



**Purchasing Department  
73 Harlow Street  
Bangor, Maine 04401  
Tel. 207-992-4282**

**Request for Bids  
Plow Equipment and Truck Body  
Issue Date: August 19, 2016**

**I. Introduction**

The City of Bangor requests bids for the purchase and installation of one (1) heavy-duty plow and wing assembly, dump body, and hydraulic system to operate on tandem axle plow truck. The complete unit will be used for construction work and plowing snow.

**II. General Information**

General information is available on the City's website at the following web address: [www.bangormaine.gov/proposals](http://www.bangormaine.gov/proposals). By submitting a response to this solicitation, the bidder accepts the responsibility for downloading, reading and bidding by the terms and conditions set forth in the City's "General Information for Vendors".

**III. Submission**

To be considered, return pages 4-11 of this Request for Bids in an envelope clearly marked **"Plow Equipment"** by **2:00 PM, Wednesday, September 7, 2016** to the Purchasing Department, City Hall, 73 Harlow Street, Bangor, Maine 04401.

Bids may also be submitted via email by using the link at the top of this page or by sending to: [bids@bangormaine.gov](mailto:bids@bangormaine.gov). If emailing bid, please reference **"Plow Equipment"** in the subject line. Bids will be publicly opened at the time stated above.

A tabulation of all bids received will be available within 24 hours of the date of opening. Bid results may be viewed by visiting the City's website at [www.bangormaine.gov/bidtabs](http://www.bangormaine.gov/bidtabs).

**IV. Questions**

All questions must be directed in writing to [bids@bangormaine.gov](mailto:bids@bangormaine.gov) no later than **4:30 PM, Thursday, August 25, 2016**.

The City will issue a response to any questions or inquiries submitted in writing by the date above, on or before **4:30 PM, Monday, August 29, 2016**. The response will be in the form of an addendum, which will be available made on the City's website.

## **V. Withdrawal of Bids**

No Bidder may withdraw his/her bid for a period of ninety (90) days from the date of opening. All bids shall be subject to acceptance by the City during this period. To withdraw a bid prior to the opening, the bidder shall request the withdrawal in writing. All costs associated with the withdrawal (i.e. mailing fees) will be borne by the Bidder.

## **VI. Award**

The bid award will be based on the following:

- Price of equipment offered.
- Quality and performance of equipment offered.
- Availability of equipment and parts.
- Prior history or experience with the Bidder and equipment (if no history or experience, references will be required).

## **VII. Information & Requirements**

1. Pages four (4) through eleven (11) of this request must be completed and returned with all questions answered in order to be considered.
2. In Section IX: Specifications, the bidder is asked whether they comply with the referenced sections. Caution should be taken by the Bidder to ensure that all questions are answered and that all information requested is provided.
3. All bids must include a comprehensive list of any exceptions to the specifications as noted herein for each component of the vehicle. An explanation of any items that do not meet specifications must be included with specific reference to the item. Failure to comply with this request may result in disqualification. If any unapproved exceptions are found in the delivered equipment, payment will be withheld until they are rectified.
4. The entire unit must be thoroughly inspected, serviced and ready for use upon delivery. All work performed must meet established industry standards of quality to be acceptable to the City. Any unacceptable work must be corrected before the City will issue payment.
5. The bid award will be based on one or more of the following:
  - a. Price of equipment offered and cost of replacement parts;
  - b. Quality and performance of equipment offered;
  - c. Availability of equipment; and
  - d. Prior history or experience with the Bidder, and prior history or experience with the equipment offered.

6. A price for the manufacturer's extended power train warranty is requested. The extended warranty shall be for a period of eight (8) years beyond the manufacturer's standard warranty period and shall include the engine, transmission and rear axle. The City reserves the right to reject the proposed warranty.
7. The City of Bangor reserves the right to reject any or all bids, to waive informalities or defects in bids, or to accept a higher cost bid if such action is deemed to be in the best interest of the City of Bangor. The City also reserves the right to negotiate with the low Bidder.
8. All Federal and State taxes must be excluded from the bid price. A tax exemption certificate for the City of Bangor shall be furnished to the successful Bidder upon request.

Vendor Name: \_\_\_\_\_

## VIII. Specifications

### 1. Plow Equipment: Shall be a power reversing trip edge snow plow with polymer moldboard.

- A. Cutting width: 11 ft. @ 0° and 9'6" @ 30°;
- B. Overall width: No greater than 11 ft.;
- C. Cutting edge shall have an option to be one (1) or more trip edges;
- D. There shall be two (2) moldboard shoes and two (2) curb shoes;
- E. Shall be one (1) turn adjustable crank jack;
- F. The moldboard shall not be less than 39" in height and shall be made of new polymer material (not recycled). It shall be color impregnated to an orange color;
- G. There shall be a rubber deflector mounted at the top of the blade, minimum 8 inches;
- H. The reversing shall be achieved with two (2) double acting cylinders. These cylinders shall have nitrated rods and must carry a minimum three (3) year warranty. A cushion valve must be built into these cylinders for protection;
- I. All cutting edges shall be 12" standard punch, 5/8" x 8" Top punch carbide cutting edges.
- J.

### 2. Front Hitch:

- A. The front hitch shall be power tilting by the plow lift cylinder; the front tilt/detach hitch must be outfitted with screw jacks and stiff arm devices such that the main lifting device can be easily removed while attached to the front plow assembly. Once detached, the lifting device and plow will be free standing and sturdy enough to present no safety issues (i.e. falling over);
- B. 31" plow pin centers with three (3) adjustable setting heights;
- C. Four (4) 1-1/4" diameter pins attaching hitch to truck;
- D. Unit shall have a 48" front hydraulic wing post, bolted to frame;
- E. Control valve to power tilt must be external, mounted at LF corner of hitch;
- F. Front upright supports must be constructed from 1/4" tubing.

### 3. Patrol Wing Unit:

- A. Under slung hydraulic wing lift, low profile front post with cylinder. Unit shall be low mount patrol type with fixed bracket and weldment on rear;
- B. Overall length shall be 11 ft. with Carbide cutting edges; 12" standard punch X 5/8" X 6"
- C. Front height shall be a minimum of 32" at opening and a minimum of 38" at the rear;
- D. Wing shall trip by means of a front trip block, using a rubber "timbren" bushing, allowing the wing to trip upward and forward when an obstacle is encountered, approximately 30°;
- E. Two (2) moldboard shoes are required;
- F. Front and Rear of wing shall incorporate an integral float;

- G. Moldboard skin shall be 3/16" steel;
- H. Wing's rear sliding support shall have a removable pin to allow for detaching the rear slide hydraulically by use of the rear lift cylinder; control valve shall be mounted at rear;
- I. The three point attachment shall have a rollaway cart to allow the attachment to stand when detached;
- J. Wing must have the ability to be held up to prevent falling from the upright position. All necessary equipment must accompany the completed truck;
- K. The wing end of the push arms shall mount into a mechanical float system;
- L. There shall be a work light mounted so as to see the rear of the wing; and
- M. The wing push arms shall be mechanically restricted so as to not allow the wing the capability of striking the cab mirror or door, and adjustable in length to provide varied clearing path widths.

#### 4. Dump Body:

- A. Shall be a unibody dump body with no crossmembers and shall be 12' long and a minimum 88" wide, inside length by width;
- B. Hold approximately 10 to 12 cubic yards at minimum and have a tailgate height of approximately 50";
- C. The entire body shall be fabricated with 205,000 psi / Hardox 450 steel sheets;
- D. The floor of the body shall be 1/4", quenched and tempered 205,000 psi / Hardox 450 steel with radius corners;
- E. A 30" cab shield integral with the front of the body;
- F. A provision for extension sideboards at the top of the siderails;
- G. The sides shall be constructed with unspliced sheets of 3/16", 205,000 psi / Hardox450 material featuring dirt shedder cat walks
- H. A fold down ladder shall be provided and located at the outside on the left front side of the body with a shovel holder on the left front corner; a second ladder on the inside of the body located in the left front corner to allow an exit from inside the body to the outside ladder.
- I. The tailgate shall be double acting; it will also have a manual locking mechanism;
- J. The tailgate shall have an air trip release mechanism with 3/8" Grade 70 spreader chains and pin type plates to secure tailgate;
- K. Painted to match cab, frame painted black;
- L. A "body up" warning light must be mounted in dash;
- M. Body dump control valve mounted with plow controls, using different length shaft and handle;
- N. An OSHA approved safety prop rod shall be mounted;
- O. The body hoist shall be double acting cylinder telescopic design, mounted so that the large end of the cylinder is down;
- P. The cylinder shall be Hydraunite design and carry a full two (2) year warranty. The cylinder shall be saddle mounted to the chassis frame, and have a minimum capacity rating capable

to lift the body load requirements. The City of Bangor prefers to have the cylinder mounted on the outside of the body; and

Q. All lights mounted either on or in the body must be LED type lights. There shall be four (4) strobe lights, stop, tail, turn and back up lights mounted in the rear corner posts of the body.

➤ Does the Bidder comply with the requirements of Section VIII, Subsection 1-4?  
\_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Initials

5. Hopper Sander:

A. The City is planning on re-using its currently owned Swenson EV 100 SS hopper sander. All controls and hydraulics must be fitted to this unit and tested before delivery.

6. Spreader Control:

- A. The spreader controller shall be capable of operating the following: a Granular spreader with auger/conveyor, spinner, Pre-Wetting system, and a 3 booms, slip in Anti-Ice system. Each function shall operate individually or simultaneously without additional controller hardware.
- B. Spreader control system shall be capable of ground speed orientated Closed or Open Loop operation. Controller will be capable of spreading in Kg per kilometer (linear spreading) or Kg per lane kilometer (area spreading). The controller shall be capable of temperature controlled operating mode with supervisor set points, automatically applying material in correlation to measured road temperature. The system controller shall be capable of ground speed oriented, closed or open loop spinner control. System shall provide a means for operator to reset and/or indicate current volume of liquid in anti-ice and pre-wet tank(s) as part of power-up routine. System shall display current liquid volume in tank(s) while pre-wet and/or anti-ice system is active. The system controller shall be capable of managing up to three Anti-ice boom operations with individual boom selection in a single or dual tier arrangement.
- C. Spreader controller shall have a single 240 by 64 pixels Liquid Crystal Display. Spreader control display shall have a blue luminance filter. Display shall be capable of simultaneous display of Granular, Pre-Wet, and Anti-Ice application rates. Display shall also show other sensors (Temp, GPS, etc) as well as actual ground speed and all active alarms.
- D. Spreader controller must provide "on-screen help" documentation of all main operating functions as well as on screen diagnostics for system issues. On-screen help shall be sufficient to enable users to operate the system by following the on screen instructions, without referring to the printed operations manual.
- E. System shall alarm either audibly or visually for the following conditions: off rate, sensor failure, low liquid remaining, low liquid flow shutoff.
- F. Material rates, granular or liquids shall be by toggle actuation (+/-). Toggle paddle actuation shall cause the display to respond accordingly: The first toggle touch shall cause the display to show the current rate set point. The second toggle touch and all subsequent toggle actuations shall increase or decrease the current rate set point.
- G. System shall provide up to 10 "supervisor settable" application rates in each of granular, Anti-Ice, & Pre-Wet materials. Controller must provide the ability to name each material with up

to five characters. Rate increments shall be individually settable for each material.

- H. The controller shall offer multiple layers of access control to set up files:
  - I. "Factory standard" password protected access to operating functions and setup files;
  - II. Supervisor re-set capability for each password;
  - III. "Laptop computer only" access control for higher security.
- I. The controller shall have a Blast feature that is capable of operating as: Latched On, Timed On or Momentary On. Blast is active only while operator is activating Blast switch and is disabled in absence of ground speed signal. The controller will default to the pass mode upon startup of the system to prevent spreading in the yard or shop.
- J. Wiring Design: The system controller shall have one each from each hydraulic valve coil wired to a common ground point. The system must supply pulsed +12 volt power to the other lead for each individual valve coil. For safety reasons, grounding or cutting any wire at any point between any valve coil and the controller must not cause any valve to actuate. The system shall include minimum rated IP69 connections for all "outside the cab" connections.
- K. The spreader controller shall be capable of collecting time, date and location stamped events for all operating modes, errors and alarms, and for all material dispensed. Also the system shall be capable of recording digital or analog data that comes from up to 4 sensors (such as granular hopper level, gate height opening, granular material flow, plow position, hydraulic pressure, etc). The spreader control system shall be capable of collecting and storing position data directly from a compatible GPS antenna without additional hardware as well as collecting and storing temperature from vehicle mounted temperature sensors (Road Watch or CPI brands).
- L. Data Collection: System must contain at least 512 megabytes of non-volatile memory on board and have the capacity to store spreading data for a minimum of seven days at 24 hours per day (one hundred sixty-eight continuous hours).
- M. Spreader control system must interface for automatic downloading of data in a wireless fashion directly to a base station computer without an intermediate device; system must be capable of downloading data at a minimum of 1.5 megabits per second (mbps). System must be capable of storing downloaded data in a format that is compatible with the standard data input format for GIS systems ("shape file format").
- N. Spreader control system must be able to output its data in a standard serial data stream format to any brand AVL system that is able to accept serial data.
- O. All required computer hardware and software must be supplied, and installed by the successful Bidder. Training shall be provided to all City personnel using this equipment. Any supplemental equipment required for downloading or the retrieval of pertinent information or system settings must be supplied by the successful Bidder.

➤ Does the Bidder comply with the requirements of Section VIII, Subsection 5-6?  
\_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Initials

7. Hydraulics System:

This system will be used to operate a plow and wing assembly and a dump body.

- A. Variable displacement piston pump, 40 gpm minimum. Front mounted with 1280/1310 series drive shaft components; and
- B. The hydraulic tank capacity shall be 40 gallons and be equipped with a sight gauge, spin-on hydraulic filter, and a swing valve shut-off in both inlet and outlet lines. A return manifold is preferred in place of a series of pipe fittings connected directly to the tank. The tank shall be mounted on the truck frame so it can be both filled and drained easily. The tank shall have an electric low oil level indicator, as well as an in tank heater.

8. Hydraulic Valving:

- A. Central hydraulic system valving shall be the mobile design to withstand exposure to anti/deicing chemicals and severe weather conditions. It shall be cast iron construction, horizontally stackable and serviceable without disassembly and mounted in a weather tight enclosure;
- B. Each section must have a built-in flow and pressure compensator to allow simultaneous operation regardless of any other system function; there shall be a two (2) cartridge electric sander valves; one for spinner control and one for the auger for individual control;
- C. The hydraulic valve will be controlled from inside cab by remote cable controls. Cable shall be stainless steel core with no less than 100 lb. rating for pushing and pulling. Cable connection to valve spool must be enclosed and sealed with protective bonnet. The cab control levers must be capable of being stacked and tied together in desired order. Control Cables and Levers to be Wescon;
- D. The hydraulic system shall be plumbed using stainless steel piping to both the front and rear of the chassis. Short pieces of hosing shall be utilized at junction points. All pins shall be secured by use of padded brackets and shock mount clamps;
- E. All hoses will have male pipe thread connections on both ends. The attachment points will have a female swivel fitting;
- F. All removable attachments shall have hydraulic couplers (flat-faced). A drain manifold shall be utilized at each quick coupler point to relieve hydraulic pressure during coupling operations; and
- G. There shall be a front remote to operate the lift cylinder on the front hitch and two rear post remotes to operate the rear post slide and wing arms.

9. Pintle Hitch and Trailer Hook Up:

- A. 24 ton swivel style pintle hitch, centerline mounted - approximately 29 inches above level ground. Mounted on a plate with D-rings;
- B. Trailer connectors shall hook to the air brake system provided by the chassis manufacturer and be connected with glad hand connections; and
- C. Electrical connector for trailer shall be a seven wire Pollack connector.

➤ Does the Bidder comply with the requirements of Section VIII, Subsection 7-9?  
 \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Initials

## 10. Lights and Wiring:

- A. All emergency lighting and plow lights must be operable from a main control panel and be protected by circuit breakers;
- B. Emergency lighting shall consist of: (all lighting shall be Federal Signal numbers):
  - a. Two (2) – No. 212650-02 Pulsator LED Beacon, mounted on each mirror;
  - b. Four (4) – No. 607101-02 Oval LED heads 2 each side rear corners of body;
  - c. Two (2) – No. 607105-04 Signaltech – Stop/Turn/Tail;
  - d. Two (2) – Clear LED Back up lights; and
  - e. All body lights must be round LED lights
- C. All wiring shall be color coded;
- D. All wiring shall be in an easily replaceable wiring harness and a jacketed wire cable must be used whenever possible;
- E. All wiring must terminate in a weather tight junction box with each terminal clearly marked;
- F. All exterior light terminals must be heat sealed or use Deutsch connectors;
- G. All wiring must be protected by circuit breakers;
- H. Any switches used in the cab must be clearly marked and backlit;
- I. All wiring must be protected by wire loom or conduit supported with ties or clamps every 12 inches;
- J. A complete wiring diagram of all work done by successful Bidder must be supplied;
- K. All clearance lights mounted in body shall be LED lamps and recessed mounted; and
- L. All wiring up into cab must be neatly supported off the floor.

## 11. General:

- A. Two coat minimum, rustproof LEAD-FREE primer throughout;
- B. Finish coat LEAD-FREE paint to match color of truck;
- C. Parts and repair manuals for each component must be provided. Including wiring performed by the successful Bidder for each piece of equipment; as well as hydraulic piping; and
- D. Any computer related hardware or software available for any component shall accompany this unit (price included).

## 12. On Board Grease System:

- A. Timken – Interlube AC – 3 onboard grease system
- B. To be designed at a later date to include all systems

## 13. Warranty:

- A. The complete package shall have a minimum two (2) year parts and labor warranty;
- B. Specific manufacturer warranties will be executed and provided at delivery; and
- C. All hydraulic cylinders shall carry a three (3) year warranty except hoist cylinder, which may be two (2) years.

➤ Does the Bidder comply with the requirements of Section VIII, Subsection 10-13?  
\_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Initials

14. Installation:

- A. All components listed shall be installed on the chassis provided by the City. Installation shall be consistent with all Federal, State and local regulations, and guidelines;
- B. All systems shall be checked after installation and a checklist shall be provided at time of delivery;
- C. Equipment must meet site inspection to ensure all City specifications and layouts are met;
- D. The completed vehicle shall be delivered FOB Destination to the City of Bangor, Fleet Maintenance Department, 481 Maine Ave. Bangor, ME 04401.

15. Training

- A. There will be training for both operators and technicians from Public Works and Fleet Maintenance. Training for Technicians must be done for both day and evening shifts at Fleet Maintenance.

➤ Does the Bidder comply with the requirements of Section VIII, Subsection 14-15?  
\_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Initials



**Bid Form  
Plow Equipment & Truck Body**

**Bid Deadline:  
2:00 PM, Wednesday  
September 7, 2016**

**Please note: Pages four (4) through eleven (11), including this bid form must be submitted with bid proposal. Detailed explanation of ALL exceptions must be included. Failure to do so may result in disqualification.**

Description	Qty.	Unit	Total Price
<b>Plow Equipment &amp; Truck Bodies</b> Plow: _____ Body: _____ Hydraulics: _____	1	EA	\$ _____
<b>Estimated time of delivery follow receipt of order: _____ weeks</b>			
<b>Address of Service Location:</b>			
<i>Price must include all miscellaneous charges; no other charges will be accepted.</i>			

<b>Business Name:</b>			
<b>Street or PO Box:</b>			
<b>City, State, Zip:</b>			
<b>Telephone Number:</b>			
<b>Email Address:</b>			
<b>Contact Name:</b>			
<b>Title:</b>		<b>Date:</b>	