

**APPENDIX A**  
**Description of Materials, Supplies, Equipment and Bid Price**  
**POST MOUNTED PORTABLE RADAR SPEED SIGN SPECIFICATIONS**

**Contractor** \_\_\_\_\_

**SCHEDULE OF ITEMS**

The Department will reject bids if any one of the following occurs:

- a) the Bid is not Delivered to the precise location and by the precise time set forth in the Notice to Contractors or any applicable Bid Amendment,
- b) the Bid is not signed, or
- c) the unit price for any item is not provided or is unreadable.

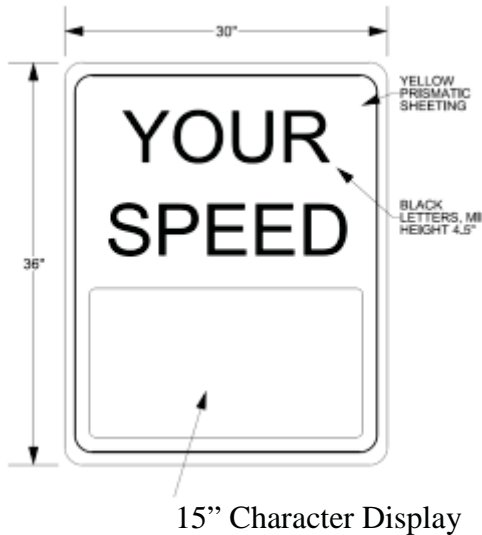
Do not make handwritten changes to the bid documents. The Bidder will have no opportunity to cure the above Non-curable Bid Defects. For clarification, questions, comments/recommendations use the "Request for Information" form as directed in the Bid Book instructions. For a related provision see Standard Specification, Section 102.11 – Bid Responsiveness.

Item Number	Item Description	Estimated Quantities & Units	Unit Price \$/Per Each
643.77	Dynamic Speed Feedback Sign	52 Each	\$
TOTAL BID			\$

\_\_\_\_\_  
*(Print Respondent's Name and Title)*

\_\_\_\_\_  
*Signature*

Item 643.77 Dynamic Speed Feedback Sign



Basis of Payment

The accepted quantity of Portable Radar Speed Signs will be paid for by Each and will be full compensation for the speed feedback sign, mounting hardware for u-channel and wood posts, any software/firmware, solar panels, batteries, mounting hardware for solar panels, shipping/delivery/unloading signs to MaineDOT Sign Shop, 66 Industrial Drive, Augusta, ME 04330.

Payment will be made under:

<i>Pay Item</i>	<i>Description</i>	<i>Pay Unit</i>
643.77	Dynamic Speed Feedback Signs	Each

Description

The intent of this specification is to describe a portable, post mounted, Radar Speed Sign and the associated requirements of supplying these signs to the State of Maine (State) Department of Transportation.

These signs may be installed in stationary locations at any location in the State or moved around as necessary. These are used year round at unattended locations and must be completely suitable for operation in (sun, rain and snow) in temperatures ranges of -20 degrees Fahrenheit to 120 degrees Fahrenheit without any maintenance. In addition to the technical specifications, this document details vendor supplied documentation, equipment, and responsibilities for each order.

The sign shall consist of a radar, display board, power system, and a controller assembly, all mounted in a portable case able to be deployed by a single person. The Dynamic Speed Feedback Signs shall meet these specifications.

Delivery

The Contractor shall deliver the materials to the MaineDOT Sign Shop at 66 Industrial Drive in Augusta, ME. The Contractor shall notify MaineDOT, Stephen Landry, 207-557-0347 a minimum of one week prior to delivery for delivery coordination. Alternative contact is: Robert Rooney, 287-2846. The Contractor shall deliver the materials only during the following times: Monday through Friday, 7:00 AM through 3:30 PM except for deliveries may not be made on holidays, or government closure days. The Department will not off-load the materials at the delivery site.

Contract Administrator

The contract administrator for this contract will be:

Name: Stephen Landry  
Title: State Traffic Engineer  
Address: Maine Department of Transportation  
16 State House Station, Augusta, ME 04333-0016  
Phone: 207-557-0347

Invoices and Payments

The Contractor shall submit an itemized bill to the Department for materials following delivery for approval and payment. Invoices shall include the following minimum information:

Contractor name, address & Contract Number  
Invoice Date & Number  
Dates of Delivery

The Department will pay based upon prices bid and the invoices provided and accepted.

No such payment will be made if, in the judgment of the Department, the Materials are not in accordance with the provisions of the Contract.

The Acceptance by the Contractor of the final payment, as evidenced by cashing of the final payment check, constitutes a release to the Department from all claims and liability under the Contract. Upon Final Acceptance, the Contractor is released from further obligation, except for warranty obligations provided for in this Contract.

Payments to the Contractor shall be full compensation for furnishing all labor, equipment, materials, services, and incidentals used to supply the materials under the Contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of any kind arising from the nature or prosecution of the Work.

No payments due the Contractor will be adjusted for inflation. No interest shall be due and payable on any payment due the Contractor.

#### Dispute Resolution

If, in the performance of this Agreement, there arises a dispute between the Contractor and MaineDOT that cannot be resolved by the parties to the Contract, the parties may agree to submit the dispute to non-binding Alternate Dispute Resolution. All disputes shall be governed by Maine law, and all actions shall be filed in the Kennebec Superior Court, in Augusta Maine.

#### Conformity with Standards

Unless otherwise provided in the contract, all materials shall conform to the following standards, as applicable.

- A. MDOT
- B. AASHTO
- C. ASTM
- D. AREMA
- E. Standard conditions and special conditions contained in any permit
- F. Manual on Uniform Traffic Control Devices (MUTCD)
- G. American with Disabilities Act (ADA)

#### Material Quality

Materials and manufactured products shall be new unless otherwise specified, free from defect, and in conformity with the contract. If there is no applicable standard set forth in this Contract for a particular item, then the item shall be in accordance with industry standards prevailing at the time of bid. The Department has the authority to inspect all Materials and every detail of the Work.

When material is fabricated or treated with another material or where any combination of materials is assembled to form a finished product, any or all of which are covered by specifications, the Department may reject the finished product if any of the components do not comply with the specifications. The Department may reject materials not conforming to the Specifications at any time.

#### Material Specification

The following requirements and criteria for these units shall be met completely.

**Any entity that has submitted a particular sign model for review in the past and the sign failed the testing period, is not eligible to submit that model for this project unless accompanied by documentation that indicates the issues with the sign have been rectified.**

MaineDOT reserves the right to lessen the 30 day testing period if it finds that the board does not meet specifications.

**Within seven days of submission of bid, the Bidders shall send one (1) Radar speed sign to the Department for 30 days of testing.**

The award will be on a best value basis and the Department's determination of the signs that meet or most closely meet the specifications. Award may be offered to the vendor with the lowest cost that meets or most closely meets the specifications. No payment will be made to vendors that are not selected. Bidders that are not awarded the contract may pick up their signs following testing.

Bidders shall arrange for the delivery of the signs to be tested with the Contract Administrator. Signs for testing shall be delivered to the MaineDOT Sign Shop at 66 Industrial Drive in Augusta, ME and identified by the Bidder's name and address and labeled "WIN 23006.00." The Contractor shall deliver the materials only during the following times: Monday through Thursday, 7:00 AM through 3:30 PM except for deliveries may not be made on holidays, or government closure days. The Department will not off-load the materials at the delivery site. Alternative contact is: Robert Rooney, 287-2846.

**Complete all checklists. An X will have the same meaning as standard or specified equipment.**

**Make note of all exceptions and identify as not available or dealer installed.**

**The following abbreviations must be used:**

- X Standard or as specified
- N/A Not Available
- DI Dealer Installed
- AE Approved equal process

Item # 1 DISPLAY SPECIFICATIONS

- \_\_\_\_\_ 1.1 Dimensions: The traffic facing surface shall not exceed 30" Horizontal and 36" Vertical (MUTCD speed limit dimensions for multi-lane road)
- \_\_\_\_\_ 1.2 Character Display: The display shall be capable of displaying two (2) 15" high characters
- \_\_\_\_\_ 1.3 Message Display: The display shall be capable of displaying the message "Slow Down"
- \_\_\_\_\_ 1.3 Weight: The sign unit including the sign and dynamic brick with power cord shall be less than 40lbs
- \_\_\_\_\_ 1.4 Finish: The inside of the display enclosure shall be painted black to facilitate heat dissipation.
- \_\_\_\_\_ 1.5 Glazing: If the display modules are not weatherproof, they shall be protected by a watertight sheet of non-yellowing UV-protected acrylic or polycarbonate.

\_\_\_\_\_ 1.6 General: The unit shall meet the requirements of the MUTCD.

Item # 2 DATA SYSTEM

\_\_\_\_\_ 2.1 Display: The unit shall be able to accurately display the speed of approaching vehicles.

\_\_\_\_\_ 2.2 Alert: The unit shall have a method of informing the driver they are exceeding the set speed limit. (flashing, written message, etc.)

\_\_\_\_\_ 2.3 Logging: The speed and time of all approaching vehicles shall be logged and stored in an easily accessible format.

\_\_\_\_\_ 2.4 Stealth: The sign shall be capable of logging vehicles at all speeds without activating the display

\_\_\_\_\_ 2.5 Data Collection: The data shall be accessible by an external device. Data collection software will be supplied with the sign which will provide for data collection, report generation with tabular and graphical presentation, local data storage, and data dissemination.

\_\_\_\_\_ 2.6 Sign Programming: Any software required to program the sign shall be supplied with the sign. The sign shall be able to be set to different trigger speeds.

Item # 3 POWER SYSTEM

\_\_\_\_\_ 3.1 Power System: The sign shall be powered by batteries that can be fully recharged within one hour by 120 volt AC power.

\_\_\_\_\_ 3.2 Batteries: The number and amp hour rating of batteries shall be sufficient to operate the speed sign for 168 hours, at maximum brightness, continuously with no recharging and no solar assist. This load shall include all communications and control devices. Low voltage cutoff which may disconnect the batteries, before full discharge, will be included in this requirement. This will be confirmed with field measurements of actual current draw.

\_\_\_\_\_ 3.3 Power control circuitry: The power control circuitry shall protect the batteries from overcharging by the 120-volt and solar chargers. It shall also protect the all components from damage in the event of a short circuit, overload, or similar problem. It shall disconnect the load from the batteries when further discharging could damage the batteries.

\_\_\_\_\_ 3.4 Battery Type: Any batteries shall be of a composition that will allow the battery to recharge at low temperatures (below 32°), normally a lead acid base.

\_\_\_\_\_ 3.5 Solar Power: the solar panels will be capable of charging the batteries off a single hour of sunlight. Any connections between the solar panel and sign will be of a type that can be connected and disconnected without the use of tools (plug and play).

Item # 4 INSTALLATION

- \_\_\_\_\_ 4.2 A permanent mounting structure may be attached to a pole so as other components (radar detector, display, power system, communications) can easily be installed/ removed by a single person.
- \_\_\_\_\_ 4.1 All parts of the installation required for operation shall be portable, in that they can be installed / removed by a single average person in under 30 minutes (not including permanent mounting devices). **Banding is not an accepted type of mounting.**
- \_\_\_\_\_ 4.3 It shall be possible to mount/ remove the portable sections of the sign with minimal unpowered hand tools (screwdriver, wrench)
- \_\_\_\_\_ 4.4 A method of locking the sign to the post/ mounting structure shall be used so that the sign cannot be removed by unauthorized individuals.

Item # 5 TESTING

- \_\_\_\_\_ 5.1 The manufacturer shall test the signs and spare parts. The manufacturer shall develop the test procedures and revise them as necessary to meet the Engineer's approval. Prior to the testing, the manufacturer shall deliver all signs and spare parts to the Department's facility at 66 Industrial Drive, Augusta, and shall conduct all the tests in the test plans, and shall correct any deficiencies found.
- \_\_\_\_\_ 5.2 When the manufacturer is confident that the sign and parts will pass the test, he shall arrange for the Department's representative's to witness the testing. He shall contact the Engineer at least two weeks in advance of the proposed testing date and shall arrange for testing to begin at a mutually convenient time. All testing will be done on the same day (or two days, if necessary) at a location picked by the Department. The manufacturer shall provide all materials and equipment needed for testing and shall prepare a written report of the test results.
- \_\_\_\_\_ 5.3 Sign Testing: The test procedure shall be designed to uncover manufacturing defects and shipping damage of all types. The test shall include a visual inspection of the sign. Among the aspects that must be tested are the following:

All diagnostic routines provided by the manufacturer.

Proper operation of every pixel, including uniform brightness at all brightness levels and proper current consumption.

Proper wiring of the display modules, checked by displaying a 2 digit number

Appropriate display brightness for day and night conditions, and brightness when the sun at its worst condition for the location.

Proper aiming of the display modules.

- \_\_\_\_\_ 5.4 The test plan shall test every interface, feature, and function of the software, including features present but not required by these specifications. The testing shall demonstrate that the software deals appropriately with communication errors and operator errors. The testing shall confirm that the signs can be monitored and controlled from each of the Department's computers on which software was installed.
- \_\_\_\_\_ 5.5 Spare Parts Testing: Test the parts by substituting them into a working sign.

Item # 6 SUPPORT

- \_\_\_\_\_ 6.1 Technical Support: Phone numbers provided for technical support must be attended by a person who can answer questions or promptly find the answer to questions. An answering machine or answering service does not constitute technical support. The telephone support required by these specifications shall be provided at least eight hours a day on all work days.
- \_\_\_\_\_ 6.2 On-Site Support: The manufacturer shall have a representative present when the installation contractor installs the first sign. The representative shall observe the installation, provide additional training to the contractor as required, and ensure that the sign is installed correctly. If the manufacturer's representative is not confident that the contractor can install the remaining signs without assistance, the representative shall immediately notify the Engineer.
- \_\_\_\_\_ 6.3 Telephone Support during Installation: The manufacturer shall provide telephone support to the installation contractor during installation. This support shall be available until all the signs have been installed.
- \_\_\_\_\_ 6.4 Telephone Support for Operation and Maintenance: The manufacturer shall provide telephone support to the Department's operations and maintenance staff for a period of one year following the acceptance of the signs.

Item # 7 PAINT

- \_\_\_\_\_ 7.1 All metal shall be free of rust and mill scale and prepared (beadblasted) for primer and finish paint coat.
- \_\_\_\_\_ 7.2 A two (2) part epoxy primer shall be applied to prepared metal surfaces to the minimum thickness of 3-5 mils dry.
- \_\_\_\_\_ 7.3 All paint and primer shall be lead free.

Item # 8 WARRANTY

\_\_\_\_\_ 8.1 One year parts and labor, or standard manufactures warranty shall apply whichever is greater. Warranty shall begin on the date unit is actually put into service by MDOT Fleet Services.

Item # 9 GENERAL

\_\_\_\_\_ 9.1 Wiring: All wiring shall be inaccessible to vandals. All external wiring shall be enclosed in liquid-tight flexible conduit or flexible non-metallic tubing. All wiring and connections shall be of sufficient size to support all maximum currents continuously with a maximum of 5% percent voltage drop, including an “all pixels ON” display, for at least three (3) hours. All wiring installation shall meet or exceed National Electrical Code Articles 300 and 310 methods and requirements.

\_\_\_\_\_ 9.2 Labeling: All terminals and connections shall be clearly labeled. Labels shall be permanent.