catalog cuts, schematics and operations/maintenance manuals for each component for evaluation. as well as a manual for the laptop software. A section of each set of the maintenance manuals shall include complete subcomponent parts listing.

9.2. Warranty

The complete DMS assembly shall carry a two-year warranty from the date of acceptance against any imperfections in workmanship or materials.

Any repairs made by the manufacturer or representative shall be documented and returned with units when warranty repaired. This documentation shall disclose exact repairs and identify the parts replaced by part number and serial number. All warranty repairs shall be completed within 30 days of delivery of the equipment to the designated repair depot.

10. REPLACEMENT COMPONENTS

The following replacement components shall be provided in the quantities listed for the sign supplied:

| COMPONENT | QUANTITY |
|-----------|----------|
|-----------|----------|

| | |
|-------------------------------|----|
| Display Module | 10 |
| Module Driver Assembly | 10 |
| Power Supply Assembly | 6 |
| Surge Device Sets | 6 |
| Sign Controller | 3 |
| Thermostat Assembly | 3 |
| Light Level Detector Assembly | 3 |
| Fan Assembly | 1 |

11. METHOD OF MEASUREMENT

- Measurement of dynamic message signs, including all specified equipment, documentation, technician laptop software, delivery, installation support, and testing, will be made per each.
- Measurement of maintenance training, including all specified documentation, will be made per lump sum.
- Measurement of the replacement components will be made per each.

12. BASIS OF PAYMENT

Accepted work will be paid for at the unit or lump sum price for each of the pay items included in the contract. No direct payment will be made for any incidental items necessary to complete the work unless specifically provided as a pay item in the contract.

**SECTION (3):
AGREEMENT REQUIREMENTS**

This RFP shall be governed by the following contract provisions. The award of this RFP is subject to a post-award negotiated contract. These same contract provisions will appear in the post-award negotiated contract. If the parties are unable to agree to terms in the post-award contract, MHTC shall reserve the right to cancel the award of the RFP and contract and select a different offeror.

- (A) MHTC's Representative:** MoDOT's District Engineer-D6, is designated as MHTC's representative for the purpose of administering the provisions of the Agreement as defined in Paragraph (E) of this section. MHTC's representative may designate by written notice other persons having the authority to act on behalf of MHTC in furtherance of the performance of the Agreement. The Offeror shall fully coordinate its activities for MHTC with those of the District Engineer-D6. As the work of the Offeror progresses, advice and information on matters covered by the Agreement shall be made available by the Offeror to the District Engineer-D6 throughout the effective period of the Agreement.
- (B) Release to Public:** No material or reports prepared by the Offeror shall be released to the public without the prior consent of MHTC's representative.
- (C) Assignment:** The Offeror shall not assign or delegate any interest, and shall not transfer any interest in the services to be provided (whether by assignment, delegation, or novation) without the prior written consent of MHTC's representative.
- (D) Status as Independent Contractor:** The Offeror represents itself to be an independent contractor offering such services to the general public and shall not represent itself or its employees to be an employee of MHTC or MoDOT. Therefore, the Offeror shall assume all legal and financial responsibility for taxes, FICA, employee fringe benefits, workers' compensation, employee insurance, minimum wage requirements, overtime, or other such benefits or obligations.
- (E) Components of Agreement:** The Agreement between MHTC and the Offeror shall consist of: the RFP and any written amendments thereto, the Standard Solicitation Provisions and General Terms and Conditions that are attached to this RFP, the proposal submitted by the Offeror in the response to the RFP and the post-award contract agreement signed between the parties. However, MHTC reserves the right to clarify any relationship in writing and such written clarification shall govern in case of conflict with the applicable requirements stated in the RFP or the Offeror's proposal. The Offeror is cautioned that its proposal shall be subject to acceptance by MHTC without further clarification.
- (F) Amendments:** Any change in the Agreement, whether by modification or supplementation, must be accompanied by a formal contract amendment signed and approved by the duly authorized representative of the Offeror and MHTC.
- (G) DBE/WBE Participation Encouraged:**

 - 1. Bidders are encouraged to submit copies of existing affirmative action programs, if any. Bidders are also encouraged to directly hire minorities and women as direct employees of the bidder. MHTC reserves the right to consider the use of minority and female employee when making the award of the Agreement.

2. Regardless of which persons or firms, if any, that the Offeror may use as subcontractors, subofferors, or suppliers of goods or services for the services to be provided, the Offeror ultimately remains responsible and liable to MHTC for the complete, accurate and professional quality/performance of these services.
- (H) **Nondiscrimination:** The Offeror shall comply with all state and federal statutes applicable to the Offeror relating to nondiscrimination, including, but not limited to, Chapter 213, RSMo; Title VI and Title VII of Civil Rights Act of 1964 as amended (42 U.S.C. Sections 2000d and 2000e, *et seq.*); and with any provision of the “Americans with Disabilities Act” (42 U.S.C. Section 12101, *et seq.*).
- (I) **Executive Order:** The Offeror shall comply with all the provisions of Executive Order 07-13, issued by the Honorable Matt Blunt, Governor of Missouri, on the sixth (6th) day of March, 2007. This Executive Order, which promulgates the State of Missouri’s position to not tolerate persons who contract with the state engaging in or supporting illegal activities of employing individuals who are not eligible to work in the United States, is incorporated herein by reference and made a part of this Agreement.
1. By signing this Agreement, the Offeror hereby certifies that any employee of the Offeror assigned to perform services under the contract is eligible and authorized to work in the United States in compliance with federal law.
 2. In the event the Offeror fails to comply with the provisions of the Executive Order 07-13, or in the event the Commission has reasonable cause to believe that the Offeror has knowingly employed individuals who are not eligible to work in the United States in violation of federal law, the Commission reserves the right to impose such contract sanctions as it may determine to be appropriate, including but not limited to contract cancellation, termination or suspension in whole or in part or both.
- (J) **Incorporation of Provisions:** The Offeror shall include the provisions of Section (3), paragraph I of this Agreement in every subcontract. The Offeror shall take such action with respect to any subcontract as the Commission may direct as a means of enforcing such provisions, including sanctions for noncompliance.
- (K) **Non-employment of Unauthorized Aliens:** Pursuant to Section 285.530, RSMo., no business entity or employer shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the State of Missouri. As a condition for the award of any contract or grant in excess of five thousand dollars by the State or by any political subdivision of the State to a business entity, or for any business entity receiving a state-administered or subsidized tax credit, tax abatement, or loan from the state, the business entity shall:
- 1) By sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. E-Verify is an example of a federal work authorization program. The business entity must affirm its enrollment and participation in the E-Verify federal work authorization program with respect to the employees proposed to work in connection with the services requested herein by providing acceptable enrollment and participation documentation consisting of **completed** copy of the E-Verify Memorandum of Understanding (MOU). For business entities that are not already enrolled and participating in a federal work authorization program, E-Verify is available at http://www.dhs.gov/xprevprot/programs/gc_1185221678150.shtm.

2) By sworn affidavit, affirm that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. A copy of the affidavit referenced herein is provided within this document, attached as Exhibit C.

Proof of Lawful Presence For Sole Proprietorships and Partnerships: If the business entity is a sole proprietorship or partnership, pursuant to Section 208.009, RSMo., each sole proprietor and each general partner shall provide affirmative proof of lawful presence in the United States. Such sole proprietorship or partnership is eligible for temporary public benefits upon submission by each sole proprietor and general partner of a sworn affidavit of his/her lawful presence on the United States until such lawful presence is affirmatively determined, or as otherwise provided by Section 208.009, RSMo. A copy of the affidavit reference herein is provided within this document, attached as Exhibit D.

- (L) **Bankruptcy:** Upon filing for any bankruptcy or insolvency proceeding by or against the Offeror, whether voluntarily, or upon the appointment of a receiver, Offeror, or assignee, for the benefit of creditors, MHTC reserves the right and sole discretion to either cancel the Agreement or affirm the Agreement and hold the Offeror responsible for damages.
- (M) **Law of Missouri to Govern:** The Agreement shall be construed according to the laws of the state of Missouri. The Offeror shall comply with all local, state and federal laws and regulations relating to the performance of the Agreement.
- (N) **Cancellation:** MHTC may cancel the Agreement at any time by providing the Offeror with written notice of cancellation. Should MHTC exercise its right to cancel the Agreement for such reasons, cancellation will become effective upon the date specified in the notice of cancellation sent to the Offeror.
- (O) **Venue:** No action may be brought by either party concerning any matter, thing or dispute arising out of or relating to the terms, performance, nonperformance or otherwise of the Agreement except in the Circuit Court of Cole County, Missouri. The parties agree that the Agreement is entered into at Jefferson City, Missouri, and substantial elements of its performance will take place at or be delivered to Jefferson City, Missouri, by reason of which the Offeror consents to venue of any action against it in Cole County, Missouri.
- (P) **Ownership of Reports:** All documents, reports, exhibits, etc. produced by the Offeror at the direction of MHTC's representative and information supplied by MHTC's representative shall remain the property of MHTC.
- (Q) **Confidentiality:** The Offeror shall not disclose to third parties confidential factual matters provided by MHTC's representative except as may be required by statute, ordinance, or order of court, or as authorized by MHTC's representative. The Offeror shall notify MHTC immediately of any request for such information.
- (R) **Nonsolicitation:** The Offeror warrants that it has not employed or retained any company or person, other than a bona fide employee working for the Offeror, to solicit or secure the Agreement, and that it has not paid or agreed to pay any percentage, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award or making of the Agreement. For breach or violation of this warranty, MHTC shall have the right to annul the Agreement without liability, or in its discretion, to deduct from the

Agreement price or consideration, or otherwise recover the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

(S) **Conflict of Interest:** The Offeror covenants that it presently has no actual conflict of interest or appearance of conflict of interest and shall not acquire any interest, directly or indirectly, which would conflict in any manner or degree with the performance of the services under this Agreement. The Offeror further covenants that no person having any such known interest shall be employed or conveyed an interest, directly or indirectly, in this Agreement.

(T) **Maintain Papers:** The Offeror must maintain all working papers and records relating to the Agreement. These records must be made available at all reasonable times at no charge to MHTC and/or the Missouri State Auditor during the term of the Agreement and any extension thereof, and for three (3) years from the date of final payment made under the Agreement.

1. MHTC's representative shall have the right to reproduce and/or use any products derived from the Offeror's work without payment of any royalties, fees, etc.
2. MHTC's representative shall at all times have the right to audit any and all records pertaining to the services.

(U) **Indemnification:** The Offeror shall defend, indemnify and hold harmless the Commission, including its members and department employees, from any claim or liability whether based on a claim for damages to real or personal property or to a person for any matter relating to or arising out of the Offeror's performance of its obligations under this Agreement.

(V) **Insurance:**

The Contractor shall maintain or cause to be maintained at Contractor's own expense commercial general liability, automobile liability, worker's compensation insurance against negligent acts, errors or omissions of the Contractor, or its subcontractors and anyone directly or indirectly employed by any of them. Any insurance policy required as specified in this Section shall be written by a company that is licensed and authorized to issue such insurance in the state of Missouri and shall provide insurance coverage for not less than the following limits of liability:

- a. General Liability: Not less than \$500,000 for any one person in a single accident or occurrence, and not less than \$3,000,000 for all claims arising out of a single occurrence;
- b. Automobile Liability: Not less than \$500,000 for any one person in a single accident or occurrence, and not less than \$3,000,000 for all claims arising out of a single occurrence;
- c. Missouri State Workmen's Compensation policy or equivalent in accordance with state law.

Upon request from the Commission, the Contractor shall provide the Commission with certificates of insurance evidencing the required coverage and that such insurance is in effect.

(W) **Liquidated Damages:**

- a. In the event the successful Contractor fails to deliver the material within the time specified, the Department and the public will sustain damages because of such delay in delivery, the exact extent of which would be difficult to ascertain, and in order to liquidate such damage in advance it is agreed that the sum of 5000-thousand dollars (\$5000.00) per day, per item, for each assessable

calendar day on which the delivery has not been completed, is reasonable and the best estimate which the parties can arrive as liquidated damages, and it is therefore agreed that said amount will be withheld from payments due the Contractor or otherwise collected from the Contractor as liquidated damages.

- b. Saturdays, Sundays, holidays and days whereas the Department has suspended work shall not be assessable days.

(X) Bid/Proposal Guaranty and Contract Bond:

- a. Each bid shall be accompanied by a Bid Bond, Certified Check, Cashier's Check or Bank Money Order payable to the Director of Revenue – Credit State Road Fund for an amount equal to Five Percent (5%) of the amount of the BID submitted. This is to act as a guarantee that the bidder, if awarded the contract, will furnish an acceptable performance and payment bond (Contract Bond) or a cashier's check, a bank money order or a certified check made payable to "Director of Revenue--Credit State Road Fund" in an amount equal to One Hundred (100%) of the contract price.
- b. If a BID BOND is used (in lieu of a certified check, cashier's check, or bank money order), it must be in the form provided and executed by the bidder as principal and by a surety company authorized to do business in the State of Missouri as surety. The agent executing the same on behalf of the surety company must attach a current Power of Attorney setting forth his authority to execute the bond involved.
- c. Certified Checks, Cashier's Checks or Bank Money Orders of unsuccessful bidders will be returned as soon as the award is made. The checks or bank money orders of the successful bidder(s) will be retained until the contract is executed and a satisfactory Performance and Payment (Contract Bond) is furnished. Bid Bonds will not be returned except on specific request of the bidder.
- d. Failure to execute the contract and file acceptable performance payment (Contract Bond) or cashier's check, bank money order or certified check within **15 days** after the contract has been mailed to the bidder shall be just cause for the cancellation of the award and the forfeiture of the proposal guaranty. Award may then be made to the next lowest responsible bidder, or the work may be re-advertised and performed under contract or otherwise, as the Commission may decide. No contract shall be considered effective until it has been executed by all parties thereto.

**SECTION (4):
PROPOSAL SUBMISSION INFORMATION**

(A) SUBMISSION OF PROPOSALS

- 1. **Pricing and Signature:** Proposals should be priced, signed and returned (with necessary attachments) to attention: Teresa (Terri) Mount, Senior General Services Specialist, as provided in this RFP. Specifically, any form containing a signature line in this RFP and any amendments, pricing pages, etc., must be manually signed and returned as part of the proposal.

2. **Submission of All Data Required:** The Offeror must respond to this RFP by submitting all data required in paragraph (B) below for its proposal to be evaluated and considered for award. Failure to submit such data shall be deemed sufficient cause for disqualification of a proposal from further consideration.

3. **Public Inspection:** The Offeror is hereby advised that all proposals and the information contained in or related thereto shall be open to public inspection and that MHTC does not guarantee nor assume any responsibility whatsoever in the event that such information is used or copied by individual person(s) or organization. Therefore, the Offeror must submit its proposal based on such conditions without reservations.

4. **Clarification of Requirements:** Any and all questions regarding specifications, requirements, competitive procurement process, or other questions must be directed to Teresa (Terri) Mount, Senior General Services Specialist, email: teresa.mount@modot.mo.gov, (314) 301-1431 telephone, Missouri Department of Transportation, 2309 Barrett Station Road, Ballwin, MO 63021. All written questions must be addressed to Teresa (Terri) Mount no later than **10:00 a.m., CST, Wednesday, August 4, 2009**. Once all the questions are gathered, MoDOT will issue an addendum and post the responses to all questions on-line for Offerors to retrieve, **Monday, August 10, 2009**.

(B) REQUIRED ELEMENTS OF PROPOSAL

1. **Specifications.** The proposal must clearly identify the Offeror's products in all technical areas of the specifications, indicating on a line by line basis if the products so offered meet the specifications as written.

2. **Proposed method of performance:** Proposals will be evaluated based on the offeror's distinctive plan for performing the requirements of the RFP.

(C) EVALUATION CRITERIA AND PROCESS

1. **Evaluation Factors:** Any agreement for services resulting from this RFP shall be awarded to the Offeror providing the best proposal to MHTC. After determining responsiveness, proposals will be evaluated in accordance with the following criteria:

| | | |
|----|--|------|
| A. | Meeting all areas of Specifications | 50 % |
| B. | Proposed Method of Performance; Overall technical approach and quality control plan | 25 % |
| C. | Cost, Fees and Expenses; | 25 % |

2. **Historic Information:** MHTC reserves the right to consider historic information and facts, whether gained from the Offeror's proposal, question and answer conferences, references, or other sources, in the evaluation process.

3. **Responsibility to Submit Information:** The Offeror is cautioned that it is the Offeror's sole responsibility to submit information related to the evaluation categories and that MHTC's representative is under no obligation to solicit such information if it is not included with the Offeror's proposal. Failure of the Offeror to submit such information may cause an adverse impact on the evaluation of the Offeror's proposal.

(D) PRICING

1. **Fee Schedule:** The Offeror must submit a proposed fee for all items defined in the Scope of Work. This fee must be shown on Section (5), Price Page, of this proposal which must be completed, signed and returned with the Offeror's proposal.

(E) AWARD

Award will be based on Best Value. Award will be made to the most responsive and responsible bidder whose proposal is determined to be most advantageous to MoDOT, taking into consideration all evaluation factors.

**SECTION (5):
PRICE PAGE (1)**

(A) FEE SCHEDULE: The Offeror shall indicate below all fees for providing items in accordance with the provisions and requirements stated herein. Total cost shall be submitted with the response.

Indicate Model/Brand/ Manufacturer of proposed unit(s) below:

| Contract Period: | Quantity | Unit Cost | Extended Cost | Required Delivery |
|---|-----------|-----------|---------------|--|
| Original contract period –DOA- June 30, 2010 | 28 Each | \$ | \$ | April 12, 2010 (9 each) July 13, 2010 (16 each) Balance as required. |
| First Renewal period- July 1, 2010 through June 30, 2011 | As needed | \$ | N/A | |
| Second Renewal period- July 1, 2011 through June 30, 2012 | As needed | \$ | N/A | |
| Maintenance Training | | Lump Sum | \$ | |
| TOTAL COST | | | | \$ |

Offeror's Authorized Signature:

Date:

Company Name:

PRICE PAGE (2)

REPLACEMENT COMPONENTS: REQUIRED DELIVERY DATE APRIL 12, 2010

Indicate Model/Brand/ Manufacturer of proposed unit(s) below:

| Description | Quantity | Unit Cost | Extended Cost |
|---------------------------|----------|-------------------|---------------|
| Display Module | 10 each | | |
| Module Driver Assembly | 10 each | | |
| Power Supply Assembly | 6 each | | |
| Surge Device Sets | 6 each | | |
| Sign Controller | 3 each | | |
| Thermostat Assembly | 3 each | | |
| Light Level Detector Assy | 3 each | | |
| Fan Assembly | 1 each | | |
| | | TOTAL COST | |

Offeror's Authorized Signature:

Date:

Company Name:

ATTACHMENT A

MISSOURI SERVICE-DISABLED VETERAN BUSINESS PREFERENCE

By virtue of statutory authority, RSMo 34.074, a preference will be given all contracts for the performance of any job or service to service-disabled veteran business either doing business as Missouri firms, corporations, or individuals; or which maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less or whenever competing bids, in their entirety, are comparable.

Definitions:

Service-Disabled Veteran is defined as any individual who is disabled as certified by the appropriate federal agency responsible for the administration of veterans' affairs.

Service-Disabled Veteran Business is defined as a business concern:

- a. Not less than fifty-one (51) percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than fifty-one (51) percent of the stock of which is owned by one or more service-disabled veterans; and
- b. The management and daily business operations of which are controlled by one or more service-disabled veterans.

If an offeror meets the definitions of a service-disabled veteran and a service-disabled veteran business as defined in 34.074 RSMo and is either doing business as a Missouri firm, corporation, or individual; or maintains a Missouri office or place of business, the offeror **must** provide the following with the proposal in order to receive the Missouri service-disabled veteran business preference over a non-Missouri service-disabled veteran business when the quality of performance promised is equal or better and the price quoted is the same or less or whenever competing proposals, in their entirety, are comparable:

- a. A copy of a letter from the Department of Veterans Affairs (VA), or a copy of the offeror's discharge paper (DD Form 214, Certificate of Release or Discharge from Active Duty) from the branch of service the offeror was in, stating that the offeror has a service-connected disability rating ranging from 0 to 100% disability; and
- b. A completed copy of this exhibit

(NOTE: For ease of evaluation, please attach copy of the above-referenced letter from the VA or a copy of the offeror's discharge paper to this Exhibit.)

By signing below, I certify that I meet the definitions of a service-disabled veteran and a service-disabled veteran business as defined in 34.074 RSMo and that I am either doing business as a Missouri firm, corporation, or individual; or maintain Missouri offices or places of business at the location(s) listed below.

Veteran Information

Business Information

Service-Disabled Veteran's Name, (Please Print)

Service-Disabled Veteran Business Name

Service-Disabled Veteran's Signature

Missouri Address of Service-Disabled Veteran Business

I am aware and recognize that, unless certain contract and affidavit conditions are satisfied pursuant to Section 285.530, RSMo, the aforementioned business entity may be held liable under Sections 285.525 through 285.550, RSMo, for subcontractors that knowingly employ or continue to employ any unauthorized alien to work within the state of Missouri.

I acknowledge that I am signing this affidavit as a free act and deed of the aforementioned business entity and not under duress.

Affiant Signature

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My commission expires:

[documentation of enrollment/participation in a federal work authorization program attached]

ATTACHMENT D

APPLICANT AFFIDAVIT FOR SOLE-PROPRIETORSHIP OR PARTNERSHIP

(a separate affidavit is required for each owner and general partner)

STATE OF _____)

) ss

COUNTY OF _____)

On this _____ day of _____, 20____, before me appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instruments, who being by me duly sworn, deposed as follows:

My name is _____, and I am of sound mind, capable of making this affidavit, and personally certify the facts herein stated, as required by Section 208.009, RSMo, for failure to provide affirmative proof of lawful presence in the United States of America:

I am the owner or partner _____ of business name _____, which is applying for a public benefit (grant, contract, and/or loan) administered/provided by the Missouri Highways and Transportation Commission (MHTC), acting by and through the Missouri Department of Transportation (MoDOT).

I am classified by the United States of America as: (check the applicable box)

- a United States citizen.
- an alien lawfully admitted for permanent residence.

I am aware that Missouri law provides that any person who obtains any public benefit by means of a willfully false statement or representation, or by willful concealment or failure to report any fact or event required to be reported, or by other fraudulent device, shall be guilty of the crime of stealing pursuant to Section 570.030, RSMo, which is a Class C felony for stolen public benefits valued between \$500 and \$25,000 (punishable by a term of imprisonment not to exceed 7 years and/or a fine not more than \$5,000 – Sections 558.011 and 560.011, RSMo), and is a Class B felony for stolen public benefits valued at \$25,000 or more (punishable by a term of imprisonment not less than 5 years and not to exceed 15 years – Section 558.011, RSMo).

I recognize that, upon proper submission of this sworn affidavit, I will only be eligible for temporary public benefits until such time as my lawful presence in the United States is determined, or as otherwise provided by Section 208.009, RSMo.

I understand that Missouri law requires MHTC/MoDOT to provide assistance in obtaining appropriate documentation to prove citizenship or lawful presence in the United States, and I agree to submit any requests for such assistance to MHTC/MoDOT in writing.

I acknowledge that I am signing this affidavit as a free act and deed and not under duress.

Affiant Signature

Affiant's Social Security Number or
Applicable Federal Identification Number

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My commission expires:

ATTACHMENT E
MISSOURI DOMESTIC PRODUCTS PROCUREMENT ACT

The bidder’s attention is directed to the Missouri Domestic Products Procurement Act, Sections 34.350 to 34/359, RsMO, which requires all manufactured goods or commodities used or supplied in the performance of this contract or any subcontract to be manufactured or produced in the United States.

Section 34.355, RsMO, requires the vendor or contractor to certify his compliance with Section 34.353 and, if applicable, Section 34.359, RsMO, at the time of bidding **and** prior to payment. Failure to comply with Section 34.353, RsMO, during the performance of the contract **and** to provide certification of compliance prior to payment will result in nonpayment for those goods or commodities.

Section 34.353.2, RsMO, specifies that it does not apply where the total contract is less than Twenty-Five Thousand Dollars (\$25,000.00). If your total bid is Twenty-Five Thousand Dollars (\$25,000.00) or more, you **must** complete this form as directed below.

Failure to complete and return this document with this bid will cause the State to presume the manufactured goods or products listed in the bid are not manufactured or produced in the United States, and the bid will be evaluated on that basis. Please read the certification appearing below on this form.

If all the goods or products specified in the attached bid which the bidder proposes to supply to the State shall be manufactured or produced in the “United States” as defined in Section 34.350, RsMO, check the box at left.

If only one item of any particular goods or products specified in the attached bid is manufactured or produced in the “United States” as defined in Section 34.350, RsMO, check the box at left and list the items (or item number) here:

If any or all of the goods or products specified in the attached bid which the bidder proposes to supply to the State are **not** manufactured or produced in the “United States” as defined in Section 34.350, RsMO, then: (a) check the box at left; (b) list below, by item (or item number), the country other than the United States where each good or product is manufactured or produced; and (c) check the boxes to the left of the paragraphs below if applicable and list the corresponding items (or item numbers) in the spaces provided.

| Item (or item number) | Location Where Item Manufactured or Produced |
|-----------------------|--|
| | |
| | |
| | |
| | |

(attach an additional sheet if necessary)

The following specified goods or products cannot be manufactured or produced in the United States in sufficient

quantities or in time to meet the contract specifications. Items (or item numbers):

[] The following specified goods or products must be treated as manufactured or produced in the United States, in accordance with an existing treaty, law, agreement, or regulation of the United States, including a treaty between the United States and any foreign country regarding export-import restrictions or international trade. Items (or item numbers):

CERTIFICATION

By submitting this document, completed as directed above, with a bid, the bidder certifies under penalty of making false declaration (Section 575.060, RsMO) that the information contained in this document is true, correct and complete, and may be relied upon by the State in determining the bidders qualifications under and in compliance with the Missouri Domestic Products Procurement Act.

The bidder's failure to complete and return this document with the bid as directed above will cause the State to presume the manufactured goods or products listed in the bid are not manufactured or produced in the United States, and the bid will be evaluated on that basis pursuant to Section 34.353.3(2), RsMO.

ATTACHMENT F
D610-23-RW ARTERIAL DMS

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that
we _____

_____,
as Principal and _____, as Surety are held
and firmly bound
unto the **STATE OF MISSOURI** (acting by and through the **Missouri Highways and
Transportation Commission**) in the penal sum of:

_____ Dollars (\$ _____) to be paid to the **State of Missouri or to the
Missouri Highways and Transportation Commission**, to be credited to the State Road Fund,
the Principal and Surety binding themselves, their heirs, executors, administrators, successors,
and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this _____

THE CONDITION OF THIS OBLIGATION is such that:

WHEREAS, the Principal is submitting herewith a bid to the Missouri Highways and
Transportation Commission for furnishing Arterial DMS Boards as set out in the bid to which
this bond is attached.

NOW THEREFORE, if the Missouri Highways and Transportation Commission shall accept
the bid of the Principal and if said Principal shall properly execute and deliver to the Missouri
Highways and Transportation Commission the contract and contract bond in compliance with the
requirements of the proposal, the specifications and the provisions of law, to the satisfaction of
the Highways and Transportation Commission, then this obligation shall be void and of no
effect, otherwise to remain in full force and effect.

In the event the said Principal shall, in the judgment of the Missouri Highways and
Transportation Commission, fail to comply with any requirement as set forth in the preceding
paragraph, then the State of Missouri acting through the Missouri Highways and Transportation
Commission shall immediately and forthwith be entitled to recover the full penal sum above set
out, together with court costs, attorney's fees and any other expense of recovery.

(SEAL)

Principal

By _____
Signature

(SEAL) _____
Surety

By _____
Attorney-in-Fact

NOTE: This bond must be executed by the PRINCIPAL and by a CORPORATE SURETY authorized to conduct surety business in the State of Missouri.