Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation
13 — Equipment

Proc Folder: 227909
Doc Description: Addendum 1 FULL MATRIX SOLAR POWERED MESSAGE BOARD
Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2016-07-28	2016-08-10 13:30:00	CRFQ 0803 DOT1600000107	2

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

West Virginia Tractor Company
P.O. Box 473
Charleston, WV 25322

304-346-5301

08/10/16 09:45:29
WV Purchasing Division

FOR INFORMATION CONTACT THE BUYER

Misty Delong
(304) 558-8802
misty.m.delong@wv.gov

Signature X [signature] **FEIN #** 550621655 **DATE** 8-8-16

All offers subject to all terms and conditions contained in this solicitation

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation
13 — Equipment

Proc Folder: 227909

Doc Description: FULL MATRIX TRAILER MOUNTED SOLAR POWERED MESSAGE BOARD

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2016-06-30	2016-08-03 13:30:00	CRFQ 0803 DOT1600000107	1

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

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Signature X [signature] **FEIN #** 550621655 **DATE** 8-8-16

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DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

Gary W Grady — President

(Name, Title)

Gary W. Grady — President

(Printed Name and Title)

P.O. Box 473 Charleston, WV 25322

(Address)

304-346-5301 304-346-5305

(Phone Number) / (Fax Number)

wvtractor@msn.com

(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

West Virginia Tractor Company

(Company)

Gary W Grady

(Authorized Signature) (Representative Name, Title)

Gary W. Grady, President

(Printed Name and Title of Authorized Representative)

8-8-16

(Date)

304-346-5301 304-346-5305

(Phone Number) (Fax Number)

working days following receipt of the unit. DOH will incur no obligation for deterioration of surfaces, finishes, seals, and mechanical or electrical parts on the unit resulting from operation and testing within the limits of these specifications; nor will DOH incur obligation for damage to the unit resulting from failure to meet specifications when due care and attention is given by DOH and testing is done within the limits of these specifications. Failure of the pilot unit to satisfactorily meet specifications as bid may be cause for cancellation of the purchase order, and return of the delivered unit along with all associated equipment to the vendor at the vendor's expense.

6.5 **Condition of Unit(s) Upon Delivery:** All units must arrive at the prescribed delivery point having been completely pre-serviced with oil, lubricants, and coolant. All prescribed precautions pertaining to first operations and break-in of the unit are to be posted conspicuously on the unit for ready observance by the operator.

6.6 **Delivery Point:** Delivery point of the completed representative unit will be the WVDOH, Equipment Division, 83 Brushy Fork Road Crossing, Buckhannon, WV 26201.

7. MISCELLANEOUS:

7.1 **No Substitutions:** Vendor shall supply only Contract Items submitted in Response to the Solicitation unless a contract modification is approved in accordance with the provisions contained in this Contract.

7.2 **Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: Gary W. Grady
Telephone Number: 304-346-5301
Fax Number: 304-346-5305
Email Address: wvtractor@msn.com

7.3 **Operating and Service Manuals and Parts Lists:** An operator's manual must be included with each unit upon delivery. A "line sheet" (if applicable) and the

Exhibit A

Pricing Sheet

Item Number	Estimated Quantity	Unit of Measure	Description	Unit Price	Total
1	10	Each	One complete unit: Full Matrix Trailer Mounted Solar Powered Message Board	$17171	$171710 $0.00
				Grand Total	$171710 $0.00

Vendor should also supply the year, make, and model of the following:

Full Matrix Trailer Mounted Solar Powered Message Board Solar Technology Silent Messenger

Literature and product description enclosed

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation
13 — Equipment

Proc Folder: 227909

Doc Description: Addendum 2 FULL MATRIX SOLAR POWERED MESSAGE BOARD

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2016-08-05	2016-08-10 13:30:00	CRFQ 0803 DOT1600000107	3

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

West Virginia Tractor Company
P.O. Box 473
Charleston, WV 25322

304-346-5301

FOR INFORMATION CONTACT THE BUYER

Misty Delong
(304) 558-8802
misty.m.delong@wv.gov

Signature X [signature] FEIN # 550621655 DATE 8-8-16

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION

Addendum 2 - to attach pre-bid meeting sign in sheet.
No other changes made.

Addendum 1 -
1. Respond to technical questions.
2. Extend bid opening date from August 3, 2016 to August 10, 2016 at 1:30 PM, EST.

No other changes made.

The West Virginia Purchasing Division is soliciting bids on behalf of the West Virginia Division of Highways, Department of Transportation to establish an open-end contract for Full Matrix Trailer Mounted Solar Powered Message Board.

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS EQUIPMENT DIVISION RT 33 83 BRUSHY ROAD CROSSING, PO BOX 610 BUCKHANNON WV26201 US	DIVISION OF HIGHWAYS EQUIPMENT DIVISION 83 BRUSHY FORK RD CROSSING BUCKHANNON WV 26201 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	FULL MATRIX TRAILER MOUNTED SOLAR POWERED MESSAGE	10.00000	EA	$17171	$171710

Comm Code	Manufacturer	Specification	Model #
44111501	Solar Technology	Attached	Silent Messenger

Extended Description :

CONTRACT TO PROVIDE CLASS 843 FULL MATRIX TRAILER MOUNTED SOLAR POWERED MESSAGE BOARD
Vendor should also supply the:

Year 2016 and later as ordered
Make Solar Technology
Model Silent Messenger

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Mandatory Pre-Bid Meeting 10:00 AM	2016-07-12
2	Technical Quesitons Due	2016-07-19

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: DOT1600000107

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[x]	Addendum No. 1	[ ]	Addendum No. 6
[x]	Addendum No. 2	[ ]	Addendum No. 7
[ ]	Addendum No. 3	[ ]	Addendum No. 8
[ ]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

West Virginia Tractor Company

Company

Authorized Signature

8-8-16

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

SOLARTECH
As Reliable as the Sun

Silent Messenger
Message Boards
Full-Sized

USES AND ADVANTAGES

The "Silent Messenger" full-sized Message Board is the cornerstone of the SolarTech product line. This rugged portable changeable message board is designed to provide information to improve traffic flow and safety in work zones, for both drivers and workers.

The Silent Messenger consists of a 126"w x 76"h board with multiple LED light panels on a sturdy steel trailer, powered by a combination of solar panels and batteries. The sign telescopes on a lift and rotate mast, and can be angled for optimal visibility.

The sign comes with integrated GPS and modem, and with free five year cellular service. Use with Command Center software for remote communications - messages can be changed remotely from an office pc or a smartphone.

EASY-TO-USE CONTROLLER

The touch-screen controller needs no manual - it's that easy to use! Includes:

- GPS, modem & 5 years of cellular service
- Password protection
- Intuitive icons for ease of use
- Scheduling capability
- Fully networkable
- NTCIP version 2 compatible
- Automatic software upgrades

REMOTE CONTROL AND GPS TRACKING INCLUDED!

Command Center software allows you to track your equipment using the built-in modem and GPS system.

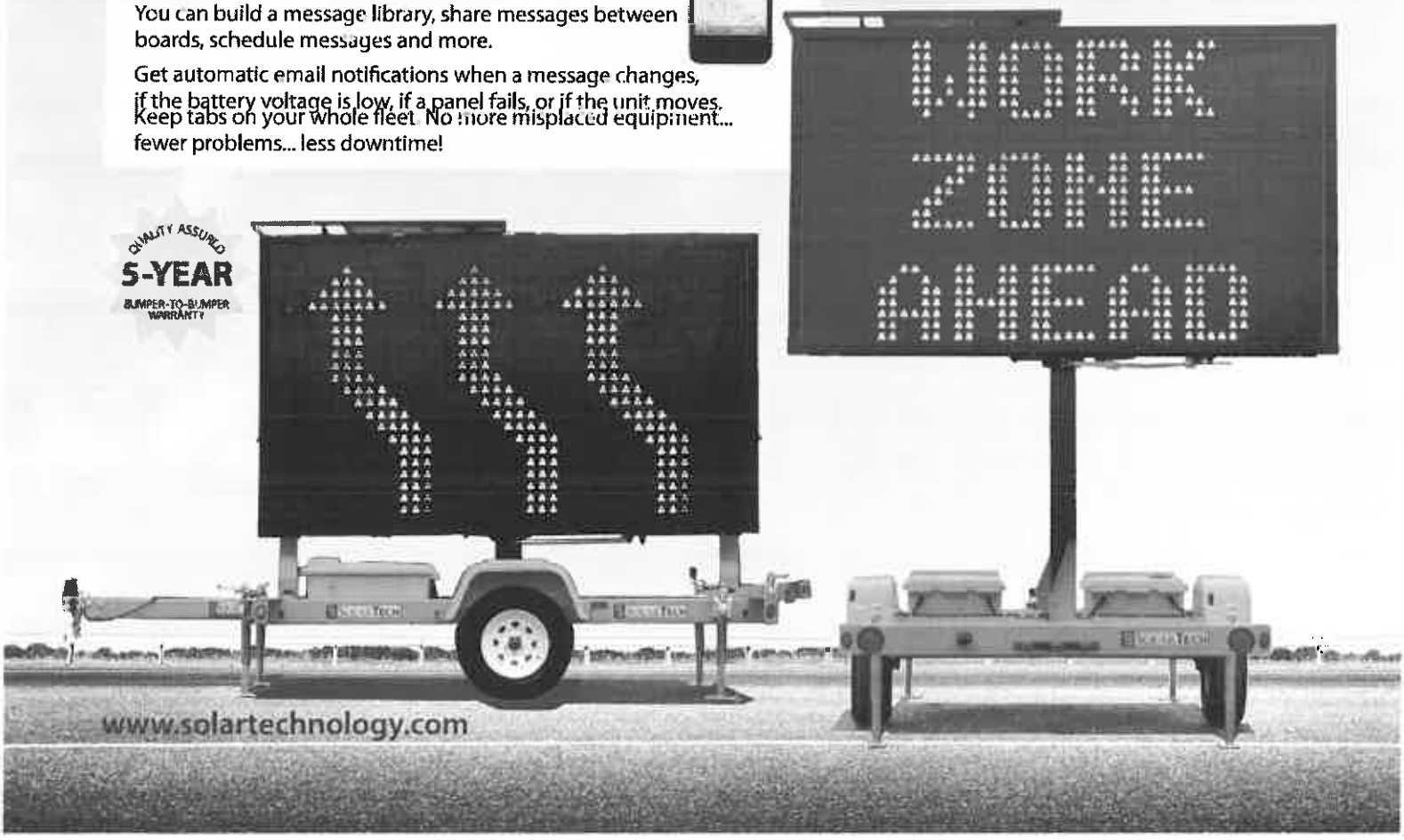
Access units from a map or list. Control units individually or broadcast to a group.

Manage your fleet from your laptop, pc or smartphone... without leaving your desk!

You can build a message library, share messages between boards, schedule messages and more.

Get automatic email notifications when a message changes, if the battery voltage is low, if a panel fails, or if the unit moves. Keep tabs on your whole fleet. No more misplaced equipment... fewer problems... less downtime!

QUALITY ASSURED
5-YEAR
BUMPER-TO-BUMPER WARRANTY



www.solartechnology.com

Silent Messenger
Message Board

DISPLAY

Panel Size	126" x 76" (320 cm x 193 cm)
Panel Construction	All aluminum, modular construction
Panel Face	3/16" polycarbonate, non-glare
Matrix Size	27" x 48 pixels
Pixel Pitch	2.6" x 2.6" (66 mm x 66 mm)
Characters per Line	Up to twelve (12)
Number of Lines	Up to four (4)
Number of Fonts	Twelve (12)
Character Height	13" to 68" (33 cm to 173 cm)
Graphics Capability	Full matrix with full animation
Display Technology	LED (amber, 592 nm)
Display Brightness	>10,000 candela per square meter
Viewing Angle	23° horizontal (minimum)
Display Life Expectancy	10 years typical
Lifting Mechanism	2,000 lb. capacity electro-hydraulic

TRAILER

Length Overall	180" (457 cm)
Width Overall	92" (234 cm)
Height Traveling	103" (262 cm)
Height Operating	162" (412 cm)
Ground Clearance	13" (33 cm) minimum
Weight (minimum)	2,400 lbs. (1,089 kg)
Weight (maximum)	2,960 lbs. (1,343 kg)
Coupler (Class III)	2" (50 mm) ball or 3" (76 mm) pintle ring
Axle/Suspension	Torq flex independent

MEGA-TECH CONTROL CONSOLE

Console Circuitry	Ultra-low power solid state
Console Touchscreen	Waterproof, backlit, full-color GUI, intuitive icon-driven, multi-lingual
Programming Software	Proprietary with automatic remotely managed upgrades (field upgradable for units not connected to Command Center)
Message Capacity	Pre-programmed and user-defined (> 250 each)
Message Display Time	User-selectable (0.1 to 99 seconds)
Display Update Time	Instantaneous
Non-Volatile Memory	512 MB compact flash
Password Protection	User-selectable, multi-level
Operator Interface	Easy-to-use icons (no manual required)
Connectivity	Supports NTCIP version 2 via UDP/IP over Ethernet, UDP/IP over the built-in cellular modem, and PMPP over RS-232.
Remote Control	Embedded cellular transceiver with 5 year cellular service and fleet management software included
GPS	Integrated GPS receiver

ENERGY SOURCE

Operating Voltage	12 Volts DC (nominal)
Battery Type	6 Volt heavy duty, deep cycle (GC-2) protected by anti-theft steel security frame and hardware
Number of Batteries	Four (4) standard lead acid (flooded)
Battery Bank Capacity	520 amp hours
Battery Status Indicator	Displays battery voltage, charging activity and low battery condition
Solar Array Construction	Top-mounted solar panels in aluminum frame
Solar Array Power Output	Standard 160 watt (nominal)
Solar Charge Controller	Automatic, temperature compensated
Auxiliary Battery Charger	45 amp, 120 volt AC

OPTIONS AND UPGRADES

DISPLAY PANEL

- High-Definition Display - 30 x 56 pixels 2.3" (58 mm) pixel pitch

SOLAR ARRAY OPTIONS

- 240 watt
- 320 watt
- 400 watt
- 480 watt

BATTERY UPGRADES

Type	Number	Capacity
Lead-Acid (flooded)	Six (6)	780 amp hour
	Eight (8)	1040 amp hour
	Ten (10)	1300 amp hour
	Twelve (12)	1560 amp hour
Gel Cell or AGM (maintenance free)	Four (4)	520 amp hour
	Six (6)	780 amp hour
	Eight (8)	1040 amp hour
	Ten (10)	1300 amp hour
	Twelve (12)	1560 amp hour

BATTERY CHARGER UPGRADES

- 90 amp - 120 volt AC
- 55 amp - 230 volt AC
- 40 amp - 230 volt AC

BRAKES

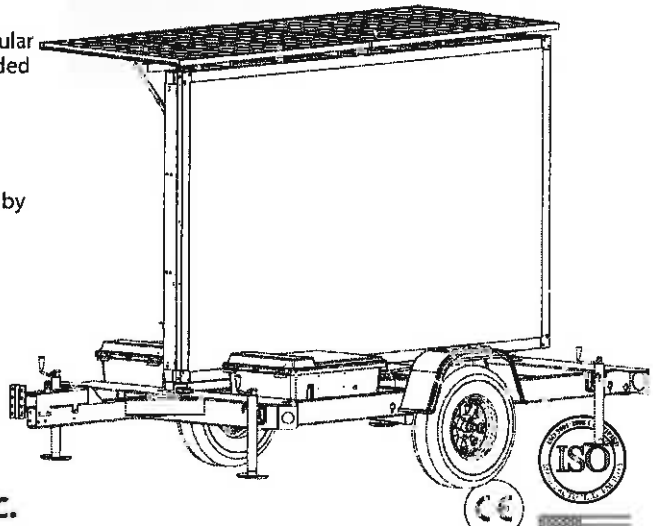
- Hydraulic Surge Brakes (5,000 lb. Capacity)
- Electric Brakes

SECURITY OPTION

Vandal-Proof Battery Box reinforced steel cage

RADAR OPTIONS

- Directional doppler K-Band. User-configurable KPH or MPH. Data Collection and Statistical Analysis Package included.



SOLARTECH
SOLAR TECHNOLOGY, INC.
7620 Cetronia Rd. Allentown, PA 18106
Phone: 800-475-5442 or 610-391-8600
www.solartechnology.com

Made in the USA

P/N S00-024-010 Rev. E 2015

SOLARTECH

Harness the Power of the Sun

SOLAR TECHNOLOGY, INC
Comprehensive 5-Year Limited Warranty

Welcome to the SOLAR TECHNOLOGY family! Your purchase represents the very finest in traffic control devices. To insure the quality that goes into the design and manufacturing of every new SOLAR TECHNOLOGY product, we offer a Comprehensive Protection Program (CPP) which provides for a five-year limited warranty covering all Silent Messenger changeable message signs (message boards), Silent Sentinel advanced warning arrow panels (arrow boards) and Silent Advisor radar speed trailers (radar speed displays) purchased for U.S. Domestic and Canadian use. Additionally, Solar Technology, Inc. provides a ten-year limited warranty on all LED lamps used in its Silent Sentinel line of advanced warning arrow panels.

LIMITED WARRANTY

SOLAR TECHNOLOGY, INC. (STI) warrants that this product will conform to the manufacturer's standard specifications without defects in materials or workmanship for a period of five years. This is a "bumper to bumper" warranty that covers repair or replacement of all components, on an exchange basis, with the exception of vendor supplied items and consumables, including, but not limited to modems, radar guns, tires, batteries and battery chargers. Other components may be warranted for an extended period of time. Components, sub-assemblies, and devices produced by other manufacturers not covered under this warranty are covered separately and individually under warranties provided by the specified manufacturer.

This warranty is granted to the original end-user of the product and is not assignable to any subsequent purchaser or user. Any leasing or borrowing of these goods or other use beyond normal demonstration of the same shall be deemed to be a use by the original end-user. The period of this warranty shall commence on the date of delivery to the first original end user. Proof of purchase and delivery date may be required when warranty service is requested. The sole remedy under this warranty shall be the repair or replacement of parts which have been determined to be defective after inspection by an approved representative of STI. STI reserves the right to demand the return of parts replaced under this warranty or in disputable fitness and must be consulted for authorization before any such return. All defective parts replaced under this warranty shall become the property of STI. If a claimed defect cannot be identified or reproduced in service, the end-user will be held responsible for the costs incurred.

The cost of shipping of parts to be repaired to STI shall be the responsibility of the user, while the cost of shipping replacement or re-manufactured parts to the user shall be the responsibility of STI. Under no circumstances shall STI be responsible for duties, customs, or import fees associated with repair or replacement of warranted products or parts. Under no circumstances shall STI be responsible for transportation or mileage costs associated with repair or replacement of warranted products or parts. Tampering with the serial number, STI logo and graphics, or posted safety and operating instructions may constitute a breech of and voids this warranty.

This warranty shall not extend to any goods or parts which have been altered, repaired, operated, or maintained outside of approved STI procedures or directives. This warranty does not cover damage resulting from causes beyond the control of STI, including without limitation: misuse, abuse, neglect, or accident; external electrical faults, power surges, or power failure; damage occurring in shipment or from improper transportation, installation, operation or application; or damage resulting from improper usage or use of the product with components, accessories or expansion items not supplied by STI. The end-user is responsible for the selection, use and results obtained from the product. This warranty does not apply to any product which has not been paid for according to the terms under which the product has been invoiced.

This warranty is exclusive and in lieu of all other warranties, express or implied including warranties of merchantability or of fitness for purpose, and there are no other warranties which extend beyond the descriptions on the face hereof. The remedies set forth herein are exclusive and manufacturer shall not be liable for special, indirect or consequential damages. The obligations of STI hereunder shall in no way exceed the cost of the equipment or part upon which such liability is based.

"On the leading edge of quality design and manufacturing - now and always"

Byron Zerphy
President, CEO

Eric Zerphy
VP, COO

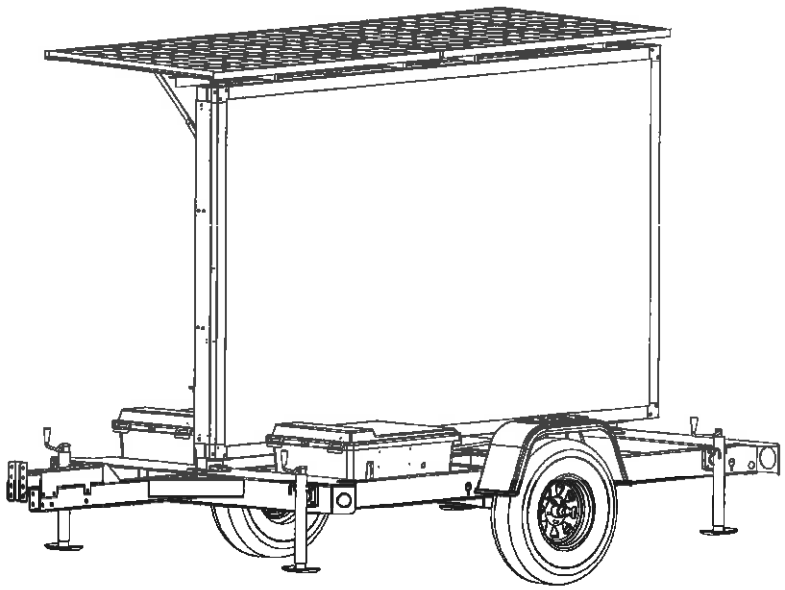
Solar Technology, Inc.
7620 Cetronia Road
Allentown, PA
Phone (610) 391-8600
Toll Free (800) 475-5442
www.solartechnology.com

Silent Messenger
Solar Powered Portable Changeable

Message Boards

Procurement Specifications

for MB Full Size Message Boards



SOLARTECH

As Reliable as the Sun

7620 Cetronia Road, Allentown, PA 18106 ■ Phone 610-391-8600
www.solartechnology.com

This document presents a detailed specification for a full-size solar powered portable dynamic (changeable) message sign. This specification typically requires additions and/or modifications to meet a user's specific requirements.

This specification is subject to periodic revisions as required without notice.

P/N 500-524-180

Sixteenth edition: 01 March 2013

General email: info@solartechnology.com
Technical Support email: techsupport@solartechnology.com

Web site: www.solartechnology.com

1. General

1.1 Product Description

The **SILENT MESSENGER** is a solar powered portable dynamic message sign. The **SILENT MESSENGER** consists of a sign display panel, a supporting structure for the sign display panel, a photovoltaic array, a battery power supply an energy management system control unit and an electronic control console, all mounted on a heavy duty trailer frame.

1.2 Design Objectives

1.2.1 Maximize reliability by using generally accepted design techniques for outdoor-use electrical and electronic equipment.

1.2.2 Minimize operating cost by using a renewable energy source, requiring minimal maintenance.

1.2.3 Maximize safety and effectiveness by using a non-glare, high contrast display panel with long-life expectancy, high-reliability display technology.

1.2.4 Meet or exceed the standards for Portable Changeable Message Signs as listed in the U.S. Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).

1.3 Performance Objectives

1.3.1 Visibility up to 1 mile.

1.3.2 Legibility up to 1/2 mile.

1.3.3 Minimal glare from sunlight and headlights.

1.3.4 Continuous, uninterrupted operation on solar power

1.3.5 One month minimum, three month typical maintenance interval.

1.4 Quality Assurance Objectives

1.4.1 All manufacturing shall be carried out in a facility with a completely implemented and properly maintained ISO 9001:2008 certified quality management system.

1.4.2 All units shall bear the CE Mark indicating acceptable EMC (Electromagnetic Compatibility) to insure that the units are neither susceptible to nor produce any electromagnetic interference.

1.4.3 Manufacturer shall have a factory authorized service center located within 150 miles of point of delivery. Authorized service center shall receive all units from factory in order to inspect for any shipping damage and verify proper operation prior to final delivery Delivery directly from manufacturers facility without inspection by an authorized service center shall not be permitted Additionally, authorized service center shall be capable of performing warranty service and repairs, and shall provide on-site training on the proper use and maintenance of all equipment delivered.

2. Physical

2.1 Dimensions

2.1.1 Length Overall - 180 in. (457 cm)

2.1.2 Width Overall - 92 in. (234 cm)

2.1.3 Height

2.1.3.1 Sign in transport position - 103 in. (262 cm)

2.1.3.2 Sign in operating position - 162 in. (412 cm)

2.1.4 Ground Clearance, minimum - 13 in. (33 cm)

2.1.5 Weight - 2,960 lbs. (1,343 kg) (maximum)

2.2 Environmental

2.2.1 Temperature, operating and storage - -40 to +185°F (-40 to +85°C)

2.2.2 Relative Humidity - 20% to 98%, non-condensing

2.2.3 Wind

2.2.3.1 Transport position, maximum trailering speed - 70 MPH (12 KPH)

2.2.3.2 Operating position, max. height, outriggers in place - 80 MPH (128 KPH) sustained

2.2.4 Electrical Interference - Unaffected by RFI (Radio Frequency Interference) and EMI (Electromagnetic Interference).

3. Trailer Chassis and Sign Support

3.1 Trailer Chassis

3.1.1 Frame Construction

3.1.1.1 Trailer frame shall be constructed of welded 7 Gauge (3/16-inch) CNC formed steel plate and structural steel tubing with 3 x 5 x 3/16 inch structural steel tubing extending from the sign mast mounting frame crossmembers (2 x 4 x 1 gauge tubing) forward to the coupler/brake actuator Tongue shall be braced with diagonal 2 x 4 x 1 gauge tubing extending outward from the forward section of the tongue at 45 degrees, rearward to the front main cross member

3.1.1.2 Trailer shall be equipped with a 7 Gauge (3/16-inch) CNC formed steel plate rear cross member to provide support for sign panel and protect structure against rear end collisions.

3.1.1.3 Trailer frame shall be equipped with tie down points to facilitate securing unit to utility trailer or truck deck for transport.

3.1.2 Suspension and Brake System (Note: brakes are an optional upgrade)

3.1.2.1 Trailer shall be equipped with an independent suspension, torsion-type #10 axle with either (optional) hydraulic surge or electric brakes. Axle load capacity shall be set to 3,400 pounds (Note: brakes are an optional upgrade).

3.1.2.2 Axle wheel spindles shall be equipped with grease fittings to accommodate wheel bearing lubrication.

3.1.2.3 Trailer shall be equipped with an optional bolt-on 7,500-pound capacity hydraulic surge brake actuator for axles equipped with surge brakes or an optional electric brake controller for axles equipped with electric brakes (Note: hydraulic surge or electric brakes are an optional upgrade).

3.1.2.4 Optional hydraulic surge brake actuator or optional electric brake actuator shall be equipped with an emergency break-away cable to automatically set the trailer brakes in the event of a coupler separation from the tow vehicle (Note: hydraulic surge or electric brakes are an optional upgrade).

3.1.3 Coupler

3.1.3.1 Trailer shall be equipped with an adjustable height coupler mount capable of accepting either a 2-inch ball or a 3-inch pintle ring coupler both with minimum capacity ratings of 5,000 lbs.

3.1.3.2 Trailer shall be equipped with 36" long 1/4-inch safety chains with snap-type hooks for secure attachment to tow vehicle hitch.

3.1.3.3 All trailer hitch components shall comply with SAE J684 standards for Class II (2) trailers.

3.1.4 Surface Preparation and Finishing

3.1.4.1 Trailer chassis and superstructure shall be completely cleaned and deburred prior to finishing. All metal surfaces shall be prepared for finishing using an iron phosphate wash-down process.

3.1.4.2 A polyamide epoxy primer shall be applied to a dry film thickness of1.5 mils.

3.1.4.3 A high gloss federal safety orange aliphatic acrylic urethane finish shall be applied to a dry film thickness of 1.25 mils.

3.1.5 Lighting

3.1.5.1 Trailer shall be equipped with sealed flush-mounted combination stop, tail and turn lights.

3.1.5.2 Trailer shall be equipped with flush-mounted front and rear side marker lights.

3.1.5.3 Trailer shall be equipped with a rear center identification light bar.

3.1.5.4 Trailer shall be equipped with a lighted license plate holder.

3.1.5.5 Trailer wiring harness shall be completely sealed and water resistant.

3.1.6 Fenders

3.1.6.1 Trailer shall be equipped with unbreakable, molded, solid color UV-stabilized HDPE (High Density Polyethylene) fenders, completely closed on the inner side to protect trailer frame.

3.1.6.2 Fenders shall be secured to trailer frame with zinc-plated steel thread forming screws and fender washers so as to facilitate easy repair or replacement.

3.1.7 Leveling Jacks

3.1.7.1 Trailer shall be equipped with four swivel type screw jacks, minimum capacity rating of 2,000 pounds, mounted at each corner of the trailer frame.

3.1.7.2 The outrigger jacks shall be capable of lifting the trailer frame so trailer wheels and tires can be removed for additional security.

3.1.7.3 Trailer shall be constructed such that the outrigger jacks are protected by 7 Gauge (3/16-inch) CNC formed steel plate guards when the jacks are in the travel position to prevent damage to jacks during transport.

3.1.8 Tires and Wheels

3.1.8.1 Tires shall be ST225/75R15 Load Range C.

3.1.8.2 Wheels shall be 15-inch x 6-inch, 5-lug pattern (4 1/2-inch bolt circle), white spoke dress wheel.

3.1.8.3 Wheels and tires shall be sized in accordance with load requirements of trailer and axle.

3.2 Sign Support

3.2.1 Sign panel shall be attached to a telescoping mast assembly to facilitate raising and rotating the display panel from the transport position to the operating position safely and quickly by an unassisted operator.

3.2.2 The mast shall consist of a lower assembly and an upper assembly with a hydraulic cylinder mounted inside to provide for raising and lowering the message display panel.

3.2.3 A hydraulic power unit, mounted inside a lockable, weather-resistant, molded HDPE (High Density Polyethylene) enclosure, shall provide sufficient flow to raise the sign panel to the full operating position in less than twenty (20) seconds. The hydraulic power unit shall be equipped with a manual

bypass dump valve to permit lowering of the mast in the event of a hydraulic control valve failure or total loss of electrical power.

3.2.4 The lower mast shall be fabricated from 6 x 6 x 3/16-inch structural steel tubing inserted through a 5\16-inch steel plate secured to the trailer frame with eight 5\8-inch diameter steel bolts. The lower mast assembly shall be reinforced with 5/16-inch steel gusset plates located below the trailer deck.

3.2.6 The upper mast shall be fabricated from 8-inch structural steel round tubing.

3.2.7 The mast assembly shall be equipped with a dual cam locking mechanism located at the bottom of the upper mast. The dual cam locking mechanism shall secure the message display panel in the appropriate viewing position. The locking cam mechanism shall automatically tighten to resist turning in windy conditions. Friction type (disc or band brake) locking mechanisms are not acceptable as slippage can occur in high wind conditions.

3.2.8 The message display panel support mechanism shall be capable of being rotated through 360 and locked into position, at any angle.

3.2.9 The message display panel rotation locking mechanism shall permit the operator to lock the message display into position, safely at ground level, prior to elevation to full operating height.

3.2.10 The message display panel shall be equipped with a sighting device to facilitate proper alignment during setup.

3.2.11 The upper and lower mast assemblies shall be equipped with nylatron wear pads to provide for smooth easy movement and to avoid metal to metal contact. The message display support mast shall be capable of extended operation without lubrication. Nylatron wear pads shall be adjustable to compensate for normal wear.

3.2.12 Message display panel support structure shall be of non-welded, modular construction to facilitate quick easy repair in the event of accidental damage.

3.2.13 Message display panel shall be secured to a steel superstructure with stainless steel hardware and nylon spacers to minimize the effects of corrosion.

3.2.14 All mounting hardware shall be locking-type.

3.2.15 Heavy gauge steel cradles equipped with rubber bumpers and HDPE wear pads shall securely support sign panel against vertical and lateral movement during transport. No locking pins or latches will be permitted. Sign panel shall automatically lock into the transport position, without operator intervention, when the sign panel upper mast is fully retracted.

4. Message Display Panel

4.1 Dimensions

4.1.1 Width Overall - 126 in. (320 cm)

4.1.2 Height Overall - 76 in. (193 cm)

4.1.3 Depth Overall - 6 in. (15 cm)

4.2 Construction

4.2.1 Message Display Panel Case

4.2.1.1 The message display panel case shall be constructed of heavy duty aluminum extrusion secured at each corner by a molded, fiberglass-reinforced plastic corner and black powered coated stainless steel torx head screws and nylon insert locknuts.

4.2.1.2 The back of the message display panel case shall be constructed of aluminum sheet bonded and riveted to the case frame.

4.2.1.3 Interior of message display panel case shall be equipped with fabricated extruded aluminum channels to reinforce the display case and to support internal wiring and cables.

4.2.1.4 The display panel case shall be equipped with eight breather filter vents, designed to allow the flow of vapor but not fluid, located at the top and bottom of the case to provide adequate ventilation to minimize condensation and fogging of the display panel door.

4.2.2 Message Display Panel Door

4.2.2.1 The display panel door shall be constructed of heavy duty extruded aluminum secured at the corners with glass fiber reinforced molded plastic inserts and black powered coated stainless steel torx head screws and nuts.

4.2.2.2 The door shall fit within a flange around the perimeter of the message display panel case frame to provide for a secure weatherproof enclosure.

4.2.2.3 A rubber seal shall be located inside of the flange on the case frame to provide a water tight, dust tight closure.

4.2.2.4 The message display panel shall be enclosed over the display area by a 3/16-inch thick clear UV resistant, scratch resistant, acrylic coated polycarbonate material with a non-glare outer surface to reduce reflection of ambient light and oncoming vehicle head lamps.

4.2.2.5 The polycarbonate material shall be secured in the door frame with an extruded rubber u-channel to provide a cushioned, weatherproof seal.

4.2.2.6 The message display panel door shall be secured in the open position for servicing by a pair of zinc-plated steel telescoping lid supports equipped with automatic latches. The door supports shall be located completely inside of the display panel housing, protected from weather

4.2.2.7 The display panel door shall be secured in the closed position with adjustable, positive locking, stainless steel draw latches.

4.2.2.8 The message display panel door and case shall be equipped with stainless steel locking hasps capable of accepting standard padlocks to secure the door in the closed position.

4.2.3 Surface Preparation and Finishing

4.2.3.1 Message display panel case and door shall be completely cleaned and deburred prior to finishing. All metal surfaces shall be prepared for finishing using an iron phosphate wash-down process.

4.2.3.2 A wash primer shall be applied to all prepared metal surfaces prior to applying final finish.

4.2.3.3 A matte black acrylic urethane finish shall be applied to a dry film thickness of 2.5 mils.

4.3 Display Characteristics

4.3.1 The message display area shall be approximately 120 inches in width by 70 inches in height.

4.3.2 The display area shall consist of a continuous (full) matrix of 48 pixels or dots in width by 27 pixels in height (models MB-1548, MB-2248, MB-3048, MB-3748 and MB-4048), or 56 pixels in width by 30 pixels in height when equipped with the optional high definition display (models MB-1556, MB-2256, MB-3056, MB-3756 and MB-4056).

4.3.3 The pixels or dots shall consist of three (3) LEDs (Light Emitting Diodes) arranged in a triangular pattern so as to produce the appearance of a round image or dot at normal viewing distances.

4.3.4 The display color shall be amber (592 nanometer wavelength).

4.3.5 The display shall produce a brightness greater than 10,000 candela per square meter at maximum intensity.

4.3.6 The display shall produce a minimum viewing angle of 24 degrees standard (60 degrees when equipped with optional MegaFlux LED display), with consistent intensity and color across the entire display panel.

4.3.7 The message display shall be capable of displaying one, two, three or four lines of alphanumeric characters or text with a nominal character height ranging from a minimum of 13 inches (33 cm) to a maximum of 52 inches (132 cm).

4.3.8 The message display panel shall be capable of displaying three lines of text with a minimum of three pixels (7.5 inches / 19 cm) between lines.

4.3.9 The message display shall also be capable of displaying graphic images and symbols using the full 48 pixel width and 27 pixel height (56 pixel width by 30 pixel height when equipped with the optional high definition display).

4.4 Display Modules

4.4.1 Display modules shall be mounted in the sign panel using captive 1/4-turn wing-head fasteners to permit quick, easy module replacement without the need for any tools.

4.4.2 Display modules shall be mounted on rubber cushions to provide shock absorption during transport and to accommodate thermally-induced expansion and contraction of message display panel during operation.

4.4.3 Display module control circuitry shall include a fail-safe device, also know as a watchdog timeto automatically monitor the performance of the display module and provide a reset / restart command to the on-board microcontroller in the event of any disruption of normal operation.

4.4.4 Display module control circuitry shall be designed to accommodate "hot swapping" - exchange of display modules while sign is operating.

4.4.5 The message display shall consist of an array of identical display modules capable of functioning in any position without the need for switch or jumper setup or special programming.

4.4.6 Display modules and message display panel shall accommodate complete service and exchange of display modules without the need for any tools.

4.4.7 Display modules shall be equipped with locking-type electrical / electronic connectors to provide secure, reliable operation while permitting quick, easy service and repair of message display.

4.5 Cables and Wiring

4.5.1 All message display panel wiring and cables shall be equipped with modular power and signal connectors to permit repairs without the need for any tools.

4.5.2 All power circuit connectors shall use tin or silver plated contacts.

4.5.3 All signal circuit connectors shall use gold plated or gold flashed contacts.

4.5.4 All system wiring, power and signal, shall consist of marine grade wire and cable, with multi-strand, tin-plated conductors.

4.5.5 All power and sign panel signal wiring and cables shall be installed in nonmetallic, flexible, liquid-tight conduits. All conduit fittings shall be installed with rubber sealing rings to maintain liquid-tight characteristics.

5. Main Control Console

5.1 Physical

5.1.1 Control console shall be enclosed in a weather resistant, lockable, molded HDPE (High Density Polyethylene) enclosure secured to the trailer chassis.

5.1.2 Control console shall be completely sealed to accommodate operation in all types of weather

5.1.3 Control console shall be mounted on heavy duty slides which allow the control console to slide up and pivot into a position enabling the operator to program the unit while facing traffic from a comfortable standing position. A controller location which requires the operator to stoop, bend or kneel for operation such that the operator cannot see approaching traffic shall not be permitted. Slide mechanism shall permit quick, easy removal of control console without the need for any tools.

5.1.4 Control console power and control cables shall include sealed, locking-type connectors to permit quick, easy removal of control console without the need for any tools.

5.1.5 Control console front panel shall consist of a backlit full color LCD (liquid Crystal Display) with integrated industrial grade touch-screen, sealed and waterproof, to provide a reliable and user-friendly interface for the operator under any weather condition.

5.2 General Operation

5.2.1 Control console shall provide for full local and remote (via integrated GSM cellular transciever and antenna) control of the dynamic message sign including dynamic message sign geographic location monitoring (via integrated GPS module and antenna), radar speed monitoring and statistical data collection (when equipped with optional radar speed monitor) and sign panel orientation monitoring (when equipped with optional digital flux-gate compass), without the need for additional hardware, software, external computers or hand-held control devices.

5.2.2 Control console shall include all necessary hardware and software to operate the dynamic message sign locally (via integrated full color LCD display and touch-screen) and remotely (via integrated GSM cellular transciever and antenna), including geographic location monitoring (via integrated GPS module and antenna), radar speed monitoring and statistical data collection (when equipped with optional radar speed monitor), and sign panel orientation monitoring (when equipped with optional digital flux-gate compass). Full remote control (including GPS mapping) via internet accessable server based remote control software shall be included free of charge for five full years from date of purchase (i.e. cellular service shall be included for 5 years from date of original purchase).

5.2.3 Control console, in conjunction with the message display panel, shall have the capability of monitoring and detecting sign panel communication loop failures. In the event of a sign panel communication loop failure, the control console, in the case of soft errors (temporary disruption of message display), shall have the ability to correct the failure immediately and in the case of hard errors (hardware failure), shall have the ability to completely blank the sign panel so as to prevent the display of incorrect and/or potentially misleading messages. Additionally, control console, in conjunction with the message display panel, shall have the capability of continuously and dynamically (as well as on command) testing and reporting the operational status of each and every individual pixel in the sign panel. Non-operational pixels shall be indicated as such on both local and remote user interfaces. Control console shall have the capability of reporting complete sign panel operational status remotely (including web-access, NTCIP, and UTMC). Additionally, control console shall have multiple diagnostic modes (manual & automatic with both local and remote controls) for troubleshooting sign panel (including a graphical representation of all modules with non-operational pixels) to enable an operator to quickly track down and replace faulty display modules in the sign panel.

5.2.4 Control console embedded CPU shall incorporate an ARM based microprocessor design to insure future hardware and software compatibility through upgrades provided by manufacturer free for life of the machine. Operating system shall be Linux based and include multiple watchdog timers to ensure automatic system restarts in the event that any critical function stops working properly or communication with remote control servers is interrupted.

5.2.5 Control console shall be capable of connection to any standard IBM or compatible desktop or portable (lap-top) computer via a standard serial interface (COM) or Ethernet port to facilitate routine service or repair, extensive diagnostics, and the analysis of user files or operating programs.

5.2.6 Control console shall be equipped with at least one USB port, one Ethernet port, two (2) serial ports (DB-9 connector), two (2) digital outputs, six (6) digital inputs, and two (2) analog inputs.

5.2.7 Control console shall be capable of simultaneously driving more than one sign panel for dual sign panel installations.

5.2.8 Control console operating processor firmware and software shall be field (locally) upgradeable with a standard USB flash-drive (memory key) or remotely upgradeable over an IP addressable network connection - wire-line or wireless via IPaddressable modem. Additionally, upgrades shall be provided by manufacturer free of charge for life of machine and automatically applied via integrated GSM cellular transciever and included remote control service for 5 full years from date of origianl purchase.

5.2.9 Full color LCD display shall be equipped with an automatic backlight with automatic dimming capability to accommodate both direct sunlight daytime and low ambientlight level night time operation. Backlighting shall automatically activate upon any touch-screen activity and remain on for five minutes following the last touch-screen activity. Additionally, an automatic log-out feature shall be incorporated to insure security of the unit when leftunattended. Automatic log-out feature shall be capable of being disabled by the operator as desired (i.e. for vehicle mounted applications).

5.2.10 Main power to the sign panel and the control console shall be controlled by a combination switch and circuit breaker in order to provide electrical protection without the need for fusesAll connections to controller and Energy Management System shall be made with locking type quick disconnect connectors. The use of fuses and/or terminal strips for connections shall be strictly forbidden.

5.3 Programming

5.3.1 Control console shall provide an intuitive icon-driven graphical user interface (GUI) along with step by step instructions to the operator via the LCD display as the various programming functions are performed, for simple easy programming and operation. On-screen help files shall be included in all languages. Control console shall support a minimum of six (6) standard operating languages (English, Spanish, French, Dutch, German and Portuguese) and four (4) standard keyboards (English, French, Portuguese/Spanish, and Arabic) along with associated font sets. Controller shall be capable of being setup for either a Standard US DOT, Power-Miser US DOT, Standard US 3-Line DOT, French Canadian, Ontario MTO-2, Quebec Road Safety, MTQ, or an International font set by an operator with Administraior access to prevent unauthorized use of inappropriate fonts by operators with User access.

5.3.2 Control console shall be capable of storing all messages in alphabetical order by the first letter of the first word of the name assigned to the message to permit quick recall of messages without the need for maintaining a numeric listing of pages and/or messages. Messages shall be automatically named and sorted any time messages are added to or deleted from the library Because of difficulty in locating and retrieving stored pages and/or messages via numerical codes, number coded storage of pages and/or messages requiring any form of a lookup table/directory shall be strictly forbidden.

5.3.3 Control console shall accommodate a minimum of fifty (50) full alphanumeric passwords each providing one of four levels of access to various control console functions. Each password shall allow access to only the functions required by that particular dynamic message sign operator The four levels of access are as follows:

Quick-Picks	Select from up to six (6) pre-programmed messages with no programming required. Simply touch a message for display No access to any permanent data files.
User Menu	Create, Edit, Delete, Save, Display and Schedule messages. Create, Assign and Edit Quick-Picks. Check System Status and perform basic diagnostics.
Supervisor Menu	All User Menu Functions. Create and delete Quick-Picks and User passwords. Set system operating parameters.
Administrator Menu	All Supervisor Functions. Create and deleteAdministrator and Supervisor passwords. Set controller operating parameters.

5.3.4 Control console shall be capable of displaying a message on the message sign display panel during such time as the operator may be adding, editing or deleting messages from the control console user files. Blanking of the message sign display panel during normal operator activity is considered unsafe and shall be strictly forbidden.

5.3.5 Control console shall be capable of monitoring ambient light conditions and making appropriate adjustments to the intensity of the sign panel to maintain an acceptable display contrast during all ambient lighting conditions. The control console shall provide a minimum of sixteen (16) intensity levels between minimum and maximum display brightness. An operator with Supervisor access shall be capable of adjusting the upper and lower photocell set-points as to adjust the overall range for the automatic brightness control to accommodate any local variations in ambient lighting. Manual control of sign panel intensity shall be provided as well enabling an operator with Supervisor access to override automatic sign panel intensity control and set sign panel intensity manually from 1% to 100% in 1% increments.

5.3.6 Control console shall be equipped with a Scheduler that utilizes a real time clock and calendar feature to accommodate automatic, unattended changing of messages at predetermined dates and times. Scheduler shall support unique, single event schedules along with recurrent schedules such that messages may be easily scheduled for daily weekly or monthly repetition. Recurrent schedules shall be capable of incorporating a start and stop date as desired. Scheduler shall also be capable of displaying messages based upon data driven events such as input from a radar gun, photocell, battery voltage, temperature and/or switch closures (up to six). Data driven events shall also be capable of being restricted to specific dates and times. Scheduler shall incorporate a priority system for resolution of conflicting schedules and/or events to permit one schedule/event to override another based upon level of importance (i.e. priority). Additionally, the control console shall have the capability to create and display on the sign panel an Override Message that takes priority and overrides all programmed Schedules and Events until cleared to enable an operator to display a message continuously on the sign panel regardless of programmed schedules and/or events.

5.3.7 Control console shall provide special function buttons to provide access to common user functions in a single step including (from the main log-on screen) Managing Messages, Scheduling Messages, Blanking the Sign Panel, creating an Instant Message, and selecting from Quick Picks.

5.3.8 Control console shall provide a system status page that enables an operator to quickly and easily determine the unit's current time, date, photocell reading, photocell set-points, battery bank voltage, battery bank current, solar array voltage, solar array current, temperature, MAC address, IP address, run-time since last re-boot, current run-time (resettable timer), lifetime run-time, and serial modem type along with modem signal strength and quality latitude & longitude and sign panel heading.

5.3.9 Control console shall be capable of storing a minimum of 5,000 messages, each message capable of accommodating a minimum of 500 pages (text or graphic images).

5.3.10 Control console shall provide a minimum of twelve (12) font sizes (with full uni-code support for each font) including an adaptive font that automatically and dynamically sizes text to fit on a page as it is typed such that the largest font is always used for a given amount of text on a page to ensure maximum visibility and legibility. One of the included font sizes shall be a standard 5x7 DOT pixel font.

5.3.11 Control console shall support the incorporation of multiple dynamic data sources per page during message creation such that multiple pages within a message can include output from multiple dynamic data sources. Pages containing dynamic data sources shall be automatically refreshed and updated prior to each display such that the most recent data is always displayed on the sign panel. System shall include, as a minimum, the following data sources: radar gun (if equipped), real-time clock (time and date - day, month, year and time in various formats), photocell (ambient light level), battery voltage,

and countdown & count-up features from a specified date and/or time. System shall also provide operator with the ability to create and incorporate additional dynamic data sources for display and scheduler control for maximum flexibility during system integration.

5.3.12 Control console shall be capable of page display times from 0.1 seconds to a minimum of 99 seconds in 0.1 second increments.

5.3.13 Control console shall be capable of displaying messages in a preview screen, during message creation, editing or selection, exactly as they will appear on the message display panel including an exact graphical representation of all non-operational/failed pixels on sign panel.

5.3.14 Control console shall permit the editing of messages that are currently being displayed, showing the revised message as soon as message editing has been completed.

5.3.15 Control console shall enable an operator to create, copy,add/insert, move about, edit and delete/remove pages to/from a message dynamically during message creation and/or editing. It shall not be necessary to create pages first and then assemble the pages into a message. Control console shall have the ability to insert pages and/or messages from a master library into a new message and move them about within the message. Control console shall also accommodate the creation and editing of graphic images directly from the GUI during message creationAdditionally, control console shall provide the operator with the ability to easily flash a page within a message, flash a line(s) within a page and/or add static or dynamic arrows/chevrons to a page within a message through the use of page annotations. Control console shall have the capability (if enabled by an operator with Supervisory access) to create pages with scrolling text.

5.3.16 Control console shall provide a selection of standard highway work zone sign graphic images, including but not limited to: flagman, fixed left and right arrow images, moving or sequential left and right arrow images, and moving or sequential left and right chevrons, etc.

5.3.17 Control console shall provide the capability to display Battery Bank Voltage to 0.1 Volt accuracy, Battery Bank Current to 0.1 Amp accuracy, Solar Array Voltage to 0.1 Volt accuracy and Solar Array Current to 0.1 Amp accuracy directly on the control console display. Additionally, control console shall have the capability to calculate and display an estimated run-time (autonomy) based on current battery bank status and historical system energy (generation vs. consumption) trends to provide the operator with an estimated number of days system is capable of operating prior to shutting down on a low-battery condition.

5.3.18 Control console shall provide for a user selectable low-battery-voltage caution message when the battery voltage drops to a user specified level (above the low-battery automatic shut down voltage). The low-battery-voltage caution message shall be user programmable by an operator with Supervisor access. Additionally, control console shall incorporate a feature know asAdaptive Blanking that will as necessary, based upon current battery bank voltage and/or recorded battery bank voltage trends, automatically insert variable length blanks between pages (0.25s to 0.50s) of messages to reduce overall power consumption and extend run-time. An operator with Supervisory access shall be capable of either enabling or disabling theAdaptive Blanking feature.

5.3.19 Control console shall be equipped with three (3) Run-Time counters: an Up-Time counter that indicates total number of days, hours and minutes since last re-boot, a Current Run-Time counter that indicates total hours of operation since last reset of the counter (resettable run-time counter), and a Lifetime Run-Time counter that indicates total hours of control console operation (non-resettable).

5.3.20 Control console shall include the ability to reset the Current Run-Time counter, Message Library, Scheduler, and all Factory Settings automatically individually or all at once through performing a variety

of Master Resets which will clear all memory and reset all settings to original factory set-points to various levels.

5.3.21 Control console, in addition to an integrated GSM transceivershall support both dynamic and static IP address network connections along with direct serial communications to support legacy NTCIP installations.

5.3.22 Control console shall provide a method for setting a battery offset and temperature offset to calibrate battery voltage and temperature readings.

5.3.23 Control console shall provide a method for switching radar gun output from MPH to KPH directly from control console GUI or remotely via remote control software.

5.3.24 Control console shall be NTCIP compatible. The following NTCIP standards must be supported:

NTCIP 1201 (v3.15r) - Global Object Definitions
NTCIP 1203 (v2.39b) - Object Definitions for Dynamic Message Signs
NTCIP 2101 (v1.19) - Subnetwork Profile: PMPP over RS232
NTCIP 2104 (v1.11) - Subnetwork Profile: Internet
NTCIP 2201 (v1.15) - Transport Profile: Transportation
NTCIP 2202 (v1.05) - Transport Profile: Internet

Unit shall support an administrator community string along with 255 other communities. Each community shall be capable of being assigned read-only or read-write access.

Unit shall support up to 65,535 user-defied permanent messages.

Unit shall support a configurable number of changeable (persistent) messages. This number shall be configurable between 1 and 65,535, and shall default to 32.

Unit shall support a configurable number of volatile (nonpersistent) messages. This number shall be configurable between 1 and 65,535, and shall default to 32.

Each message shall support at least 16 pages.

Unit shall support a scheduler with support for up to 16 schedule, 16 day plans, and 96 day plan events.

Unit shall support at least 255 graphics via the monochrome 1 bit color scheme.

Unit shall support a configurable number of user-definable fonts. This number shall be configurable between 1 and 127, and shall default to 32.

5.3.19 Web-Interface (Smart-Phone Control): Control console shall function as a Web-Server which enables an operator (via user name and password access) through any standard Web-Browser to:

- Create a unique Web-Name for the unit for browser ID
- View the current status of the unit to include current message displayed on sign panel, battery voltage, photocell reading, date & time, and NTCIP control status
- Blank the unit's sign panel
- Select, preview, edit and activate any message from the unit's message library
- Create, edit, preview and activate a new multi-page text message (up to 6 pages)
- Turn NTCIP control on/off if NTCIP control is enabled on control console

Access to the Web-Server shall be though any standard web browser over a standard network connection and/or public IP address (i.e. IP addressable modem). Access shall be protected by a user name and password created by the operator through the manufacturer's proprietary remote control software to ensure security is maintained at all times. The Web-Server shall be capable of being controlled (i.e. turned on and off) via manufacturer's proprietary remote control software. Web-Access to the control console shall not require access to a central server All access to the Web-Server shall be logged and recorded.

6. Power System

6.1 General

6.1.1 Operating Voltage - 12 Volts DC nominal

6.1.2 Operating Energy Requirement - approx. 30Amp Hours per day nominal at Spring or Fall Equinox (i.e. 12 hours of daylight, 12 hours of darkness)

6.1.3 Main Power Switch - Main power switch shall be a combination switch and electromagnetic, thermal circuit breaker to provide compete electrical system protection without the inconvenience of conventional fuses. Main power switch shall be splash proof and weather resistant.

6.2 Battery Bank

6.2.1 Number of batteries: Specify four (4), six, (6), eight (8), ten (10) or twelve (12)

6.2.2 Battery type: 6-Volt, heavy duty, deep cycle - Specify Flooded Lead-Acid, Gel-Cell orAGM.

6.2.3 Energy capacity - 1,560Amp Hours nominal (12 batteries). Suficient energy capacity to operate the message sign, displaying typical three-line normal size character messages for greater than 30 days, without any energy input from the solar array

6.2.4 Battery / Equipment Compartments

6.2.4.1 Battery / Equipment Compartments shall be constructed of molded HMWPE (High Molecular Weight Polyethylene), color impregnated with Federal Safety Orange with 0.5% UV stabilizer added to prevent fading.

6.2.4.2 Compartments shall be designed to completely contain spills from a failed or damaged battery case.

6.2.4.3 Compartments shall be capable of supporting an operator standing on top of the battery / equipment compartment to service unit.

6.2.4.4 Compartments shall be designed such that the lid automatically latches in the closed position and holds the batteries in place. Lid shall be capable of being locked in the closed position with a standard padlock.

6.2.4.5 Lid shall be secured to compartment by an integral plastic hinge that permits the lid to be completely removed from the compartment for service. Lid on the compartment containing the control console shall be automatically supported in the open position by a telescoping lid support.

6.2.4.6 Compartments shall be designed to provide adequate ventilation for the batteries during charging yet prevent the ingress of water during use or transport.

6.2.4.7 Each compartments shall be capable of housing four (4) BCI Group GC-2 batteries.

6.3 Solar Array

6.3.1 Photovoltaic module type - Single crystal (monocrystalline) silicon

6.3.2 Number of solar cells per module - 36

6.3.3 Solar array power output: Specify 160, 240, 320, 400 or 480 Watts peak (min.)

NOTE: Solar energy system performance charts are available to assist in selection of appropriate solar array power output requirements.

6.3.4 Solar array shall tilt down for fast, easy cleaning and maintenance

6.3.5 Solar array energy output shall be sufficient to operate the changeable message sign, under normal operating conditions, with the solar array in a flat, horizontal position. It shall not be necessary to tilt or rotate the solar array to provide sufficient energy output from the solar array to operate the message sign continuously. (Note: An optional tilt and rotate system or an automatically operated linear actuator may be provided to provide for automatic removal of snow and/or ice from solar array for units specified for extreme climates and/or extreme latitudes.)

6.3.6 Photovoltaic module junction boxes shall be equipped with watertight strain reliefs at all cable entry points.

6.4 Wiring and Cabling

6.4.1 All power and control wiring and cables shall be in nonmetallic, flexible, liquid tight conduits.

6.4.2 All conduit fittings shall be sealed at bulkheads or enclosure entry points.

6.4.3 All wiring shall be marine grade, multi-strand, tin-plated copper with PVC insulation rated for outdoor use.

6.4.4 All power system wire terminals shall be tin-plated copper to minimize the effects of galvanic corrosion.

6.4.5 Main power wiring shall be 8AWG minimum.

6.4.6 Battery terminations shall consist of 5/16-18 UNC marine stud with stainless steel split lock washer and hex nut with 5/16 tin-plated copper ring terminal.

6.4.7 Solar panel terminations shall consist of stainless steel screws with #8 tin-plated copper snap spade terminal.

6.4.8 All other terminations shall consist of locking-type quick-disconnect connectors with tin-plated terminals for power connections and gold-plated terminals for signal connections.Terminal strips, screw or compression type, shall not be permitted

6.5 Energy Management System

6.5.1 Solar energy management system control unit shall include a completely solid state charge controller capable of operating in an outdoor environment. No mechanical or electromechanical switching to control charging current is permitted.

6.5.2 All wiring connections to the energy management system control unit shall be made with locking-type multi-pin connectors to facility quick, easy servicing of the control unit without the need of any tools. Electrical connections shall include an auxiliary 12-Volt power connection to provide power for accessory devices.

6.5.3 Energy management system control unit shall monitor solar array voltage, solar array current, battery voltage, battery current and ambient temperature.

6.5.4 Energy management system control unit shall regulate energy flow from the solar array into the battery bank based on ambient temperature so as to avoid over charging of the batteries and minimize the consumption of electrolyte.

6.5.5 Energy management system control unit shall provide for the controlled periodic pulsing of the solar array current to assist in minimizing sulfate deposit buildup on the battery plates.

6.5.6 Energy management system control unit shall provide for remote monitoring of the battery bank voltage, at the terminals of one of the batteries, to assist in optimizing the transfer of power into the battery bank.

6.5.7 Energy management system control unit shall be equipped with a 2-line by 16-character LCD (Liquid Crystal Display) displaying sequentially, solar array voltage, solar array current, battery voltage, and battery current. In addition, the energy management system control unit shall display a low battery voltage warning message whenever the battery bank voltage drops below 10.9 Volts.

6.5.8 Energy management system control unit shall automatically switch current to the message sign off whenever the battery bank voltage drops below 10.7 Volts to prevent damage to the battery bank due to over-discharging the batteries.

6.5.9 Energy management system control unit shall provide for automatic reverse polarity protection, including reverse polarity indicator lamps, for the solar array and the battery bank.

6.5.10 Energy management system control unit shall provide for automatic fault protection without the need for fuses. The use of fuses for fault protection shall not be permitted.

6.5.11 Energy managemnt system shall monitor and report to control console battery bank voltage, battery bank load current, solar array voltage and solar array charge current once every 15 seconds.

6.5.12 Energy management system shall have an integrated watchdog timer that is continously reset by the contrtol console during normal operations such that if the control console were to become unresponsive due to a software failure/lockup, upon expiration of the timer the energy management system will completely power down and re-start the entire system (including control console and all accessories such as modem, sign panel compass, etc.) in an attempt to recover the system from a temporary software failure/lockup.

7. Documentation

7.1 Operation and Maintenance Manual - available on-line at www.solartechnology.com

7.1.1 Setup and Operation

7.1.2 Programming

7.1.3 Maintenance

7.1.4 Troubleshooting and Repair

7.1.5 Assembly Diagrams and Parts Lists

7.1.6 Specifications

7.1.7 Appendix

7.2 Command Center - Users Manual - available on-line at www.solartechnology.com

7.2.1 Installation and Setup

7.2.2 Command Center Operation

7.2.3 Appendix

7.3 User Guide - Hard Copy - attached to unit with PVC coated stainless steel lanyard

7.3.1 Pre-transport checklist.

7.3.2 Job site setup checklist.

7.3.3 Basic programming instructions.

7.3.4 Basic system status evaluation.

7.3.5 Weatherproof card attached to unit with nylon-coated stainless steel lanyard.

7.4 Integration Support Documentation - Per request from customer support (1-800-475-5442)

7.4.1 Proprietary Protocol Documentation for Custom System Integrators

7.4.2 NTCIP Support Documentation for NTCIP System Integrators

7.4.3 Web-Server Protocol Documentation for Web Based Application System Integrators

8. Maintenance

8.1 Scheduled Maintenance

8.1.1 SolarArray - Clean with water and mild detergent as needed.

8.1.2 Battery Bank - Check electrolyte level once each month and add distilled water as needed. (Note: Not required with Gel-Cell batteries.)

8.2 Preventive Maintenance

8.2.1 Inspect and lubricate axle hubs once per year

9. Warranty

9.1 Standard Warranty

9.1.1 Bumper to Bumper - Full warranty five (5) years - consult factory for terms & conditions

9.1.2 Solar Panels - Ten years

9.2 Extended Warranty - Consult factory

10. Options

10.1 Battery Charger

10.1.1 Charger type - Switching regulator constant voltage with automatic switch to maintenance or trickle charge.

10.1.2 Input Voltage - 110 VAC 50/60 Hz (specify 220 VAC 50 Hz for international use)

10.1.3 Available models with typical recharge times.

10.1.3.1 45-Amp - 36 hours (12 batteries), 24 hours (8 batteries), 12 hours (4 batteries)

10.1.3.2 90-Amp - 22 hours (12 batteries), 16 hours (8 batteries), 8 hours (4 batteries)

10.1.3 Battery charger unit shall install in the field with minimum effort.

10.2 Remote Control

10.2.1 General

10.2.1.1 The remote control option shall provide for complete control of all dynamic message sign functions. The remote control option shall, at a minimum, provide for:

- Simultaneously geographically tracking, managing, operating and maintaining a minimum of 1,000 remotely located PCMS units including setting up automatic e-mail notifications/alerts for unit movement, change of displayed message, low estimated runtime, low battery condition, sign panel failures, and pixel failures.

- Sending a message to one or more remote PCMS for immediate display

- Receiving the message currently displayed on all remote PCMS.

- Managing the message libraries and message schedules & events on all remote PCMS.

- Checking the operating status, including sign panel status, system date & time, battery voltage, estimated autonomy, temperature, unit Up-Time, Current Run-Time, Life-Time Run-Time, and ambient light level of all remote PCMS.

- Reporting and managing NTCIP status of all PCMS.

- Retrieve up to 30 days worth of logged Radar Statistics from units equipped with optional Radar Speed Monitor (see section 10.3 for optional Radar Speed Monitor).

- Provide for the ability to perform various system resets including a complete re-boot/restart of the system for all PCMS.

10.2.1.3 Communication Protocol - Proprietary with complete CRC error detection and correction and full challenge-response password authentication.

10.2.1.4 Data Format - Data is encrypted and compressed for added security and reliability

10.2.1.5 All operating software for message sign control console and host computer shall be included with basic message sign package (downloadable from www.solartechnology.com).

10.2.2 TCP/IP Network Communications (Dynamic or Static IP Address)

10.2.2.1 Data rate - 10/100 Base-T Ethernet

10.2.2.2 Remote control of any networked (IP addressable) PCMS may be achieved from any host computer with Internet connectivity (either with standard NTCIP commands via SNMP or STMP, or with Comamnd Center). Remote control software (Command Center) shall be provided free of charge (downloadable from www.solartechnology.com) with unit and function on any host computer independent of operating system. Control console and remote control software shall incorporate a challenge/response encrypted type password security system to prevent unauthorized access of any networked PCMS.

10.2.3 IP Addressable Cellular Transceiver Operation

10.2.3.1 Wireless modem with up to a 3-Watt cellular transceiver.

10.2.3.2 MNP 2-4 Error Control -Automatic error detection and correction.

10.2.3.3 MNP 5 Data Compression - Higher data rates, shorter connection times.

10.2.3.4 MNP 10EC - Enhanced performance over noisy cellular connections.

10.3 Radar Speed Monitor

10.3.1 General

10.3.1.1 Operating Frequency - 24.15 GHz (K-Band)

10.3.1.2 Antenna Beamwidth - 12° (Circular Pattern)

10.3.1.3 CaptureAngle - 16.5° typical (Circular Pattern)

10.3.1.4 Target Speed Range - 5 to 125 MPH (20 to 200 km/h)

10.3.1.5 Target Speed Accuracy - 1 MPH typical

10.3.1.6 Detection Distance - 1,500 Feet (Automobile-size target)

10.3.1.7 Radar unit shall install in the field with minimum effort.

10.3.1.8 Message sign shall be pre-wired and pre-programmed for radar speed monitor option.

10.3.2 Operating Features

10.3.2.1 Target Speed Display - The speed of the target may be displayed as part of any user-created messages, in any character size, in any position in the message. Multiple messages which include target speed can be stored in the message library

10.3.2.2 Triggered Display - A message may be displayed only when an acquired target exceeds a preset speed threshold. This message may include the display of the target speed. If no target is acquired or if the acquired target is below the preset threshold, the default message will be displayed. Default message can be a blank display

10.3.2.3 Window Triggered Display - Upper and lower speed thresholds may be preset such that the special message is displayed only when the target speed is above the lower threshold but below the upper threshold. This message can include the display of the target speed. If no target is acquired or if the acquired target is above or below the preset thresholds, the default message will be displayed. Default message can be a blank display Multiple windows can be programmed each with a different message to be displayed when the acquired target speed is above the minimum speed but below the maximum speed threshold for that particular window. Each of these messages can include the display of the target speed.

10.3.2.4 All necessary software features shall be included with the basic message sign package.

10.3.3 Radar Statistical Data Collection

10.3.3.1 Control Console shall automatically log and record (to a standard USB memory stick) all raw data provided by the radar gun along with basic statistical information about the collected data in 15 minute intervals. The data shall be stored in two CSV (Comma Separated Value) files which may be opened in Microsoft Excel or any other similar spreadsheet type application for viewing, manipulation and analysis. Additionally, the most recent 30 days worth of Radar Statistics (statistical radar data logged every 15 minutes) shall be maintained in the control consoles nonvolatile memory and shall be retrieved remotely via Control Center 3000 - see Control Center 3000 manual for further details.

10.3.3.2 Data Provided

10.3.3.2.1 Raw Data File: (radar_data file) - (Year, Month, Day, Time, Reading) - every reading - readings recorded every 250ms while tracking a target

10.3.3.2.2 Statistical Data File: (radar_statistics file) - (Year, Month, Day, Time, # of Readings, Mean, Median, Mode, Standard Deviation, Lowest Reading, Highest Reading) - based on all readings - readings are taken every 250ms while tracking a target

10.4 GSM Transceiver & GPS Receiver Module

10.4.1 Integrated into Control Console - proprietary

10.5 Sign Panel Flux-Gate Digital Compass

10.5.1 General

10.5.1.1 Operating Voltage: 8-28 Vdc

10.5.1.2 Input Current: 40 mA @ 12 Vdc maximum

10.5.1.3 Operating Temperature Range: -40C to +65C (-40F to +150F)

10.5.1.4 Shock/Vibration: meets MIL-STD-810 requirements

10.5.1.5 Altitude: 40,000 ft. maximum

10.5.1.6 Reliability: MTBF > 30,000 hours

10.5.1.7 Accuracy: +/-0.5 degrees

10.5.1.8 Repeatability: +/-0.2 degrees

10.5.1.9 Resolution: 0.1 degrees

10.5.1.10 Dip Angle: +/-80 degrees

10.5.1.11 Tilt Angle: +/-16 degrees

10.5.1.12 Response Time: 1 second

EXHIBIT B

EQUIPMENT PREVENTATIVE MAINTENANCE QUESTIONNAIRE

THIS FORM MUST BE COMPLETED IN ITS ENTIRETY BY SUCCESSFUL BIDDER OR MANUFACTURER'S TECHNICAL REPRESENTATIVE PRIOR TO DELIVERY TO THE WVDOH

DESCRIPTION: _____ MAKE: _____

MODEL: _____ YEAR: _____ PURCHASE AMOUNT: _____

ENGINE: MAKE: _____ MODEL: _____ FUEL TYPE: _____

HORSEPOWER: _____ CYLINDER: _____ ENGINE SERIAL: _____

COOLING SYSTEM CAPACITY: _____

BELTS: DESCRIPTION: PART NUMBERS:

_____ _____

_____ _____

GVW: _____ AXLE CAPACITY: FRONT: _____ REAR: _____

TIRES: FRONT MAKE & SIZE: _____

REAR MAKE & SIZE: _____

DIMENSIONS OF UNIT: LENGTH: _____ WIDTH: _____ LENGTH: _____

VENDOR CONTACT PERSON: _____ PHONE: _____

PARTS:

BATTERY MAKE: _____ MODEL: _____ CCA: _____

TOP OR SIDE POST: _____ DIMENSIONS: LENGTH _____ WIDTH _____ HEIGHT _____

SPARK PLUGS OR FUEL INJECTORS MAKE: _____ PART # _____

FUEL PUMP OR INJECTION PUMP MAKE: _____ MODEL: _____

ALTERNATOR MAKE: _____ PART #: _____

STARTER MAKE: _____ PART #: _____

TURBO CHARGER MAKE: _____ PART #: _____

TRANS. MAKE: _____ MODEL: _____ AUTO/MANUAL: _____

HYDRAULIC PUMP MAKE: _____ MODEL: _____

FILTERS	MAKE	PART NO:	LUBRICANT	MANUFACTURER TYPE
OIL			ENGINE	
AIR INNER			TRANSMISSION	
AIR OUTER			POWER STEERING	
FUEL PRIMARY			HYDRAULIC	
FUEL SECONDARY			DIFFERENTIALS	
COOLANT			BRAKE FLUID	
HYDRAULIC			COOLANT	
OTHER			OTHER	

WV-10
Approved / Revised
12/16/15

State of West Virginia
VENDOR PREFERENCE CERTIFICATE

Certification and application is hereby made for Preference in accordance with ***West Virginia Code***, §5A-3-37. (Does not apply to construction contracts). ***West Virginia Code***, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the ***West Virginia Code***. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. **Application is made for 2.5% vendor preference for the reason checked:**
☐ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
☑ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification;
☐ Bidder is a resident vendor partnership, association, or corporation with at least eighty percent of ownership interest of bidder held by another entity that meets the applicable four year residency requirement; **or,**
☐ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. **Application is made for 2.5% vendor preference for the reason checked:**
☑ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. **Application is made for 2.5% vendor preference for the reason checked:**
☐ Bidder is a nonresident vendor that employs a minimum of one hundred state residents, or a nonresident vendor which has an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia and employs a minimum of one hundred state residents, and for purposes of producing or distributing the commodities or completing the project which is the subject of the bidder's bid and continuously over the entire term of the project, on average at least seventy-five percent of the bidder's employees or the bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years and the vendor's bid; **or,**

4. **Application is made for 5% vendor preference for the reason checked:**
☑ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**
☐ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**
☐ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. **Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules*.**
☐ Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) rescind the contract or purchase order; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: West Virginia Tractor Company **Signed:** [signature]

Date: 8-8-16 **Title:** President

**Check any combination of preference consideration(s) indicated above, which you are entitled to receive.*

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: West Virginia Tractor Company

Authorized Signature: _____ Date: 8-8-16

State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 8 day of August, 2016.

My Commission expires August 12, 2022.

AFFIX SEAL HERE

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Steven B. Basham
West Virginia Tractor Co.
PO Box 473
Charleston, WV 25322
My commission expires August 12, 2022

NOTARY PUBLIC Steven B. Basham