



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER
 7012EC08

PAGE
 1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
 PAUL REYNOLDS
 304-558-0468

VENDOR

Logan Corporation
 212 N Ohio Ave
 Clarksburg WV, 26301

SHIP TO

DIVISION OF HIGHWAYS
 EQUIPMENT DIVISION
 ROUTE 33
 BRUSHY FORK ROAD
 BUCKHANNON, WV
 26201 304-472-1750

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
11/23/2011				

BID OPENING DATE: 12/28/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001		EA		290-82		\$4320.00
SOLAR ENERGY SYSTEMS, COMPLETE REQUEST FOR QUOTATION OPEN END CONTRACT THE WEST VIRGINIA STATE PURCHASING DIVISION FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF HIGHWAYS IS SOLICITING BIDS FOR AN OPEN END CONTRACT TO PROVIDE TRACTOR TRAILER MOUNTED SOLAR POWERED ELECTRIC ARROWBOARD PER THE ATTACHED SPECIFICATIONS. TECHNICAL QUESTIONS CONCERNING THIS SOLICITATION WILL BE RECEIVED THROUGH THE CLOSE OF THE MANDATORY PRE-BID MEETING. TECHNICAL QUESTIONS MUST BE SUBMITTED IN WRITING TO PAUL REYNOLDS WEST VIRGINIA STATE PURCHASING DIVISION. VENDORS MAY SUBMIT QUESTIONS PRIOR TO THE MANDATORY PRE-BID VIA MAIL AT THE ADDRESS LISTED IN THE BODY OF THIS RFQ, VIA FAX AT 304-558-4115, OR VIA EMAIL AT PAUL.REYNOLDS@WV.GOV. WRITTEN QUESTIONS WILL ALSO BE ACCEPTED DURING THE MANDATORY PRE-BID, DEADLINE FOR ALL TECHNICAL QUESTIONS IS THE CLOSE OF THE PRE-BID MEETING. NO ADDITIONAL QUESTIONS WILL BE ACCEPTED AFTER THE PREBID MEETING, ANY TECHNICAL QUESTIONS RECEIVED WILL BE ANSWERED BY FORMAL ADDENDUM TO BE ISSUED BY THE PURCHASING DIVISION AFTER THE MANDATORY PRE-BID MEETING. FOR YOUR CONVENIENCE A WORD DOCUMENT HAS BEEN ATTACHED FOR SUBMITTING TECHNICAL QUESTIONS.						



SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Scott Knierley</i>	TELEPHONE 304-476-8050	DATE 1/24/12
TITLE Sales	FEIN 55-0219530	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GENERAL TERMS & CONDITIONS REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.
5. Payment may only be made after the delivery and acceptance of goods or services.
6. Interest may be paid for late payment in accordance with the *West Virginia Code*.
7. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
10. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern the purchasing process.
11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
12. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.
13. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at www.state.wv.us/admin/purchase/vrc/hipaa.html and is hereby made part of the agreement provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
14. **CONFIDENTIALITY:** The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf>.
15. **LICENSING:** Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.
16. **ANTITRUST:** In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the State of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.
2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130
5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).



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**Request for
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 304-558-0468

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 ROUTE 33
 BRUSHY FORK ROAD
 BUCKHANNON, WV
 26201 304-472-1750

DATE PRINTED 11/23/2011	TERMS OF SALE	SHIP VIA	FOB	FREIGHT TERMS
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BID OPENING DATE: 12/28/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
				MANDATORY PRE-BID		
				A MANDATORY PRE-BID WILL BE HELD ON 12/15/2011 AT 10:30 AM, 2019 WASHINGTON ST EAST, CHARLESTON, WV 25305. ALL INTERESTED PARTIES ARE REQUIRED TO ATTEND THIS MEETING. FAILURE TO ATTEND THE MANDATORY PRE-BID SHALL RESULT IN DISQUALIFICATION OF THE BID. NO ONE PERSON MAY REPRESENT MORE THAN ONE BIDDER.		
				AN ATTENDANCE SHEET WILL BE MADE AVAILABLE FOR ALL POTENTIAL BIDDERS TO COMPLETE. THIS WILL SERVE AS THE OFFICIAL DOCUMENT VERIFYING ATTENDANCE AT THE MANDATORY PRE-BID. FAILURE TO PROVIDE YOUR COMPANY AND REPRESENTATIVE NAME ON THE ATTENDANCE SHEET WILL RESULT IN DISQUALIFICATION OF THE BID. THE STATE WILL NOT ACCEPT ANY OTHER DOCUMENTATION TO VERIFY ATTENDANCE. THE BIDDER IS RESPONSIBLE FOR ENSURING THEY HAVE COMPLETED THE INFORMATION REQUIRED ON THE ATTENDANCE SHEET. THE PURCHASING DIVISION AND THE STATE AGENCY WILL NOT ASSUME ANY RESPONSIBILITY FOR A BIDDER-S FAILURE TO COMPLETE THE PRE-BID ATTENDANCE SHEET. IN ADDITION, WE REQUEST THAT ALL POTENTIAL BIDDERS INCLUDE THEIR E-MAIL ADDRESS AND FAX NUMBER.		
				ALL POTENTIAL BIDDERS ARE REQUESTED TO ARRIVE PRIOR TO THE STARTING TIME FOR THE PRE-BID. BIDDERS WHO ARRIVE LATE, BUT PRIOR TO THE DISMISSAL OF THE TECHNICAL PORTION OF THE PRE-BID WILL BE PERMITTED TO SIGN IN. BIDDERS WHO ARRIVE AFTER CONCLUSION OF THE TECHNICAL PORTION OF THE PRE-BID, BUT DURING ANY SUBSEQUENT PART OF THE PRE-BID WILL NOT BE PERMITTED TO SIGN THE ATTENDANCE SHEET.		
				EXHIBIT 2		
				LIFE OF CONTRACT: THIS CONTRACT BECOMES EFFECTIVE UPON AWARD AND EXTENDS FOR A PERIOD OF ONE (1)		

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Scott Knicaly</i>	TELEPHONE 304-476-8050	DATE 1/24/12
TITLE Sales	FEIN 55-0219530	ADDRESS CHANGES TO BE NOTED ABOVE

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<p>YEAR OR UNTIL SUCH "REASONABLE TIME" THEREAFTER AS IS NECESSARY TO OBTAIN A NEW CONTRACT OR RENEW THE ORIGINAL CONTRACT. THE "REASONABLE TIME" PERIOD SHALL NOT EXCEED TWELVE (12) MONTHS. DURING THIS "REASONABLE TIME" THE VENDOR MAY TERMINATE THIS CONTRACT FOR ANY REASON UPON GIVING THE DIRECTOR OF PURCHASING THIRTY (30) DAYS WRITTEN NOTICE.</p> <p>UNLESS SPECIFIC PROVISIONS ARE STIPULATED IN THIS CONTRACT DOCUMENT, THE TERMS, CONDITIONS, AND PRICING SET HEREIN ARE FIRM FOR THE LIFE OF THE CONTRACT.</p> <p>RENEWAL: THIS CONTRACT MAY BE RENEWED UPON THE MUTUAL WRITTEN CONSENT OF THE SPENDING UNIT AND VENDOR, SUBMITTED TO THE DIRECTOR OF PURCHASING THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE. SUCH RENEWAL SHALL BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE ORIGINAL CONTRACT AND SHALL BE LIMITED TO TWO (2) ONE (1) YEAR PERIODS.</p> <p>CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICES SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM WITH THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN.</p> <p>OPEN MARKET CLAUSE: THE DIRECTOR OF PURCHASING MAY AUTHORIZE A SPENDING UNIT TO PURCHASE ON THE OPEN MARKET, WITHOUT THE FILING OF A REQUISITION OR COST ESTIMATE, ITEMS SPECIFIED ON THIS CONTRACT FOR IMMEDIATE DELIVERY IN EMERGENCIES DUE TO UNFORESEEN CAUSES (INCLUDING BUT NOT LIMITED TO DELAYS IN TRANSPORTATION OR AN UNANTICIPATED INCREASE IN THE VOLUME OF WORK).</p> <p>QUANTITIES: QUANTITIES LISTED IN THE REQUISITION ARE APPROXIMATIONS ONLY, BASED ON ESTIMATES SUPPLIED BY TH</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Scott Kincaid</i>	TELEPHONE 304-476-8050	DATE 1/24/12
TITLE Sales	FEIN 55-0219530	ADDRESS CHANGES TO BE NOTED ABOVE

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<p>STATE SPENDING UNIT. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACT SHALL COVER THE QUANTITIES ACTUALLY ORDERED FOR DELIVERY DURING THE TERM OF CONTRACT, WHETHER MORE OR LESS THAN THE QUANTITIES SHOWN.</p> <p>ORDERING PROCEDURE: SPENDING UNIT(S) SHALL ISSUE A WRITTEN EQUIPMENT CONTRACT ORDER (FORM NUMBER WV-35) FOR COMMODITIES COVERED BY THIS CONTRACT. THE ORIGINAL WV-35 MUST BE SENT TO THE PURCHASING DIVISION OF THE DEPARTMENT OF ADMINISTRATION. AFTER APPROVAL AND ENCUMBRANCE, ONE COPY OF THE PURCHASE ORDER WILL BE RETURNED TO THE SPENDING UNIT AND ONE COPY FORWARDED TO THE VENDOR AS AUTHORIZATION FOR SHIPMENT. NO ORDER IS VALID UNLESS APPROVED AND ENCUMBERED BY THE PURCHASING DIVISION.</p> <p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FUTURE ORDER.</p> <p>REV. 5/2009</p> <p>PURCHASING CARD ACCEPTANCE: THE STATE OF WEST VIRGINIA CURRENTLY UTILIZES A VISA PURCHASING CARD PROGRAM WHICH IS ISSUED THROUGH A BANK. THE SUCCESSFUL VENDOR MUST ACCEPT THE STATE OF WEST VIRGINIA VISA PURCHASING CARD FOR PAYMENT OF ALL ORDERS PLACED BY ANY STATE AGENCY AS A CONDITION OF AWARD.</p> <p>EXHIBIT 4</p> <p>LOCAL GOVERNMENT BODIES: UNLESS THE VENDOR INDICATES IN THE BID HIS REFUSAL TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO COUNTY, SCHOOL, MUNICIPAL</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Scott McNulty</i>	TELEPHONE 304-476-8050	DATE 1/29/12
TITLE Sales	FEIN 55-0219530	ADDRESS CHANGES TO BE NOTED ABOVE

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<p>AND OTHER LOCAL GOVERNMENT BODIES, THE BID SHALL EXTEND TO POLITICAL SUBDIVISIONS OF THE STATE OF WEST VIRGINIA. IF THE VENDOR DOES NOT WISH TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO ALL POLITICAL SUBDIVISIONS OF THE STATE, THE VENDOR MUST CLEARLY INDICATE SUCH REFUSAL IN HIS BID. SUCH REFUSAL SHALL NOT PREJUDICE THE AWARD OF THIS CONTRACT IN ANY MANNER.</p> <p>REV. 3/88</p> <p style="text-align: center;">NOTICE</p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p style="text-align: center;">DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <p>THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p> <p>BUYER: PAUL REYNOLDS FILE 33</p> <p>RFQ. NO.: 7012EC08</p> <p>BID OPENING DATE: 12/28/2011</p> <p>BID OPENING TIME: 1:30 P.M.</p> <p>PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE *Scott Shively* TELEPHONE **304-476-8050** DATE **1/24/12**
 TITLE **Sales** FEIN **55-0219530** ADDRESS CHANGES TO BE NOTED ABOVE

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CONTACT PERSON (PLEASE PRINT CLEARLY):						

***** THIS IS THE END OF RFQ 7012EC08 ***** TOTAL:						<u>\$4,320.00</u>

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Scott Kincaid</i>	TELEPHONE 304-476-8050	DATE 1/24/12
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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
EQUIPMENT DIVISION

PROCUREMENT SPECIFICATIONS
NO. 839-1-M

OPEN END CONTRACT
TRAILER MOUNTED SOLAR POWERED ELECTRIC ARROWBOARD

1.0 PURPOSE

It is the purpose of these specifications to describe a Trailer Mounted Solar Powered Electric Arrowboard (hereinafter referred to as an "arrowboard" or a "unit") to be purchased for use by the West Virginia Division of Highways (DOH) on an Open End Contract basis.

2.0 BIDDING PROCEDURES

The current purchasing procedures regarding bidding as established by the Department of Administration, Purchasing Division, shall apply. Failure to submit the "Request for Quotation" forms, complete in its entirety and according to directions indicated, may subject the bidder to disqualification. **Each bid submitted shall also be accompanied by a Bidder's Evaluation Report completed in detail.** Addendums in order, along with exception sheets, should be with Bidder's Evaluation Report. **FAILURE TO SUBMIT THE BIDDER'S EVALUATION REPORT, COMPLETE IN ITS ENTIRETY, WILL RESULT IN AUTOMATIC DISQUALIFICATION.**

3.0 SPECIFICATIONS

The specifications named herein, mandatory and non-mandatory, establish the acceptable level of quality only and are not intended to reflect a preference or favor any particular brand or vendor.

3.1 EXCEPTIONS TO NON-MANDATORY SPECIFICATIONS

Exception to a non-mandatory unit specification may be made by the bidder, providing the exception is not available from the manufacturer. **Any such exception must be noted on the bidder's evaluation report and should be accompanied by supporting documentation/literature from the manufacturer. Any exception must be indicated on a separate attachment to the bidder's evaluation report and labeled as "Exception to Specifications".** The state reserves the right to waive minor irregularities in bids or specifications in accordance with §148-1-4(f) of the WV Legislative Rules and Regulations.

3.2 MANDATORY SPECIFICATIONS

All specifications preceded by "shall, will, and/or must" or are stated as a "minimum and/or maximum" are mandatory as stated in Purchasing Divisions Policies and Procedures. Any bid failing to meet any mandatory item shall be immediately disqualified. Failure to respond in the appropriate evaluation section will also be grounds for immediate disqualification at the discretion of the State.

A mandatory pre-bid conference is scheduled for this equipment purchase as stated in the RFQ. Vendors having products with variations or exceptions in specified mandatory items are expected to address any such variations or exceptions during the pre-bid conference. **The State shall review and consider any such variation or exception, and may at its sole discretion, issue an addendum to change mandatory specifications deemed to be in the State's best interest. Bids from any vendor failing to attend the mandatory pre-bid shall be disqualified. Bids containing any variation or exception to a mandatory specification that was not addressed during the pre-bid conference and accepted by the issuance of an Addendum shall be disqualified.**

4.0 REPRESENTATIVE UNIT FOR TEST

The successful vendor must (if specified) provide DOH one (1) completed representative unit to be observed and evaluated on each order to insure compliance with specification. If requested, the time period for testing and evaluation shall be seven (7) 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.

4.1 CONDITION OF UNIT(S) UPON DELIVERY

All units must arrive at the prescribed delivery point having been completely preserviced 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.

4.2 DELIVERY

Delivery point of the completely assembled representative unit will be the DOH, Equipment Division, Route 33 at Brushy Fork Road, Buckhannon, West Virginia (26201).

The vendor is responsible for guaranteeing delivery of the completed units within the time specified and agreed to by the State. Delivery is preferred within 35 days after receipt of purchase agreement. The vendor is responsible for establishing and coordinating delivery terms with allied manufacturers or suppliers. Delivery terms should be stated in the bid and the State reserves the right to accept or reject such terms. Failure to reach an agreement may result in rejection of the bid. **The successful bidder shall provide their manufacturer's confirmation of the order to the WVDOH contact person within seven (7) working days after receiving the approved purchase order.**

A completed pilot model for inspection must be provided within 20 calendar days after receipt of the purchase agreement by the successful vendor.

Delivery is an integral part of this specification and failure to comply will be cause to initiate a D.O.T. Administrative Form WV-82, Vendor Performance Form. The WV-82 Form will provide a means of officially notifying the Purchasing Division and the vendor of unsatisfactory performance; such as late deliveries, poor service, inadequate parts supplies, etc.

The decision to initiate subject Form will be at the sole discretion of the D.O.H. Commissioner's established Equipment Review Board.

Issuance of the WV-82 Vendor Complaint Form on unsatisfactory delivery against any vendor will be cause to refuse to consider similar items from those vendors on future Request For Quotations.

(NOTE: Delivery time could be altered due to labor strikes, severe inclement weather conditions, etc.)

5.0 AWARD CRITERIA

- 5.1 DOH will recommend the award in accordance with the RFQ evaluation criteria described in the requisition. **The award shall be made to the lowest unit cost vendor that meets or exceeds the specifications.** DOH reserves the right to place multiple orders in any quantity.

6.0 SPECIFICATIONS AND GUIDELINES - GENERAL

6.1 IDENTIFICATION OF THE UNIT BEING PROPOSED

The bidder must identify the unit by manufacturer, model, series, and year of manufacture, to enable identification by DOH in the manufacturer's specifications of the proposed unit. The bidder will submit complete descriptive literature of the proposed unit, to establish that the bid is the manufacturer's most current model, including latest engineering improvements, which have been, or will imminently be, regularly advertised and sold on the open market. The unit specified herein and offered

to be manufactured after January 1, 2011 and be clearly identified and marked with date of manufacture.

6.2 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 Equipment Preventative Maintenance Questionnaire (as shown in X6.2 of the Bidder's Evaluation Report) must be with pilot unit upon delivery. In addition, there must be 12 service, shop, or maintenance manuals; ten (10) to be distributed to the Districts and two (2) for the Equipment Division. Also, there must be 14 parts manuals; ten (10) to be distributed to the Districts and four (4) for Equipment Division use. CD ROM is preferred in lieu of parts or service manuals.

* NOTE: MANUALS SHALL BE DELIVERED UPON COMPLETION OF DELIVERY OF TOTAL UNITS. FAILURE TO DO SO WILL DELAY PAYMENT.

6.3 TRAINING:

Manufacturers and/or dealers will be required to stage a thorough seminar on the subjects of Preventative Maintenance, Operator and Mechanic Training. **In order to keep the operators and mechanics updated, the successful vendor shall conduct training with each purchase order against this open end contract.** Training is preferred within 2 working days after delivery of the pilot unit on the individual purchase order.

Manufacturers and/or dealers shall be required to furnish the Training Academy with one (1) Operator's Manual to be shipped direct to WVDOH Training Academy, Post Office Box 610, Buckhannon, West Virginia 26201 prior to delivery of the pilot.

The seminar to be held at the W. Va. Division of Highways, Equipment Division, Buckhannon, West Virginia.

6.4 PREVENTIVE MAINTENANCE AND OPERATOR PROCEDURES:

Manufacturers and/or dealers will be required to submit to the Equipment Division, in addition to the operating and service manuals, booklets and pamphlets explaining the Preventive Maintenance and Operator Procedures to be used by the operators of this equipment, and must include such things as daily prestart inspection procedure, service schedule, and routine maintenance required, safety precautions, etc.

The successful vendor shall furnish all training aids; i.e., videos, projectors, etc. required in conducting the training.

6.5 WARRANTY AND SERVICE POLICY

The Manufacturers warranty or service policy is to apply to the unit. Such warranty or service policy is to be recognized at any authorized unit dealer, representing manufacturer of proposed unit throughout the State of West Virginia. The applicable warranty or service policy will not be contingent upon obtaining routine service, lubrication, and servicing of the unit from factory authorized agencies. It will be the responsibility of the bidder to have available labor to repair or replace any defective replacement parts, components and materials, and to have available those replacement parts, components, and/or materials found to be defective during the terms of the warranty period. The bidder should state the labor rates, locations where parts will be stocked, availability of parts, and discounts offered for parts, when terms of the warranty offer a pro-rated cost for parts and labor. In addition, the successful bidder should offer field work to repair or replace defective parts, components, and materials found to be defective during the terms of the warranty and should provide mechanic's travel rates, mileage charges, field mechanic rates, and any surcharge for miscellaneous items, if applicable, for field work during the warranty period. Submit to Division of Highways any technical or engineering improvements during the term of the warranty. **The unit must be accompanied upon delivery by the unit's manufacturer's executed warranty or service policy.**

A mandatory minimum two (2) year bumper to bumper basic parts and labor warranty excluding abuse and normal wear items is required for this unit.

THE "WARRANTY AND SERVICE POLICY QUESTIONNAIRE" ATTACHED IN THE BIDDER'S EVALUATION REPORT MUST BE COMPLETED IN ITS ENTIRETY BY THE SUCCESSFUL BIDDER OR MANUFACTURER PRIOR TO DELIVERY OF THE PILOT MODEL. (SEE SECTION X6.5 OF BIDDER'S EVALUATION REPORT).

6.6 EVALUATION COMMITTEE REQUIREMENTS

Detailed component specifications, product literature, component models, required for specification compliance determination by the Evaluation Committee should be provided with each bid. Any information supplied that is contrary to/or conflicting with the specifications and/or attached Bidders Evaluation Report may be sufficient cause for rejection of bid.

6.7 UNSPECIFIED ACCESSORIES & FEATURES

All parts, equipment, accessories, material, design and performance characteristics not specified herein, but which are necessary to provide a complete unit, must be furnished with each unit and required to conform to strength, quality of material, and quality of workmanship to those which are advertised and provided to the market in general by the unit industry.

All parts and accessories advertised and regularly supplied as standard shall be included, except those which would represent duplication of those specified, and except those which, by specification, are not to be furnished. All standard safety features, required by Federal and State Law, shall be included.

7.0 SPECIFICATIONS OF THE QUOTED UNIT ARE AS FOLLOWS:

Unit shall have built in auxiliary battery charger which would enable the batteries to be hooked up to an AC power source at the storage yard or off of a generator in the field so that the batteries could be fully charged. Charge time and charger version shall be based on the manufacturers battery configuration.

7.1 Arrowboard:

7.1.1 The arrowboard to be a weather-tight panel approximately 48 inches high by 96 inches wide.

7.1.2 The height from the bottom of the panel to the roadway should be seven (7) feet above the roadway.

7.1.3 The face of the panel should be flat back with 15 hooded lamps.

7.1.3.1 **Lamp shall be five (5) inch amber LED with minimum angularity of 33 degrees.**

7.1.4 The unit to have the capability of the following modes of operations:

7.1.4.1 Right Arrow - ten (10) lamps flashing in unison.

7.1.4.2 Left Arrow - ten (10) lamps flashing in unison.

7.1.4.3 Double Arrow - five (5) lamps in each arrowhead and three (3) lamps in shaft, all flashing in unison.

- 7.1.4.4 Warning Bar - seven (7) horizontal lamps flashing in unison.
- 7.1.4.5 Four Point Caution - four (4) outermost corner lamps flashing in unison.
- 7.1.4.6 Indicator Lights on back of panel.
- 7.1.5 The flash rate should be 30 fpm and the flash cycle time to be two (2) seconds with 50 percent on time.
- 7.1.6 The unit should reduce lamp brightness when the ambient light level drops below five (5) foot candles, plus or minus one (1) foot candle, **and shall increase lamp brightness when the ambient light level increases to five (5) foot candles, plus or minus one (1) foot candle.**
- 7.1.7 **Unit should have minimum legibility distance of one (1) mile.**
- 7.2 Electrical System:
 - 7.2.1 **The solar generator shall incorporate a 12 Volt DC Photovoltaic Solar Panel mounted on a self-erecting, automatic positioning device located above the unit.**
 - 7.2.2 **The battery bank shall be of sufficient size and capacity to power the unit for 30 days with no solar assist.**
 - 7.2.3 The batteries to be protected to prevent damaged due to overcharging or discharging too deeply at any temperature.
 - 7.2.4 The unit to have an external warning light, or other device to indicate when the unit is in need of auxiliary charging prior to arrow shutoff.
 - 7.2.5 The battery compartment should be vented, protected by a special acid-resistant finish, and lockable.
 - 7.2.6 **The arrowboard controller shall be housed in a weatherproof, lockable enclosure.**
 - 7.2.7 **Unit shall be safe guarded from any unwanted outside RF interference which would include but not be limited to VHF/FM receiver, 2-way radio receiver, cell phones, etc.**
 - 7.2.8 The unit to be equipped with an hour meter.

7.3 Trailer:

7.3.1 The trailer to be equipped with the following:

7.3.1.1 2,000 lb. axle with leaf springs.

7.3.1.2 Tubeless, standard tread tires and wheels.

7.3.1.3 Heavy duty pintle eye hitch

7.3.1.4 Adjustable jack stand on trailer tongue.

7.3.1.5 Adjustable jack stands to stabilize unit while in operation.

7.3.1.6 Approved lighting and safety chains for highway use.

7.3.1.7 Heavy duty light wiring for towing of unit with quick disconnect plug Cole Hersee Part Number 12081 male or equal.

7.3.1.8 License plate brackets.

7.3.1.9 Wheel fenders.

7.3.1.10 The arrowboard to be raised and lowered using a hand operating winch (or hydraulic pump and ram) and locked into place using latches of steel pins with keeper chains permanently attached to the unit.

7.4 Paint:

7.4.1 The unit to be painted the manufacturers standard color except that the arrowboard will be painted flat black.

7.5 Vendor must certify that the arrowboard offered will meet or exceed the "Occupational Safety and Health Act of 1970" or subsequent changes that are in effect at time of manufacture of the unit.

7.6 Advertising: No visible decals or nameplates or painted on names representing the manufacturer or model number or trademark should appear on the exterior surfaces of the unit. Such logos created through the stamping or casting process of manufacture are accepted.

7.7 All other features considered as standard equipment but not specifically addressed above.

7.8 Preventive Maintenance & Operator's Training School:

Manufacturers and/or dealers will be required to stage a thorough seminar on each order on the subjects Preventive Maintenance and Operator Training. The seminar should be held at the Equipment Division.

In addition to the operating and service manuals, booklets and pamphlets explaining the Preventive Maintenance and Operator Training procedures to be used by the operators of this equipment are also required. Must include such things as daily prestart inspection procedure, service schedule and routing maintenance required, safety precautions, etc.

Bidder to attach a copy of the proposed program with his bid, state the time required to perform the program, and briefly describe his program.

The successful vendor to furnish all training aids; i.e. videos, projectors, etc., required in conducting the training.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
EQUIPMENT DIVISION

BIDDER'S EVALUATION REPORT

PROCUREMENT SPECIFICATIONS FOR OPEN END CONTRACT
NO. 839-1-M

TRAILER MOUNTED SOLAR POWERED ELECTRIC ARROWBOARD

NOTE TO BIDDER: Procurement Specification No. 839-1-M, Paragraph 2.0 recommends the completion and submittal of this Report with your bid. Purpose of this Report is to enable the West Virginia Division of Highways Evaluation Committee to make full and fair evaluation of the bid. Addendums in order, along with a summary of exception as a separate attachment, should be with Bidder's Evaluation Report. FAILURE TO SUBMIT THIS REPORT, COMPLETE IN ITS ENTIRETY, MAY SUBJECT THE BIDDER TO DISQUALIFICATION.

Reference Requisition No.: 7012 EC08

Bidder's Name: Logan Corporation

Address: 212 N Ohio Ave Clarksburg WV 26301

Telephone Number: 304-623-5671

Years Bidder has been registered to do business with the State of West Virginia: _____ YRS.

Years Company has been an authorized dealer for proposed unit: _____ YRS.

X3.2 Have you complied with all mandatory specifications? YES NO

X4.2 DELIVERY:

X4.2.1 Delivery date of completed representative unit: 20 Calendar Days After
Receipt of Purchase Agreement

X4.2.2 Delivery date of balance of completed units: 20 Calendar Days After Receipt of
Purchase Agreement

NOTE: Vendor should type Bidder's Evaluation Report

The "Bidder's Evaluation Report" is available for download on Purchasing's Web site at www.state.wv.us/admin/purchase

X5.0 AWARD CRITERIA;

X5.1 Price per unit:

\$4320.00 per unit

X6.0 SPECIFICATIONS - GENERAL

X6.1 Manufacturer, model, series, and date of manufacture of proposed unit:

WTSP55-LSA-11 Wanco

Is descriptive literature, fully describing proposed unit attached to your bid? YES NO

If not, why? _____

X6.2 Will the required number of service manuals, and complete parts list be delivered to the Equipment Division at Buckhannon upon completion of delivery of total units?

YES NO

Will the required Equipment Preventive Maintenance Form (Section X6.2 of Bidders Evaluation Report) be provided upon inspection of the pilot unit?

YES NO

X6.2
2-10-00

EQUIPMENT PREVENTATIVE MAINTENANCE QUESTIONNAIRE

THIS FORM MUST BE COMPLETED IN ITS ENTIRETY BY SUCCESSFUL BIDDER OR MANUFACTURER'S TECHNICAL REPRESENTATIVE PRIOR TO DELIVERY OF PILOT MODEL 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 _____

X6.3 TRAINING:

Will training seminar be conducted on Preventive Maintenance, Operator and Mechanic Training YES NO

Will you conduct training with each purchase order against this open end contract? YES NO

Will training be conducted within 2 working days from the delivery of the pilot unit on the individual purchase order? YES NO

If NO, explain time frame Within two weeks

Will an Operator's Manual be furnished directly to Training Academy prior to the delivery of the pilot? YES NO

X6.4 If you are the successful vendor, will you furnish all training aids, i.e., videos, projectors, required in conducting the training? YES NO

X6.4.1 Will all manuals, booklets, etc. explaining preventive maintenance, operator procedures, and service schedule be delivered with each unit? YES NO
If NO, explain _____

X6.5 WARRANTY AND SERVICE POLICY

Will the warranty and service you provide comply with all areas as stated in Section 6.5 of specifications YES NO

Is warranty literature attached? YES NO

Is a minimum two (2) year bumper to bumper basic parts and labor warranty excluding abuse and normal wear items included? YES NO

Describe:

5 year warranty 2 year warranty on batteries

X6.5 WARRANTY AND SERVICE POLICY QUESTIONNAIRE

THIS FORM MUST BE COMPLETED IN ITS ENTIRETY AND SUBMITTED WITH YOUR BID.
(If additional lines are needed, make copies of form.)

1. Define the terms of the standard warranty. If not offered, so state. (Attach copy)

5 year warranty

2. Define warranty service to be performed at DOH facilities and warranty service to be performed at manufacturer's representative facility. List name and location of manufacturer's representative.

3. List locations for parts inventories that are within the State of West Virginia. Also, list availability levels, if known.

Clarksburg Nitro

4. During the term of warranty, list the guarantee discount to manufacturer's published list price for parts that bidder will sell the parts to owner.

- A. Terms: Net 30 Manufacturer's published list price less: _____ % discount
- B. Terms: Net 60 Manufacturer's published list price less: _____ % discount
- C. Terms: Net 90 Manufacturer's published list price less: _____ % discount

5. During the term of warranty, will all manufacturers or engineering improvements be submitted to Division of Highways? YES NO

6. During the term of warranty, list the guaranteed rates charged for repair to the unit.

A. Shop Rate \$ 91.00 per mechanic hour

B. Travel Time Charge \$ 91.00 per mechanic hour
(Specify if one-way) _____; port to port _____

C. Mileage Charge \$ 1.55 per vehicle mile
(Specify if one-way) _____; port to port _____

D. Field Mechanic Rate \$ 91.00 per mechanic hour

E. Specify period of time that prices are in effect: _____

F. Surcharge for miscellaneous items: _____ %

X6.6 EVALUATION COMMITTEE REQUIREMENTS

Is all component specifications, product literature, component models provided for Evaluation Committee bid determination? YES NO

X6.7 Will all parts, equipment, accessories, material, design and performance characteristics not specified herein, but which are necessary to provide a complete unit, be furnished with the unit and conform in strength, quality of material, and quality of workmanship to those which are advertised and provided to the market in general by the unit industry?

YES NO

X6.7.1 Are all parts and accessories adequate and regularly supplied as standard to be included except those which may be duplications of specifications herein, and except these by specification are not to be furnished?

YES NO

X6.7.2 Are all standard safety features that are required by Federal and State statutes of law included?

YES NO

X7.0 SPECIFICATIONS OF THE QUOTED UNIT

The bidder should complete the following schedule in order for the Division to compare the actual bid unit to the specifications. Should the bidder except a requirement, then such exception may be only on the basis that such feature is not offered by the manufacturer. The Division will have the sole discretion as to whether the bidder's substitution meets the requirements of the specifications.

Does unit have built in auxiliary battery charger which would enable batteries to be hooked up to an AC power source at the storage yard or off of a generator in the field

YES NO

Is charge time and charger version based on manufacturer's battery configuration

YES NO

Describe: _____

Manufacturer: Wanco Model: WTSP55-LSA-11

X7.1 Arrowboard:

X7.1.1 Is the arrowboard panel weather-tight: YES NO

Describe weather-tight design and materials used:

Laminated behind tempered low-iron glass

Arrow Board panel dimensions: 48 inches high x 96 inches wide

- X7.1.2 Height from bottom of panel to roadway 11 feet above roadway
- X7.1.3 Is the face of the panel flat black, with fifteen (15) hooded lamps?
 YES NO
- X7.1.3.1 Does lamp have five (5) inch amber LED with minimum angularity of 33 degrees
 YES NO
- X7.1.4 Modes of operation capability:
- X7.1.4.1 Right arrow – 10 lamps flashing in unison YES NO
- X7.1.4.2 Left arrow – 10 lamps flashing in unison YES NO
- X7.1.4.3 Double arrow – 5 lamps in each arrowhead and 3 lamps in shaft, all flashing in unison
 YES NO
- X7.1.4.4 Warning bar – 7 horizontal lamps flashing in unison YES NO
- X7.1.4.5 Four Point Caution – 4 outermost corner lamps flashing in unison
 YES NO
- X7.1.4.6 Indicator lights on back of panel YES NO
- X7.1.5 Is the unit flash rate 30 flashes per minute with a flash cycle time of two (2) seconds with 50 percent on time?
 YES NO
- X7.1.6 Will the unit reduce lamp brightness when the ambient light level drops below five (5) foot candles, plus or minus one (1) foot candle, and increase lamp brightness when the ambient light level increases to five (5) foot candles, plus or minus one (1) foot candle?
 YES NO
- X7.1.7 Unit's minimum distance of legibility: 1 mile(s)
- X7.2 Electrical System:
- X7.2.1 Does the solar generator incorporate a 12 Volt DC photovoltaic solar panel mounted on a self-erecting automatic positioning device located above the unit?
 YES NO
- X7.2.2 Is the battery bank of sufficient size and capacity to power the unit for 30 days without solar assist?
 YES NO
- X7.2.3 Are the batteries protected in a manner that will prevent damage due to overcharging or discharging to deeply at any temperature?
 YES NO

- X7.2.4 Does the unit have an external warning light, or other warning signal device, to indicate when the unit is in need of auxiliary charging prior to arrow shutoff? YES NO
- X7.2.5 Is the battery compartment vented, protected by an acid-resistant finish, and lockable? YES NO
- X7.2.6 Is the arrowboard controller housed in a lockable weatherproof enclosure? YES NO
- X7.2.7 Is unit safe guarded from any unwanted outside RF interference which would include but not be limited to VHF/FM receiver, 2-way radio receiver, cell phones, etc. YES NO
- X7.2.8 Is the unit equipped with an operational hour meter? YES NO
- X7.3 Trailer:
- X7.3.1 Is the trailer equipped with the following:
- X7.3.1.1 2,000 lb. axle with leaf springs YES NO
- X7.3.1.2 Tubeless standard tread tires and wheels YES NO
- X7.3.1.3 Heavy duty pintle eye hitch YES NO
- X7.3.1.4 Adjustable jack stand on trailer tongue YES NO
- X7.3.1.5 Adjustable jack stands to stabilize unit while in operation YES NO
- X7.3.1.6 Approved lighting and safety chains for highway use YES NO
- X7.3.1.7 Heavy duty light wiring for towing of unit with quick disconnect plug Cole Hersee Part Number 12081 male or equal YES NO
- X7.3.1.8 License plate brackets YES NO
- X7.3.1.9 Wheel fenders YES NO
- X7.3.1.10 Arrowboard raised and lowered using a hand operating winch (or hydraulic pump/ram) locked into place using latches of steel pins with keeper chains permanently attached to the unit YES NO

X7.4 Paint:

X7.4.1 Describe proposed method of painting the unit: powder coating
safety orange color oven baked

X7.5 Does the proposed unit meet or exceed the "Occupational Safety and Health Act of 1970" requirements and/or any subsequent changes at the time manufactured?

YES NO

X7.6 Does the unit conform to advertising guidelines?

YES NO

X7.7 List all other standard features considered as standard equipment but not specifically addressed in the specifications: _____

X7.8 Preventive Maintenance and Operator's Training School:

Will a preventative maintenance and operator's training seminar be provided with each order?

YES NO

If you are the successful vendor, will you furnish all training aids, i.e., videos, projectors, required in conducting the training?

YES NO

Will all manuals, booklets, etc. preventive maintenance, operator procedures, and service schedule be delivered with each unit?

YES NO

If NO, explain _____

Have you attached a copy of the proposed program with your bid, stating the time required to perform the program and brief description of program YES NO



5870 Tennyson St.
Arvada, CO 80003

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Fx: (303) 427-5725
Email: info@wanco.com

WECO TRAFFIC DIRECTOR SOLAR ASSISTED LED ARROW BOARD TRAILERS
(REVISED 07-20-2011)

1.0 SCOPE

The purpose of this specification is to describe all the standard WECO Solar Assisted Traffic Director Arrow Board Trailer(s) in detail. Models described vary by the number of arrow board lights.

15 light arrow board models
WTSP55-LSA-11

25 light arrow board models
WTSP55-LSAC-11

2.0 TRAILER CONSTRUCTION

- Frame**..... Frame constructed of structural tubing for maximum strength. All joints have continuous welds. Two tie down loops on front outer corners and one tie down at center rear secure trailer during shipping.
- Material**..... Square steel tubing; 2-1/2" x 3/16" wall.
- Decking**..... Structural deck with low center of gravity adding 350lb weight to improve stability and towing capability.
- Uprights**..... Trailer has two front uprights that are supported by 23 inch long structural steel gussets.
- Material**..... Rectangular steel tubing; 2" x 3" x 3/16" wall, arrow board pivot bolts have steel bushing through tubing.
- Height**..... Uprights are set so that when arrow board is raised, bottom of board is 84 " and when arrow board is in travel position the maximum height of trailer is 82" from ground.
- Fenders**..... Round, full wheel coverage. Inner splash panel on each fender.
- Material**..... Steel 16 GA, welded to trailer frame.
- Finish Coating**
- Pre-wash**..... Steel parts high-pressure washed and phosphated for added corrosion protection.
- Coating**..... Powder coated safety orange color and oven baked for maximum durability and corrosion protection.
- Salt spray resistance**..... 1000 hours (ASTM Method B117) with <1/8 in creep from scribe.
- Q.U.V. Exposure**..... 500 hrs QUV-B (ASTM Method D4587-05) >75% gloss retention.
- Axle Assembly**
- Axle**..... Tubular, 2000 lb capacity with 5-hole 4.5" B.C. circle pattern on idler hub.
- Springs**..... Double eye leaf, 1200 lb capacity for each spring.
- Tires**..... ST205/75D15 trailer tire, 15" diameter.
- Winch**..... Hand winch raises board from travel to operating position.
- Capacity**..... 1500 lb.
- Brake**..... Safety friction brake prevent arrow board from falling should operator loose grip on winch handle.
- Cable**..... 1/4" diameter galvanized aircraft cable.

Stabilizer legs

- Location..... One each corner of trailer, front & rear stabilizers angle outward at 30 degree angle. (Total four per trailer).
- Foot Print Dimension..... 74" Wide x 74" Long.
- Adjustable..... Adjustable on 1" increments.
Stabilizers locked in place by 3/8" diameter snapper pins. A lanyard fastens pin to trailer frame.
- Material..... Perforated 1 3/4" Sq. tube x 12GA wall. Foot pad 4" x 6". All sides turned up for easy positioning along roadway. Zinc plated.

Slide bar assembly

- Slide Bar..... Safety device, which locks arrow board in place for both travel and operating positions should winch or cable fail. Located on trailer front between uprights. No other locking pins required to lock board in up or travel position.
- Snapper Pin..... 3/8" diameter with latching wire prevents pin from coming out. Pin secured by lanyard to trailer frame.
- Plating..... Zinc Plated.

Trailer lights and plug

- Tail Lights..... Two combination stop, turn and tail lights protected by steel guards. Flush mounting under trailer frame.
- Reflectors..... Two red on rear of trailer. Two amber one on each front side.
- Light harness..... A single piece harness is riveted to trailer frame. Plastic molded connection plugs into drawbar light cable. Quick connect terminals at tail light make for easy service.

Drawbar Assembly

- Type..... Straight tubular steel design that is removable for shipping and for added theft protection if needed.
- Material..... Square tubing, 3" x 3/16" wall.
- Length..... Extends 60" beyond trailer frame.
- Mounting..... Telescopes inside trailer frame receiver, secures with two 1/2" diameter bolts.
- Hitch..... 2" Ball coupler SAE Class 2, 3500 lb capacity.
Bolts to drawbar, easy to repair if damaged.
- Jack..... Top wind swivel, 2000 lb capacity steel base foot. 10" total travel.
- Tail light cable..... A sealed molded cable assembly plugs drawbar wiring into trailer wiring.
A molded flat four connector plugs into tow vehicle.

Battery Box Assembly

- Location..... Front passenger side of frame.
- Material..... 16GA Steel.
- Access..... Bolted cover with access door for manual and optional charger.

Decals

- Safety/ Wiring..... A battery safety warning label and system wiring label located on lid.

2.1

Batteries

Type..... Sealed Lead-Acid maintenance free.
 Features..... No water lost during discharging and recharging, great freeze protection, compact, light weight.
 Nominal Voltage..... 12Vdc
 Capacity.....25Ah @ load 170mA
 Dimensions.....7.2" x 3.0"x 6.6"
 Weight..... 12.5 lb
 Number of Cycles..... Approximately 300 -500

Number of Batteries

Standard 15 and 25 light models..... Two
 Total capacity..... 50Ah

3.0

Solar charging system

Type..... Photovoltaic (Solar) with AC battery charger backup as optional.
 Location..... Solar panel(s) mounted above arrow board for continuous no shadow charging.
 Pivoting system..... Solar panel(s) pivot with the movement of the arrow board. Charging happens when arrow board is both in travel and operating position.
 Mounting brackets..... The solar panel mounting brackets are robust and secure the solar panel. Two lifting arms, one on each side of the solar panel, keep the panel rigid. The solar panel is attached to the pivot frame with security hardware for added theft protection.
 Solar system regulator.....Charging controlled by the arrow board controller.

Number of Solar Panel(s)..... One
 Wattage Per Panel (Pmax)..... 50 Watts (+/-10%)
 Rated Voltage at Pmax..... 17.3 V
 Rated Current at Pmax..... 2.89A
 Rated Short Circuit Current..... 3.22A
 Rated Open Circuit Voltage..... 21.6V
 Operating Temperature..... -40deg C to +85deg. C
 Panel Construction..... Solar cells are laminated behind tempered low-iron glass. The back of white tedler and the assembly is sealed and surrounded by extruded anodized aluminum frame.

Board Material

- Front & Rear Panels..... Aluminum sheet, 0.063 thick
- Frame..... Aluminum channel 3" x 1" x 1/8" thick, two top to bottom channels positioned to prevent oil canning of panels.
- Welding..... Channels welded together for maximum strength.
- Finish Coating
 - Pre-wash..... Aluminum parts high-pressure washed and phosphated for added corrosion protection.
 - Coating..... Powder coated flat black (10% gloss) color and oven baked for maximum durability and corrosion protection.

4.1

Controller

- Location..... On right side (curb side) of trailer upright. Easily removes by four nuts for servicing.
- Type..... Self-contained solid state electronics. No Mechanical Relays.
- Rotary Switch selection..... Arrow modes selected by rotary switch not touch pad.
- Material..... Aluminum sheet, weather proof lid with hole for customer pad lock.
- Cable protector..... A plastic molded cover fits over back of controller protecting the wiring from de-icing road chemicals or excessive moisture.
- Number of modes (or functions)
 - 15 light Arrow Modes..... 7 total arrow modes
 - 25 light arrow modes... ..12 total arrow modes

FLASHING MODES

Models: Both

Left & Right Arrows (10 total lights)

- 5 lights form arrow head
- 5 lights form stem

Double Arrow (13 total lights)

- 5 lights on each arrow head
- 3 lights form stem

Caution Bar (7 total lights)

- 7 lights in center of board horizontally

Corner Caution Warning (4 total lights)

- 4 lights, one on each corner

Model (25 light) WTSP55-LSAC-11

Alternating diamond warning (16 total lights)

- 8 lights on each end of board form diamond shape. Each side alternates flashing.

SEQUENTIAL MODES

Models: Both

Left & Right stem arrows (10 total lights)

- First pulse- two far stem lights
- Second pulse- four far stem lights
- Third pulse- full shape of arrow pattern including head
- Fourth pulse- Blank display

Models (25 light) WTSP55-LSAC-11

Left & right Chevrons (15 total lights)

- First pulse- five light arrow head
- Second pulse- two five light arrow heads
- Third pulse- three, five light arrow heads
- Fourth pulse- display blank

Left & Right Sequential Stem Arrow (21 lights)

- First pulse- One five light arrow head, 2 light stem
- Second pulse- Two five light arrow heads, with stem
- Third pulse- Three, five light arrow heads, with stem
- Fourth pulse- Blank display

Controller Continued

Flash Rate..... All flashing modes have flashing rate 30-40 per minute.
Automatic Dimming..... Photocell located on bottom of control box, unaffected by oncoming vehicle headlights, dims light output by 50% when ambient light level drops to 53.8lux.

Safety features

Positive drive circuit..... Positive power is given to lamps only when needed to light lamp.
Negative is chassis grounded
Fuse protection..... Electronic automatically resettable fuses.
Reverse polarity..... Protects the controller if battery cables are connected backwards
Low voltage warning The control box contains a warning LED, which lights-up when battery voltage drops to 11.5Vdc.
Low Voltage Disconnect.. The control box contains a low voltage disconnect system and red LED indicator. The control box will shut off the arrow board when battery voltage drops to 11.2 Vdc protecting the batteries from complete drainage and damage.
Solar panel LED indicator. A LED on the control box lights-up when the solar panel is charging.

Dimensions and Weights

Length with drawbar..... 114.5" (290.8cm)
Length without drawbar..... 63.0" (160.0cm)
Arrow board width..... 96.0" (243.8cm)
Trailer frame width..... 72.0" (182.9cm)
Operating height..... 134.5" (341.6cm)
Traveling height..... 94.5" (249.0cm)
Approximate weight..... 1200 lb (544.3kg)

5.0

Optional Equipment / Features

Optional Battery Charger

Location..... Inside battery box access door.
Standard Charger
Recommendation..... Use with VRLA 12Vdc battery bank
Output capacity..... 2 A
Input voltage..... 120Vac
Plug..... USA standard 115V
Fuse protected..... with line fuse.
Reverse polarity protected.
3-stage charging
Battery overcharging protected.
Can be connected and turned on indefinitely to maintain battery charge.

Trailer Options

Pintle hitch..... Standard ring hitch, 2-1/2"ID x 1" cross section ring. Bolts onto standard drawbar. Hitch zinc plated for added corrosion protection.
Heavy duty hitch, 3"ID x 1-5/8" cross section ring. Bolts onto standard drawbar.
Combination Hitch..... A standard 2" diameter ball hitch and a 2-1/2 pintle hitch are mounted on bracket. Used with vehicle fleets with mixed tow hitched
Four corner swivel jacks..... Instead of drop down jacks with snapper pins, four tongue style jacks with hand cranks are mounted on four corners of the trailer.
Tail light plug adaptors..... Convert a flat-four trailer plug to match various tow vehicle plugs. Contact factory to match exact plug.
Outriggers..... Telescoping outriggers: Foot print of stabilizers with outriggers extended: 107.5" Long x 74.625" Wide.