BID FORM

MISSOURI DEPARTMENT OF TRANSPORTATION

GENERAL SERVICES P.O. BOX 270 JEFFERSON CITY, MO 65102

REQUEST NO.	2-160726RW1
DATE	July 13, 2016

SEALED BIDS, SUBJECT TO THE ATTACHED CONDITIONS BE RECEIVED AT THIS OFFICE UNTIL	TRANSPORTATION
2:00 p.m., Central Time, July 26, 2016	Submit net bid as cash discount stipulations will not be considered Various MoDOT Locations
AND THEN PUBLICLY OPENED AND READ FOR FURNISHI THE FOLLOWING SUPPLIES OR SERVICES.	
BUYER: Robin Warren BUYER EMAIL: Robin.Warren@modot.mo.gov	BUYER TELEPHONE: 573-526-7929
SUPP	LIES OR SERVICES
Flashing	Arrow Panels (FAP)
and ending October 31, 2017 in accordance	Arrow Panels (FAP) with an effective date of award with the following pages. address shown at the top of this page.
(SEE ATTACHED FOR CON	NDITIONS AND INSTRUCTIONS)
In compliance with the above Request For Bid, and subject to all	l conditions thereof, the undersigned bidder agrees to furnish and deliver imeframe specified herein, after receipt of formal purchase order.
Date:	Firm Name:
Telephone No.: Fax No.:	Address:
	By (Signature):
Email Address:	Type/Print Name
Is your firm MBE certified? Yes No	Title: Is your firm WBE certified? Yes No

1. INTRODUCTION AND GENERAL INFORMATION

1.1 Introduction:

1.1.1 This Request for Bid seeks bids from qualified organizations to provide Trailer and Truck Mounted Solar Flashing Arrow Panels, with an effective contract period of date of award through December 31, 2014, to the Missouri Highways and Transportation Commission (MHTC) and Missouri Department of Transportation (MoDOT). Each bid must be returned in a sealed envelope to no later than 2:00 p.m., Local Time, July 26, 2016.

RFB Coordinator:

Robin Warren Sr. General Services Specialist

Phone: 573-526-7929

2. SCOPE OF WORK

2.1 General Requirements:

- 2.1.1 The Bidder shall provide Trailer and Truck Mounted Solar Flashing Arrow Panels (hereinafter referred to as "FAP") for the Missouri Highway and Transportation Commission (MHTC) and Missouri Department of Transportation (MoDOT), hereinafter referred to as the "MoDOT", in accordance with the provisions and requirements stated herein.
- 2.1.2 The Bidder shall provide all deliverables to the sole satisfaction of MoDOT.
- 2.1.3 No estimated quantities are given as part of this bid. MoDOT does not guarantee any specific quantities that may be required to be provided by the Bidder. Purchases will be made on an as needed basis.
- 2.1.4 MoDOT reserves the right to obtain "like or similar" products as specified herein from other manufacturers, exclusive of the contract, when use of such products is deemed in the best interest of MoDOT.
- 2.1.5 Unless otherwise specified herein, the Bidder shall furnish all material, labor, facilities, equipment, and supplies necessary to provide the FAP required herein.

2.2 Specific Requirements:

- 2.2.1 The Bidder shall provide FAP in accordance with the attached specifications: MGS 06-06B & MGS 06-08B and any other provisions outlined in this document.
- 2.2.2 The Bidder shall provide MoDOT with 2 Operator's Manuals in hard copy, 4 Parts Books (2 hardcover books and 2 CD's), and 2 Technical Service Manuals for each FAP.
- 2.2.3 The Bidder shall provide a contact name, along with the contact name's physical address and an 800 number. The contact person must be accessible for MoDOT representatives to contact twenty-four (24) hours per day, and seven (7) days per week for technical assistance.

2.3 Training Requirements:

- 2.3.1 The Bidder shall provide training for all specialty equipment and equipment specified herein. At a minimum, training shall consist of the following:
 - a. A qualified service technician shall conduct training at each district where items are delivered, or at an off-site location at the Bidder's expense.
 - 1) The Bidder shall provide training to the MoDOT operators of the equipment. The Bidder's training must cover safe operation, warranty coverage, and routine/preventative maintenance.
 - 2) The Bidder shall provide training within one (1) month after delivery and acceptance.
 - 3) The Bidder shall provide all training materials at no additional cost to MoDOT.
 - 4) The Bidder shall contact each applicable district to schedule the training classes.
 - 5) If requested by MoDOT, the Bidder shall provide repeat training classes at the location the training initially occurred. Such repeat training classes shall be provided by the Bidder at no additional cost to MoDOT.

2.4 Delivery Requirements:

2.4.1 The Bidder shall deliver FAP as specified herein to various locations throughout the district. *See attached District Map.* .

- 2.4.2 The Bidder shall insure FAP are delivered complete and ready for use.
- 2.4.3 The Bidder shall deliver FAP at the specified location within sixty 45 to 60 calendar days after receipt of order.
- 2.4.4 The Bidder shall deliver FAP during normal working hours (7:30 a.m. 4:00 p.m. Monday through Friday). The contractor shall provide MoDOT with at least twenty-four (24) hours advance notice prior to arrival at the delivery point.

2.5 Liquidated Damage Requirements:

- 2.5.1 The Bidder shall agree and understand that providing FAP in accordance with the requirements stated herein is considered critical to the efficient operations of MoDOT. However, since the amount of actual damages would be difficult to establish in the event the Bidder fails to comply with the contractual requirements, the Bidder shall agree and understand that the amount identified below as liquidated damages shall be reasonable and fair under the circumstances.
 - a. In the event the Bidder fails to provide FAP in accordance with the contractual requirements specified herein, the Bidder shall be assessed liquidated damages in the amount of \$100.00 per day, per order for each such delinquent day, not to exceed 20% of the total purchase order amount.
 - b. The Bidder shall further agree and understand that such liquidated damages shall either be deducted from the total amount due the contractor or paid by the contractor as a direct payment to MoDOT, at the sole discretion of MoDOT.
 - c. The Bidder shall understand that the liquidated damages described herein shall not be construed as a penalty.
 - d. The Bidder shall agree and understand that all assessments of liquidated damages shall be within the discretion of each District as a separate entity, and shall be in addition to, not in lieu of, the rights of the State of Missouri to pursue other appropriate remedies. The Bidder shall understand and agree that each District's decision shall be individual, final, and without recourse.
 - e. The Bidder shall agree and understand that if a product(s) is rejected due to not meeting specifications, all costs associated with returning the product to the contractor shall be paid by the Bidder.

2.6 Invoicing and Payment Requirements:

- 2.6.1 An itemized invoice shall be submitted to the applicable requesting address upon completion of delivery.
- 2.6.2 The Bidder's invoices should be itemized in accordance with items listed on the purchase order and/or contract. The statewide financial management system has been designed to capture certain receipt and payment information. Therefore, each invoice submitted must reference the purchase order number and must be itemized in accordance with items listed on the purchase order. Failure to comply with this requirement may delay processing of invoices for payment.
- 2.6.3 The Bidder shall be paid in accordance with the firm, fixed prices stated on the pricing page(s) of this document after completion of delivery and acceptance by MoDOT.
- 2.6.4 Other than the payment specified above, no other payments or reimbursements shall be made to the Bidder for any reason whatsoever.
- 2.6.5 MoDOT is exempt from paying Missouri Sales Tax, Missouri Use Tax and Federal Excise Tax.
- 2.6.6 Unless otherwise provided for in the solicitation documents, payment for all equipment, supplies, and/or services required herein shall be made in arrears. MoDOT shall not make any advance deposits.

- 2.6.7 MoDOT assumes no obligation for equipment, supplies, and/or services shipped or provided in excess of the quantity ordered. Any unauthorized quantity is subject to MoDOT's rejection and shall be returned at the Bidder's expense.
- 2.6.8 MoDOT reserves the right to purchase goods and services using the state-purchasing card.

2.7 Other Contractual Requirements:

- 2.7.1 Contract Period The contract shall commence from Notice of Award until October 31, 2016 with three (3) one-year renewal option periods. If the option for renewal is exercised by MoDOT, the Bidder shall agree to all terms and conditions of the RFB and all subsequent amendments. Renewal options are at the sole discretion of MoDOT.
- 2.7.2 Renewal Periods If the option for renewal is exercised by MoDOT, the Bidder shall agree that the prices for the renewal period shall not exceed the maximum percentage for the applicable renewal period stated herein.
 - a. If renewal percentages are not provided, the prices during renewal periods shall be the same as during the current contract period.
 - b. MoDOT does not automatically exercise its option for renewal based upon the maximum percentage and reserves the right to offer or to request renewal of the contract at a price less than the maximum percentage stated.
 - c. In the event MoDOT exercises its option(s) to renew the contract, the requirements for future years shall be basically similar.
- 2.7.3 Escalation Clause In the event the Bidder requests a price increase during the contract period (original contract period or contract renewal period), the Bidder must provide a written request and documentation justifying the need for a price increase, and the amount of such price increase. MoDOT will review the Bidder's written request and documentation, and decide if a price increase is to be granted at that particular time. The Bidder shall understand and agree that MoDOT's decision shall be final and without recourse.
 - a. No price increase shall be granted during the first six (6) months of the original contract period, or if applicable, first six (6) months of a contract renewal.
 - b. In the event a price increase is granted due to an approved escalation, the renewal percentage shall be calculated against the current contract price.
- 2.7.4 Inspection Specifications MoDOT reserves the right to inspect the material at the point of manufacture, intermediate storage point, or at a destination which shall be at the discretion of MoDOT.
 - a. No equipment, supplies, and/or services received by MoDOT pursuant to a contract shall be deemed accepted until MoDOT has had reasonable opportunity to inspect said equipment, supplies, and/or services.

3. BID SUBMISSION

3.1 Bid Submission Information:

- 3.1.1 All bids must be received in a sealed envelope clearly marked "FAP Bid 2-160726RW1".
- 3.1.2 All bids must be received at the following address no later than July 26, 2016 at 2:00 p.m., Central Time.

Missouri Department of Transportation General Services – Procurement Division

Attn: Robin Warren

PO Box 270 Mailing Address

Jefferson City, MO 65102

830 MoDOT Drive *Physical Address*

Jefferson City, MO 65109

- 3.1.3 The Bidder may withdraw, modify or correct his bid after it has been deposited with MoDOT provided such request is submitted in writing and received at the location designated for the bid opening prior to the time specified for opening bids. Such a request received as specified will be attached to the bid and the bid will be considered to have been modified accordingly. No bid may be modified after the time specified for the opening of bids.
- 3.1.4 The Bidder should submit the following with the bid:
 - a. A complete list or catalog describing all available training materials related to the item(s) being bid.
 - b. A complete options list and/or catalog describing parts with detailed pricing information for each make/model being bid.
 - c. Warranty information.
 - d. Descriptive literature and specifications showing the exact equipment being bid.
- 3.1.5 Samples After review of the submitted bids, the St. Louis District will work with the low Bidder to determine what items need to be submitted for sampling for testing purposes. The second low Bidder may also be requested to submit samples at that time.

Requested samples must be received within 7 to 10 days of notification, unless indicated otherwise by MoDOT's St. Louis District.

Each sample shall be identified by the Bidder to permit easy reference and identification. The Bidder's samples must be submitted to MoDOT – St. Louis District, Attn: Building A or B, 2309 Barrett Station Road, Ballwin, MO 63021.

- a. The Bidder must provide 48 hours advance notification of the delivery of the samples.
- b. The Bidder must insure that a manufacturer representative knowledgeable in the operation of the sample accompanies the delivery of the samples.
- c. The Bidder shall understand and agree that no award of contract shall be made until the FAP have been tested for compliance by MoDOT. *NOTE*: Normal-testing time is a minimum of thirty (30) calendar days.

- d. The Bidder shall understand and agree that MoDOT shall not pay any additional charges for the delivery of the Bidder's samples or the return of such samples.
- 3.1.6 Open Competition / Request For Bid Document:
 - a. It shall be the Bidder's responsibility to ask questions, request changes or clarification, or otherwise advise MoDOT if any language, specifications or requirements of an RFB appear to be ambiguous, contradictory, and/or arbitrary, or appear to inadvertently restrict or limit the requirements stated in the RFB to a single source. Any and all communication from Bidder regarding specifications, requirements, competitive bid process, etc., must be directed to the buyer from MoDOT, unless the RFB specifically refers the Bidder to another contact. Such communication should be received at least five (5) working days prior to the official bid opening date.
- 3.1.7 Bids will be reviewed to determine if the bid complies with the mandatory requirements, and to determine the lowest responsive bid meeting specifications.
- 3.1.8 Cost Determination The low bid shall be determined by adding together the bidder's firm, fixed price within each group to obtain a grand total per group.
- 3.1.9 Contract Award The contract will be awarded to the lowest responsive bidder on a "Group by Group" basis.
- 3.1.10 MoDOT reserves the right to reject any or all bids and no award is final until formally approved by MoDOT.
- 3.1.11 It is the sole responsibility for all Bidders to check the website for bid results.

4. PRICING PAGE

4.1	period for providing the	e FAP in accordance with the provisions a	orices in the attached table for the original contract and requirements of this RFB. All costs hall be included in the prices stated below.		
4.2	The Bidder must provide pricing for each line item within a group on the pricing pages to be considered responsive.				
4.3	<u>Renewal Periods:</u> The bidder shall provide below the maximum percentage of increase or decrease for the renewal periods. The percentage shall be computed against the <u>current contract period prices</u> for each renewal period. If a renewal percentage is not provided, the prices for the renewal periods shall be the same as the current contract period.				
	1 st Renewal Period% of maximum increase and/or% of maximum decrease.				
	2 nd Renewal Period	% of maximum increase and/or	% of maximum decrease.		
	3 rd Renewal Period	% of maximum increase and/or	% of maximum decrease.		
	Сотра	ny Name	Signature		

VENDOR INFORMATION & PREFERENCE CERTIFICATION FORM

Vendor Information

All bidders must furnish ALL applicable information requested below

Vendor Name/Mailing Address:		Vendor Contact Information (including area codes):	
		Phone #:	
Email Address:		Cellular #:	
		Fax #:	
Printed Name of Responsible O	fficer or Employee:	Signature:	
For Corporations - State in which	n incorporated:	For Others - State of domicile:	
If the address listed in the Vendor places of business:	Name/Mailing Address block above is not	located in the State of Missouri, list the address of Missouri offices or	
If additional space is required, ple	ase attach an additional sheet and identify	it as Addresses of Missouri Offices or Places of Business.	
M/WBE INFORMATION: List all of for subcontractors and identify the		erprises (MWBE) utilized in the fulfillment of this bid. Include percentages	
M/WBE Name	<u>Percentage</u>	of Contract M/WBE Certifying Agency	
If additional space is required, ple	ase attach an additional sheet and identify	it as M/WBE Information	
		Certification	
AII	bidders must furnish ALL appli	cable information requested below or all of the goods or products offered in the attached bid which the bidder	
proposes to supply to the MHTC a	are not manufactured or produced in the "l	United States", or imported in accordance with a qualifying treaty, law, er than the United States where each good or product is manufactured or	
Item (or item number)	Location Where Item is Manufactured or Produced		
If additional space is requ	ı ıired, please attach an additional sheet and	d identify it as Location Products are Manufactured or Produced.	
	VETERAN BUSINESS : Please complete w definitions for qualification criteria:	the following if applicable. Additional information may be requested if	
	·		
Service-Disabled Veteran is defined of veterans' affairs.	ned as any individual who is disabled as c	ertified by the appropriate federal agency responsible for the administration	
Service-Disabled Veteran Busin	ess is defined as a business concern:		
		or more service-disabled veterans or, in the case of any publicly owned	
		which is owned by one or more service-disabled veterans; and controlled by one or more service-disabled veterans.	
Veteran	Information	Business Information	
veterani	oiution	<u>Dasinoss information</u>	
Service-Disabled Veter	an's Name (Please Print)	Service-Disabled Veteran Business Name	
	_		
Service-Disabled	Veteran's Signature	Missouri Address of Service Disabled Veteran Business	

COOPERATIVE AGREEMENT NOTICE

The Department is interested in assisting Missouri governmental entities, etc. in purchasing equipment, various materials, and supplies that meet the MoDOT specifications.

Each bidder is asked to indicate below whether they would be willing to offer **Flashing Arrow Panels** (**FAP**) listed in the attached "Request for Bid" for sale to these local political entities at the same bid price offered to this Department.

It is understood the Department will not issue purchase orders, accept delivery nor make payment for these items ordered by any of these agencies. It is further understood the price is based on the **Flashing Arrow Panels (FAP)** meeting the Department specifications. Any added options, deletions, or extra freight costs would be negotiated between the local agency and the successful vendor.

Indicate below whether your company is willing to offer such cooperative purchasing for Missouri counties, cities or other political entities.

YES	NO	
If the price varies throughout the state on Department l price f.o.b. your location that would be offered as descri		ery destinations, please indicate the
F.O.B. Location		
Indicate the deadline date that orders will be accepted.		
COMPANY NAME		
ADDRESS		
PHONE NUMBER		
SIGNATURE		
TITLE		
DATE		

Bidder should complete the appropriate sections of form and submit with bid.

Pricing Page - RFB 2-160721RW1

Flashing Arrow Panel (FAP) - Trailer Mounted Solar Powered

Line Item	Description	Make and Model	Unit Price
	FAP - Wired Controller		
1	LED w/15 day battery life		
	FAP - Wired Controller		
2	LED w/30 day battery life		
		Group 1 - Total for Line Item 1 and 2	\$
	FAP - Wireless Controller		
3	LED w/15 day battery life		
	FAP - Wireless Controller		
4	LED w/30 day battery life		
		Group 2 - Total for Line Item 3 and 4	\$

Flashing Arrow Panel (FAP) - Truck Mounted Solar Powered

Line Item	Description	Make and Model	Unit Price
	FAP - Wired Controller		
5	LED w/15 day battery life		
	FAP - Wired Controller		
6	LED w/30 day battery life		
		Group 3 - Total for Line Item 5 and 6	\$
	FAP - Wireless Controller		
7	LED w/15 day battery life		
	FAP - Wireless Controller		
8	LED w/30 day battery life		
		Group 4 - Total for Line Item 7 and 8	\$

Indicate percentage (%) discount off Manufactureres Suggested Retail Prices (MSRP) for additional FAP options available in Bidder's data book or pricing guide.

Percent discount off MSRP for all Data Book or Pricing Guide Options:	% discount	
Company		
Signature		

MGS-06-06B (Page 1 of 4) (Rev. 6-22-16)



TRAILER MOUNTED SOLAR POWERED FLASHING ARROW PANEL MGS-06-06B

- **1.0 DESCRIPTION.** All trailer mounted solar powered flashing arrow panels, hereinafter referred to as a FAP, shall be designed and manufactured in accordance with this specification.
- **2.0 MATERIALS.** The FAP shall consist of an arrow panel, rotating or folding mechanism, control switches and circuitry, a control box housing electronic components, and self-contained solar/battery power supply, as specified, all mounted on a towable trailer. Each unit shall be fully assembled when delivered.

2.1 FAP Panel Assembly.

- (1) The FAP (housing) shall be aluminum and contain a minimum of 25 LED (Light Emitting Diode) lamps. Lamps shall be energized from control switches located in a lockable weatherproof box made of durable corrosion resistant metal material located on the arrow panel support frame.
- (2) A nominal 5 3/4-inch (140 mm), 360 degree tunnel visor with full-attachment flange shall be provided for each lamp. Visors shall be attached to the panel with stainless steel machine screws. Visors shall be removable without removing the screws. Water proof material shall be provided between each lamp and the panel face, to absorb vibration and prevent intrusion of moisture. The panel or lamp holder shall be notched to match a projection on the lamp to ensure proper lamp alignment. All lamps shall be replaceable from the front of the panel.
- (3) A lamp of the same type used on the panel face shall be provided on the back side of the panel and be continuously energized or flashed when the FAP is operating. A visor is not required on this lamp. It shall be located in the uppermost corner of the panel on the driver's side.
- (4) Lamps shall be PAR-46 yellow, 5 ¾ inch (140 mm) dia., LED lamps specifically designed for solar applications. Each lamp shall have an optical lens and contain enough light emitting diodes to meet the existing MoDOT specifications for visibility and legibility performance standards as stated later in these specifications.
- (5) Overall size of the FAP shall be a nominal 4 feet (1200 mm) by 8 feet (2400mm).
- (6) Panel mounting height shall be 7 to 9 feet (2100 to 2700 mm) from the roadway surface to the lowest point on the panel. The bottom edge of the panel shall be relatively level when in use.
- (7) The FAP (housing) shall consist of a nominal 3-inch x 1 inch x 1/8 inch (75 mm x 25 mm x 3 mm) welded aluminum channel with a 1/16 inch (1.5 mm) thick aluminum sheet attached to the front and back. The front and back surfaces of the panel shall be painted non-reflective flat black. All wiring inside the FAP shall be corrosion resistant wiring and shall be attached to the panel approximately every 8 inches (200 mm). All panels shall have an access door for ease of access to terminal strips/wiring connections/diodes if equipped. Company names or logos shall not be placed on the FAP.

2.2 CONTROL AND WIRING.

(1) A trailer mounted control will be considered the standard control. An optional wireless remote control, if available, should perform the same functions as the trailer mounted control.

- (2) The control switches shall provide MUTCD Sequential Arrow (Merge Right or Left), Flashing Double Arrow and Alternating Diamond Caution.
- (3) The control shall include an on/off switch, a dim/bright selector switch, an operation mode selector switch, and a photoelectric cell. All electronic components shall be solid state and electrically protected by fuses or circuit breakers. All cables and control wiring shall enter the control cabinet from either the back or the bottom through salt-resistant, weatherproof connectors. No external or spliced wire connections will be accepted outside of the control cabinet.
- (4) The optional wireless remote control unit, if available, shall be FCC approved. The wireless modules should derive power from the controller and remote respectively. Remote wireless FAP and remote shall have a permanently affixed unique I.D. label or plaque.
- (5) The flashing rate of the lamps shall not be less than 25 or greater than 40 flashes per minute. Lamp "ontime" shall be at least 50 percent.
- (6) Control circuitry shall provide dimming of all lamps to prevent blinding during night operation. Dimming shall be by manual and automatic controls, capable of at least 50 percent from full brilliance. The photoelectric cell shall automatically reduce the flashing arrow light intensity as ambient light reduces.
- (7) A readily accessible cartridge fuse or circuit breaker shall be provided in the circuit between the power supply and FAP control. The fuse or breaker shall be rated to handle the maximum lamp load of all lamps. The fuse or breaker shall be located in the control cabinet.

2.3 POWER SUPPLY.

- (1) Solar Panels: Wattage of the solar panels shall be adequate to fully charge batteries, and will contain a remote battery charger back-up as described below. Solar panels shall be mounted above top of FAP with a minimum 4 degree pitch from the horizontal position to encourage shedding of dirt and rainwater.
- (2) Battery Charger: The battery charger with charge indicator shall be included and shall be mounted at the base of the frame of the FAP support, inside a lockable, weatherproof, battery box. The battery charger shall have the capability to charge the battery bank within a 48 to 72 hour time period from a 120 VAC utility power source.
- (3) Batteries: Batteries shall be the A.G.M. type (Absorb Glass Mat), class GC2, rated at no less than 200 amp hours per battery when fully charged. The quantity of batteries shall provide enough power to run the unit at full load for 15 consecutive days on battery power only. Solar charging shall be disabled during this 15 day period. An optional package shall be provided for 30 day continuous days.
- (4) Battery Box: A lockable, weatherproof, battery box shall be made of minimum 14-gauge steel, with louvered side panels for cross-flow ventilation and with bottom and sides coated with acid-resistant protector.
- (5) Voltage Regulator: The voltage regulator shall be solid-state micro-processor-based, utilizing constant positive drive voltage and pulse with modulation to optimize battery charging; measuring battery voltage and adjusting current from the solar panels so the batteries are not overcharged, and also preventing overcharging of batteries by the solar panels when the sign is

turned off. An automatic disconnect device shall be included to protect the entire system in case of low voltage.

(6) Controller: A solid-state, LED optimized, controller shall be utilized to minimize wattage consumption and maximize battery life. Control circuitry shall provide a negative ground to each lamp at all times. Frame-ground circuitry to the lamps will not be permitted. Individual ground circuits to each lamp shall be provided. Positive power shall be supplied to each lamp through individual circuits from solid-state load switches in the control cabinet. The controller cabinet shall be assembled in a manner to allow easy access to internal control circuitry, such as with machine screws for service and repair purposes. Continuous, positive 12-volts to the lamp will not be permitted. The positive power to each lamp shall be reduced to zero voltage by the solid state load switches. It shall have reverse-polarity and short-circuit protection. The voltage regulator and controller shall be in a lockable, weatherproof, box located on the frame of the FAP support.

2.4 Trailer.

- (1) Welding: The trailer welding shall be in accordance with American Welding Society standards.
- (2) Dimensions: Minimum trailer dimensions shall be length 100 inches (2500 mm) and width 70 inches (1800 mm) (fender to fender).
- (3) Frame: Structural steel tubing, (minimum square tubing 2 1/2 inch x 2 1/2inch x 11-gauge (62.5 mm x 62.5 x 11-gauge) wall thickness or minimum 2 inch (50 mm) square tubing x 1/8 inch (3 mm) wall thickness) minimum 3 cross braces (with tie-down loops on front corners.)
- (4) Axle: Single, minimum 2,000-pound (900-kg) capacity, tubular, with 5-hole, 4.5 inch (110 mm) B.C. circle pattern on idler hub.
- (5) Wheels: 15-inch (375 mm) steel, safety rim, 5 lug bolts.
- (6) Tires: 15-inch (375 mm), load range C, tubeless, radial highway tread (ST205/75R15 minimum.)
- (7) Springs: Minimum 3-leaf, double eye, minimum 1,200-pound (540-kg) capacity for each spring or adequate torsion type axle.
- (8) Tongue: 3-inch x 3-inch x 3/16 inch (75 mm x 75 mm x 4.8 mm) steel tubing (removable for shipping and to prevent theft.). Tongue weight approximately 10-15 percent of gross weight. Minimum 4-foot (1200 mm) hitch-to-trailer clearance.
- (9) Deck: 12 sq. ft. (3.6 sq. m) minimum, 10 gauge, smooth plate or open deck.
- (10) Fenders: 16 gauge steel, inside closed in above deck, round, full wheel coverage.
- (11) Safety Chain: Two, 5/16 inch x 34-inch (8 mm x 860 mm) long plated steel chains connected to a loop that is welded to the tongue. Chain shall have yield strength equal to weight of trailer and payload, or greater. Chain loop shall have yield strength equal to chain, or greater.

- (12) Screw Jack: Tongue mounted, 2,000-pound (900-kg) capacity, steel base 2 inch x 4 inch foot (50 mm x 100 mm), minimum size and capacity.
- (13) Leveling Legs: Adjustable on minimum 1" increments with foot pads (2 inch x 4 inch minimum), mounted on four corners of frame, perforated 1 ¾ inch (40 mm) square tube x 12-gauge wall locked in place by 3/8 inch (9.5 mm) diameter snapper pins, secured to trailer frame by wire cable or chain. Screw Jacks that meet the tongue jack requirements are an acceptable alternative.
- (14) Hitch: Easily removable combination, 2 inch (50 mm) diameter ball coupler and a 3 inch (75 mm) inside diameter, flat pintle ring, adjustable 24-inch (600 mm) to 36-inch (900 mm), in 2-inch (50 mm) increments.
- (15) Paint: Entire trailer one coat primer, one coat high-visibility, Safety Orange Paint similar to Federal Standard 595B #12243, including all surfaces under deck and on underside of fenders. Powder coat of the same color is acceptable.
- (16) Lights: LED and DOT Approved 12-volt, two tail/stop signals and two separate tail/turn signals; side, rear and tongue reflectors. Tail lights shall have metal guard protective assemblies. Wires shall be identified as to function. Each CMS unit shall have a trailer lighting system with a 7-wire flat prong round RV male molded plug.
- **2.5 Performance.** Any display mode must be visible on a sunny day for a distance of one mile. The FAP must be able to operate for 15 continuous days in the flashing double arrow mode during day/night light conditions with the solar charging system disconnected. A device shall be provided to indicate the remaining charge on the batteries. The FAP support frame shall contain a device to align the FAP to oncoming traffic and to adjust the FAP so its bottom edge is relatively level when in use. The panel lamp must be visible during the "on time" at an angle of 15 degrees minimum to both left and right center and 4 degrees minimum both up and down of center.
- 2.6 Owner's Manual. The successful bidder shall furnish manuals as specified in RFB.
- **3.0 WARRANTY.** New units delivered to the Missouri Department of Transportation must be covered by the manufacturer's standard warranty for a minimum of one year, which includes onsite repair (parts, labor, and travel), at no expense to MoDOT.
- **3.1** All units manufactured shall be exactly the same as the units tested.
- **3.2** All units shall meet or exceed the specifications for FAP boards as listed in Part 6F.61 of the current Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD).



TRUCK MOUNTED SOLAR POWERED FLASHING ARROW PANEL MGS-06-08B

- **1.0 DESCRIPTION.** All truck mounted solar powered flashing arrow panels, hereinafter referred to as an FAP, shall be designed and manufactured in accordance with this specification.
- **2.0 MATERIALS.** The FAP shall consist of an arrow panel, mounting frame and rotating or folding mechanism, remote control switches and circuitry, and a lockable control cabinet housing electronic components in a self-contained solar/battery power supply. Each unit shall be fully assembled when delivered.

2.1 FAP PANEL ASSEMBLY.

- (1) FAP shall be aluminum and contain a minimum of 25 LED lamps. Lamps shall be energized from a control cabinet mounted inside the battery compartment and controlled by the remote control switches located inside the truck cab.
- (2) A nominal 5 ¾ inch (140 mm), 360 degree tunnel visor with full attachment flange shall be provided for each lamp. Visors shall be attached to the panel with stainless steel machine screws. Visors shall be removable without removing the screws. Water proof material shall be provided between each lamp and the panel face, to absorb vibration and prevent intrusion of moisture. The panel or lamp holder shall be notched to match a projection the lamp to ensure proper lamp alignment. All lamps shall be replaceable from the front of the panel.
- (3) A lamp of the same type used of the panel face shall be provided on the back side of the panel and be continuously energized or flashed when the FAP is operating. A visor is not required on this lamp but recommended, and it shall be located in the uppermost corner of the panel on the driver's side.
- (4) LED lamps shall be PAR-46, yellow, 5 3/4inch (140 mm) diameter, LED lamps, specifically designed for solar applications. Each lamp shall have an optical lens and contain enough light emitting diodes to meet the existing MoDOT specifications for the visibility and legibility performance standards as stated in section 2.5 Performance.
- (5) Overall size of the FAP shall be a nominal 3 feet (900 mm) by 6 feet (1800 mm).
- (6) The average truck bed height is 52 to 56 inches. When fully raised in the display position, the bottom of the FAP board shall be at least a height of 8 feet (2100 mm) from the ground. The FAP shall have an electrical-hydraulic lifting mechanism that includes a fully functioning manual lifting and lowering relief mechanism as a backup. The FAP shall be design to maintain a maximum height of 11 feet 9 inches in the storage/travel position.
- (7) The FAP housing shall consist of a nominal 3 inch x 1 inch x 1/8 inch (75 mm x 25 mm x 3 mm) welded aluminum channel with a 1/16 inch (1.5 mm) thick aluminum sheet attached to the front and back. The front and back surfaces of the panel shall be painted non-reflective flat black. All wiring inside the FAP shall be corrosion resistant wiring and shall be attached to the panel approximately every 8 inches (200 mm). All panels shall have an access door for ease of access to terminal strips/wiring connections/diodes if equipped. Company names or logos shall not be placed on the FAP.

2.2 CONTROL AND WIRING.

- (1) A remote cab control will be considered the standard control. An optional wireless remote control, if available, shall perform the same functions as the remote cab control.
- (2) The remote cab control switches shall provide MUTCD Sequential Arrow (Merge Right or Left), Flashing Double Arrow and Alternating Diamond Caution.
- (3) The remote cab control switches shall include an on/off switch, a dim/bright selector switch, an operation mode selector switch, an LED power-on lamp, and be equipped for top of dash mounting. The control shall be provided with at least 30 feet (9 meters) of multi-conductor, salt resistant, weather proof cable and a NEMA 4 surface base cover connector plug to connect the NEMA 4 side entry hood connector mounted approximately 4 feet (1200 mm) from the base of the frame and controller. The remote cab control shall be assembled in a manner to allow easy access to internal circuitry and switches for service and repair, such as machine screws. All electronic components shall be solid state and electrically protected by fuses or circuit breakers.
- (4) The optional wireless remote control unit, if available, shall be FCC approved. The wireless modules shall derive power from a 12-volt source. Remote wireless FAP and remote shall have a permanently affixed unique I.D. label or plaque.
- (5) The flashing rate of the lamps shall not be less than 25 or greater than 40 flashes per minute. Lamp "on-time" shall be at least 50 percent.
- (6) Control circuitry shall provide dimming of all lamps to prevent blinding during night operation. Dimming shall be by manual and automatic controls, capable of at least 50 percent from full brilliance. The photoelectric cell shall automatically reduce the flashing arrow light intensity as ambient light reduces.
- (7) A readily accessible cartridge fuse, in-line fuse, or circuit breaker shall be provided at the power supply end of the circuit between the power supply and the controller mounted inside the battery box. The fuse or breaker shall be rated to handle the maximum lamp load of all lamps. An additional fuse or breaker shall be located of the controller cabinet, protecting the circuit supplying the remote cab control.

2.3 POWER SUPPLY.

- (1) Solar Panels: Wattage of the solar panels shall be adequate to fully charge batteries, and shall contain a remote battery charger back-up as described below. Solar panels shall be mounted above top of FAP with a minimum 4 degree pitch from the horizontal position to encourage shedding of dirt and rainwater.
- (2) Battery Charger: The battery charger with charge indicator shall be included and shall be mounted at the base of the frame of the FAP support, inside a lockable, weatherproof, battery box. The battery charger shall have the capability to charge the battery bank within a 48 to 72 hour time period from a 120 VAC utility power source..
- (3) Batteries: Batteries shall be the A.G.M. type (Absorb Glass Mat), class GC2, rated at no less than 200 amp hours per battery when fully charged. The quantity of batteries shall provide enough power to run the unit at full load for 15 consecutive days on battery power only. Solar charging shall be disabled during this 15 day period. An optional package shall be provided for 30 day continuous days.

- (4) Battery Box: A fully enclosed (sides, top, bottom) lockable, weatherproof box, mounted at the base of the frame of the FAP support, shall be made of minimum 14-guage steel, with louvered side panels for cross-flow ventilation and with the sides and bottom coated with acid-resistant protector. The battery box shall be large enough to sufficiently house and service the controller, batteries and charger. The lid of the battery box shall be hinged and include a stabilizer rod to allow ease of maintenance and repair of batteries, charger and or photoelectric control.
- (5) Voltage Regulator: The voltage regulator shall be solid-state, micro-processor-based, utilizing constant positive voltage and pulse with modulation to optimize battery charging, measuring battery voltage and adjusting current from the solar panels so the batteries are not overcharged and also prevent overcharging of the batteries by the solar panels when the panel is turned off. An automatic disconnect device shall be included to protect the entire system in case of low voltage.
- (6) Disconnect and Enclosures: Disconnect plug and receptacle shall be determined by the current, voltage, and number of contacts required for proper operation. Connectors shall have screw terminations and accommodate a wire size of up to #12AWG. The male connector shall be enclosed in a NEMA 4 rated surface base enclosure and cover. The female connector shall be enclosed in a NEMA 4 side-entry hood enclosure. Multi-conductor cable shall enter the bottom of the enclosures through a waterproof, flame-resistant, salt and corrosion resistant cable connector with a sealing nut and internal ratchet containing a neoprene cable gland.
- (7) Controller: A solid-state, LED optimized, controller shall be utilized to minimize wattage consumption and maximize battery life. The control circuitry shall provide a negative ground to each lamp at all times. Frame-ground circuitry to the lamps will not be permitted. Individual ground circuits to each lamp shall be provided. Positive power shall be supplied to each lamp through individual circuits from solid-state load switches in the control cabinet. The controller cabinet shall be assembled in a manner to allow easy access to the internal control circuitry, such as with machine screws, for service and repair purposes. Provide a 35-foot controller cable for the wired and wireless option. In addition provide controller charging from the vehicle's 12-volt power outlet for the wireless option. Continuous, positive 12-volts to the lamps will not be permitted. The positive power to each lamp shall be reduced to zero voltage by the solid-state load switches. It shall have reverse-polarity and short-circuit protection. The voltage regulator and controller shall be in a lockable, weatherproof, battery box mounted at the base of the frame. Ability to program the display and monitor the display from inside truck with vendor's supplied handheld controller. Controller supplied shall not have a power saving sleep mode. The remote cab control switches shall provide MUTCD Sequential Arrow (Merge Right or Left), Flashing Double Arrow and Alternating Diamond Caution. All graphics shall completely fill display area and be legible.

2.4 FRAMEWORK.

(1) The FAP shall be supported on a four vertical post framework consisting of welded steel tubing in accordance with American Welding Society standards. All open ends of tubing shall be capped and welded shut. Each panel shall contain a tie down anchor point on each side, (left, right) of the frame to accommodate a 4 to 6 inch (100-150 mm) wide strap to anchor to the truck. Angle and cross bracing of the vertical supports shall be provided at the top and bottom of the supports to ensure a rigid frame. See drawing on Attachment 1. Each FAP shall be equipped with two forklift tubes for ease of installation as shown in Attachment 1.

- (2) The support frame shall be painted one coat of primer and one coat of high-visibility, Safety Orange Paint similar to Federal Standard 595B #12243. Powder coat of the same color is acceptable.
- **2.5 Optional Emergency Alert Lights.** The Emergency Alert System (EAS) shall be comprised of six white illumination LED light heads placed in two rows of three.

The three high mounted lights should be between 72 to 106 inches from the road surface; see attached photo suggested location A.

The three low mounted lights should be between 42 to 54 inches from the road surface; see attached photo suggested location B.

The vertical separation between the two rows of lights shall be a minimum of 38 inches.

The lights shall be visible when CMS or FAP is in the activated or deployed position.

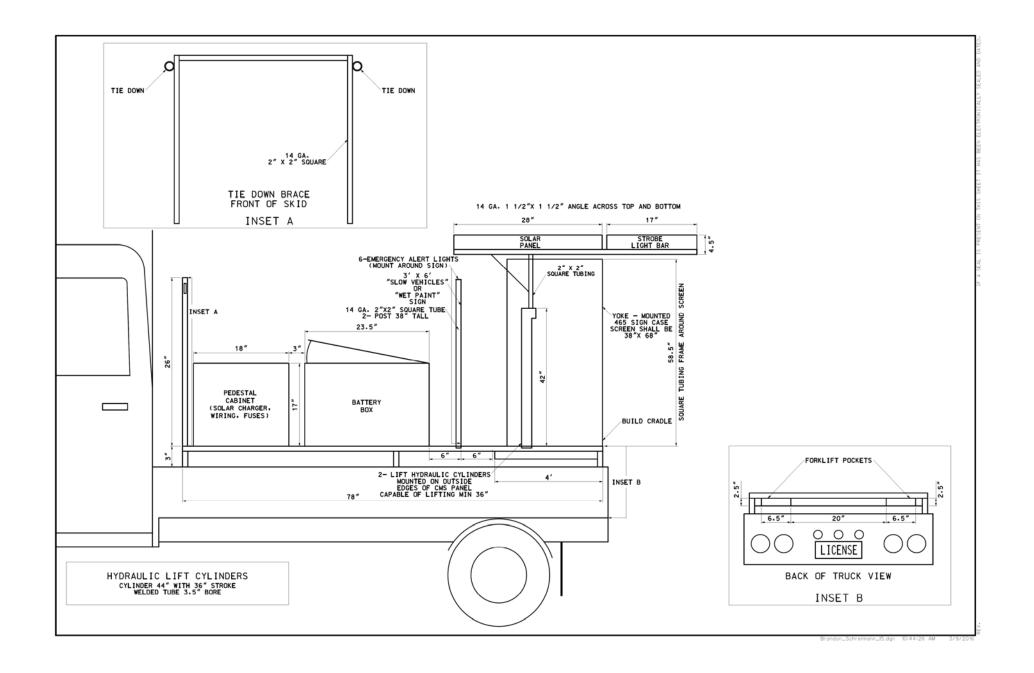
The optional emergency alert lights shall be powered by the truck's battery system.

Nominal Criteria:

- Watts/Amps @ 12VDC: 27.2W / 2.26A
- Operating Voltage: 10~41 VDC
- Kelvin Rating: 6000K
- Shock Resistance: GB/T 10485-2007/11.4.4.2
- Raw Lumens: 2600
- Flashes: 90 per minute
- Automatic Dimming Feature
- Mounting Type: Universal Surface
- Operating Temp: -40~150 degrees C.
- Lead / Connector: 19" w/Waterproof ATP
- Dimensions: 7.59" L x 1.73" H x 3.05" D
- Housing: A403 High Purity Aluminum
- Virtually Unbreakable Polycarbonate Lens
- 93% Optic Purity
- Stainless Steel Mounting Bracket & Hardware
- UV Polyester Powder Coat Finish
- Instant On/Off Means No Warm Up
- Pressure Relief Valve (Known as Military Breather)
- Over / Under Voltage Protection
- Integrated Thermal Management
- Beam pattern: Horizontal spread of 40 degrees or less / Vertical spread of 30 degrees or more
- Sharp optical " cut off "
- Easy disconnects shall be used on all wiring so that when the CMS or FAP is removed the (EAS) shall also be easily removed and stay attached to one of those devices.

Handheld Controller shall be a momentary on/off switch. A 35 foot control wire with the handheld controller shall be supplied.

- **2.6 Performance.** Any display mode must be visible on a sunny day for a distance of one mile. The FAP must be able to operate for 15 continuous days in the flashing double arrow mode during day/night light conditions with the solar charging system disconnected. A device shall be provided to indicate the remaining charge on the batteries. The FAP support frame shall contain a device to align the FAP to oncoming traffic and to adjust the FAP so its bottom edge is relatively level when in use. The panel lamp must be visible during the "on time" at an angle of 15 degrees minimum to both left and right center and 4 degrees minimum both up and down of center.
- **2.7 Owner's Manual.** The successful bidder shall furnish two Owner's Manuals for each FAP. Each manual shall include the manufacturer's instructions for maintenance and operation of the FAP. Each manual shall also include a detailed, schematic, wiring diagram showing all circuits and components from the power supply through the control to the FAP. The schematic diagram shall list all transistors, resistors, triacs, diodes and other components with the manufacturer's name and part number.
- **3.0 WARRANTY.** Units delivered to the Missouri Department of Transportation must be covered by the manufacturer's standard warranty for a minimum of one year, which includes on-site repair (parts, labor, and travel), at no expense to MoDOT.
- **3.1** All units manufactured shall be exactly the same as the units tested.
- **3.2** All units shall meet or exceed the specifications for FAP boards as listed in Part 6F.61 of the current Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD).



Missouri Highways and Transportation Commission Standard Bid/Proposal Provisions, General Terms and Conditions and Special Terms and Conditions

STANDARD SOLICITATION PROVISIONS

- a. The solicitation for the procurement of the supplies referenced therein, to which these "Standard Bid Provisions, General Terms and Conditions and Special Terms and Conditions" are attached, is being issued under, and governed by, the provisions of Title 7 Missouri Department of Transportation, Division 10 Missouri Highways and Transportation Commission, Chapter 11 Procurement of Supplies, of the Code of State Regulations. The Missouri Highways and Transportation Commission (MHTC), acting by and through its operating arm, the Missouri Department of Transportation (MoDOT), draws the Bidder's attention to said 7 CSR 10-11 for all the provisions governing solicitation and receipt of bids/quotes and the award of the contract pursuant to this solicitation.
- All bids/quotes must be signed with the firm name and by a responsible officer or employee. Obligations assumed by such signature must be fulfilled.

GENERAL TERMS AND CONDITIONS

Definitions

Capitalized terms as well as other terms used but not defined herein shall have the meaning assigned to them in section 7 CSR 10-11.010 Definition of Terms.

Nondiscrimination

- a. The Contractor shall comply with all state and federal statutes applicable to the Contractor 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*).
- b. <u>Sanctions for Noncompliance</u>: In the event of the Contractor's noncompliance with the nondiscrimination provisions of this contract, MHTC shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - i. withholding of payments to the Contractor under the contract until the Contractor complies, and/or,
 - ii. cancellation, termination or suspension of the contract, in whole or in part.

Contract/Purchase Order

- a. By submitting a bid/quote, the Bidder agrees to furnish any and all equipment, supplies and/or services specified in the solicitation documents, at the prices quoted, pursuant to all requirements and specifications contained therein.
- b. A binding contract shall consist of: (1) the solicitation documents, amendments thereto, and/or Best and Final Offer (BAFO) request(s) with any changes/additions, (2) the Contractor's bid response, and (3) the MHTC's acceptance of the bid by post-award contract or purchase order.
- c. A notice of award does not constitute an authorization for shipment of equipment or supplies or a directive to proceed with services. Before providing equipment, supplies and/or services, the Contractor must receive a properly authorized notice to proceed and/or purchase order.

Applicable Laws and Regulations

- a. The contract shall be construed according to the laws of the State of Missouri. The Contractor shall comply with all local, state, and federal laws and regulations related to the performance of the contract. The exclusive venue for any legal proceeding relating to or arising, out of the contract shall be in the Circuit Court of Cole County, Missouri.
- b. The Contractor must be registered and maintain good standing with the Secretary of State of the State of Missouri, Missouri Department of Revenue, and other regulatory agencies, as may be required by law or regulations. Prior to the issuance of a purchase order and/or notice to proceed, the Contractor may be required to submit to MHTC a copy of their current Authority Certificate from the Secretary of State of the State of Missouri and/or a copy of their Certificate of No Tax Due from the Missouri Department of Revenue.
- c. Prior to the issuance of a purchase order and/or notice to proceed, all **out-of-state** Contractors **providing services** within the state of Missouri must submit to MHTC a copy of their current Transient Employer Certificate from the Missouri Department of Revenue, in addition to a copy of their current Authority Certificate from the Secretary of State of the State of Missouri.

Executive Order:

The Contractor 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 Contractor hereby certifies that any employee of the Contractor 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 Contractor 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 contractor 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.
- 3) The Contractor shall include the provisions of this paragraph in every subcontract. The Contractor 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.

Preferences

- a. In the evaluation of bids/quotes, preferences shall be applied in accordance with 7 CSR 10-11.020(7). Contractors should apply the same preferences in selecting subcontractors. The attached document entitled "VENDOR INFORMATION AND PREFERENCE CERTIFICATION FORM" must be completed and returned with the solicitation documents.
- b. Bidders are encouraged to obtain minority business enterprise (MBE) and women business enterprise (WBE) participation in this work through the use of subcontractors, suppliers, joint ventures, or other arrangements that afford meaningful participation for M/WBEs. Bidders are encouraged to obtain 10% MBE and 5% WBE participation.

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Missouri Highways and Transportation Commission Standard Bid/Proposal Provisions, General Terms and Conditions and Special Terms and Conditions

Cancellation of Contract

The MHTC may cancel the Contract at any time for a material breach of contractual obligations or for convenience by providing Contractor with written notice of cancellation. Should the MHTC exercise its right to cancel the contract for such reasons, cancellation will become effective upon the date specified in the notice of cancellation sent to the Contractor.

Bankruptcy or Insolvency

Upon filing for any bankruptcy or insolvency proceeding by or against the Contractor, whether voluntarily, or upon the appointment of a receiver, trustee, or assignee, for the benefit of creditors, the Commission reserves the right and sole discretion to either cancel the Agreement or affirm the Agreement and hold the Contractor responsible for damages.

Warranty

The Contractor expressly warrants that all equipment, supplies, and/or services provided shall: (1) conform to each and every specification, drawing, sample or other description which was furnished to or adopted by the MHTC, (2) be fit and sufficient for the purpose expressed in the solicitation documents, (3) be merchantable, (4) be of good materials and workmanship, and (5) be free from defect.

Status of Independent Contractor

The Contractor 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 the MHTC. Therefore, the Contractor shall assume all legal and financial responsibility for taxes, FICA, employee fringe benefits, workers' compensation, employee insurance, minimum wage requirements, overtime, etc., and agrees to indemnify, save and hold the MHTC, its officers, agents and employees harmless from and against any and all losses (including attorney fees) and damage of any kind related to such matters.

Non-Waiver

If one of the parties agrees to waive its right to enforce any term of this Contract, that party does not waive its right to enforce such term at any other time or to enforce any or all other terms of this Contract.

Indemnification

The Contractor shall defend, indemnify and hold harmless MHTC, 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 Contractor's performance of its obligations under the contract awarded pursuant to this solicitation.

SPECIAL TERMS AND CONDITIONS

Holidays

. The following days shall be construed as official holidays under the terms of the contract:

January 1 New Year's Day

Third Monday in January Martin Luther King, Jr.'s Birthday

February 12 Lincoln's Birthday
Third Monday in February Washington's Birthday
May 8 Truman's Birthday
Last Monday in May Memorial Day
July 4 Independence Day
First Monday in September Labor Day

Second Monday in October

November 11

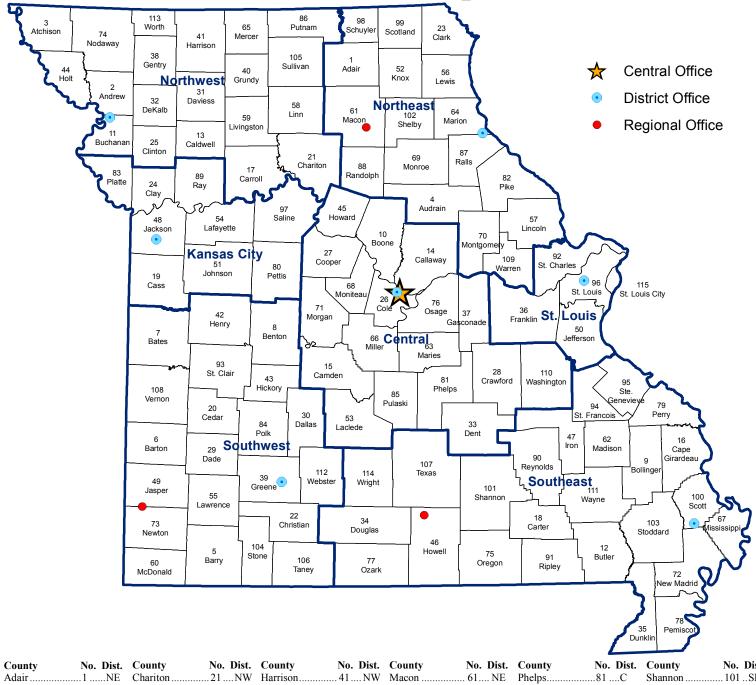
Fourth Thursday in November
December 25

Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day

b. When any of the above **holidays falls** on a **Sunday**, the holiday will be observed on the following **Monday**; when any of the above **holidays falls** on a **Saturday**, the **holiday** will be observed on the immediately preceding **Friday**.

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Missouri Department of Transportation District Map



Adair	1	NE
Andrew	2	NW
Atchison	3	NW
Audrian		
Barry	5	SW
Barton		
Bates	7	SW
Benton	8	SW
Bollinger	9	SE
Boone		C
Buchanan	11	NW
Butler	12	SE
Caldwell	13	NW
Callaway	14	C
Camden		
Cape Girardeau	16	SE
Carroll	17	NW
Carter	18	SE
Cass	19	KC
Cedar	20	SW

	County	No. Dist.
	Chariton	21NW
7	Christian	22 SW
7	Clark	23NE
	Clay	24KC
r	Clinton	
r	Cole	26C
r	Cooper	27C
r	Crawford	
	Dade	29SW
	Dallas	30 SW
7	Daviess	31NW
	Dekalb	32NW
7	Dent	33C
	Douglas	34SE
	Dunklin	
	Franklin	36 SL
7	Gasconade	37C
	Gentry	38NW
	Greene	

County	No. Dist.
Harrison	. 41 NW
Henry	. 42 SW
Hickory	
Holt	
Howard	. 45 C
Howell	. 46 SE
Iron	. 47 SE
Jackson	. 48KC
Jasper	. 49 SW
Jefferson	. 50 SL
Johnson	. 51 KC
Knox	. 52 NE
Laclede	. 53 C
Lafayette	. 54 KC
Lawrence	
Lewis	. 56 NE
Lincoln	. 57 NE
Linn	. 58 NW
Livingston	. 59 NW

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Macon	61 NE	Phelps	81C
Madison	62 SE	Pike	82NE
Maries	63 C	Platte	83KC
Marion	64 NE	Polk	84SW
Mercer	65 NW	Pulaski	85C
Miller	66 C	Putnam	86NW
Mississippi	67 SE	Ralls	87NE
Moniteau	68 C	Randolph	88NE
Monroe	69 NE	Ray	89KC
Montgomery	70 NE	Reynolds	90SE
Morgan	71 C	Ripley	91SE
New Madrid	72 SE	St. Charles	
Newton	73 SW	St. Clair	93SW
Nodaway	74 NW	St. Francois	94SE
Oregon	75 SE	Ste. Genevieve	95SE
Osage	76 C	St. Louis	96SL
Ozark	77 SE	Saline	97KC
Pemiscot		Schuyler	98NE
Perry	79 SE	Scotland	99NE
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County	No. Dist.	Co
Phelps	81C	Sha
Pike	82NE	Sh
Platte	83KC	Sto
Polk	84SW	Sto
Pulaski	85C	Sul
outnam	86NW	Tai
Ralls	87NE	Te
Randolph	88NE	Ve
Ray	89KC	Wa
Reynolds	90SE	Wa
Ripley		Wa
St. Charles	92SL	We
St. Clair	93SW	Wo
St. Francois	94SE	Wr
Ste. Genevieve	95SE	St.
St. Louis	96SL	
Saline	97KC	

County	No.	Dist.
Shannon		
Shelby	102	NE
Stoddard	103	SE
Stone	104	SW
Sullivan	105	NW
Гапеу	106	SW
Гехаs	107	SE
Vernon	108	SW
Warren	109	NE
Washington	110	C
Wayne	111	SE
Webster		
Worth	113	NW
Wright	114	SE
St. Louis City	115	SL

