



CITY OF BANGOR

**Request for Proposals
Single Axle Swaploaders
Proposal No. P24-49**

**Purchasing Department
262 Harlow Street
Bangor, ME 04401
207-992-4282**

Issue Date: April 12, 2024

I. Introduction

The City of Bangor (City) requests bids for two (2) single axle, cab and chassis with plow equipment and swaploader. The completed unit will be used for construction work and plowing snow.

II. General Information

Available at the following web address: www.bangormaine.gov/proposals on the City's website. By submitting a response to this solicitation, the Proposer accepts the responsibility for downloading, reading, and bidding by the terms and conditions set forth in the City's "General Information for Vendors".

In your proposal, please specify whether you currently have or are in the process of developing a domestic violence policy. If you do not have such a policy, let us know if you would like to receive a copy of the City of Bangor's policy as a reference.

III. Submission

For consideration, submit the proposal Bid Form and pages three (3) through eighteen (18) of this Request for Proposals in an envelope marked "**Proposal No. P24-49: Single Axle Swaploaders**" by 2:00 P.M. on Wednesday, May 15, 2024.

Submission of documents can be completed by:

- A. **Emailing** to bids@bangormaine.gov ; or
- B. **Hand Deliver** to Purchasing Department, 262 Harlow Street, Bangor, ME (back entrance of building at City of Bangor entrance); or
- C. **US Post Office** addressed to City of Bangor-Purchasing Department, 73 Harlow Street, Bangor, ME 04401; or
- D. **All Other Delivery Services** addressed to City of Bangor-Purchasing Department, 262 Harlow Street, Bangor, ME 04401.

All submissions should reference “**Proposal No. P24-49: Single Axle Swaploaders**”. Proposals will be publicly opened at the time stated above in the temporary Council Chambers, 262 Harlow Street, Bangor, Maine (**see Appendix A - Meeting Location Map**).

A tabulation of all received proposals will be posted on the City's website by 4:30 P.M. on the opening date. Visit www.bangormaine.gov/bidtabs for results.

IV. Questions

Any questions must be directed in writing to bids@bangormaine.gov no later than 4:30 P.M., Friday, April 26, 2024.

The City will provide a response by 4:30 P.M. on Friday, May 3, 2024. This response will be in the form of an addendum, accessible on the City's website. Notifications will be sent to the Registered Vendor List when new addenda are released. To receive these updates, the City strongly encourages all potential bidders to register as vendors at www.bangormaine.gov/vendorregistration.

V. Late Proposals

It is the responsibility of the Proposer(s) to see that their proposals have sufficient time to be received by the Purchasing Department before the submittal deadline. Any proposal, portion of a proposal, or requested proposal revision received at the City Purchasing Department after the time and date specified, will be returned to the Proposer unopened.

VI. Withdrawal of Proposals

No Proposer may withdraw their proposal for a period of ninety (90) days from the date of opening. All proposals shall be subject to acceptance by the City during this period.

To withdraw a proposal prior to the opening, the Proposer shall request the withdrawal in writing. All costs associated with the withdrawal (i.e. mailing fees) will be borne by the Proposer.

VII. Rejection

The City reserves the right to reject any proposals, waive any informalities or defects in proposals, or accept a higher cost proposal if it is deemed to be in the best interest of the City. The City also reserves the right to request clarification, of any details, from the successful Proposer.

VIII. Information for Proposers

- A. All Federal and State taxes must be excluded from the proposal price. Upon request, a tax exemption certificate for the City of Bangor shall be furnished to the successful Proposer.
- B. The Bid Form, included with this request must be completed and returned for a proposal to be considered.
- C. The City prefers a current model year, but will consider alternate proposals for the purchase of unsold previous-year models if it meets or exceeds the requested specifications.
- D. In order to expedite the assembly and delivery of this equipment, the City will accept an "off the lot" cab & chassis that complies with the proposal specifications for axle, suspension, frame, and body strength.
- E. Pages three (3) through eighteen (18) of this request must be completed and returned with all questions answered in order to be considered.
 - 1. In section **X. Specifications** - the Proposer is asked whether they comply with the referenced sections. Caution should be taken by the Proposer to ensure that all questions are answered and that all information requested is provided.
 - 2. Any exception to the provisions in the specifications must be marked in the body of this document and itemized on a separate page titled "Exceptions", referenced by section number and paragraph, along with a detailed explanation of the exception.
- F. The entire units and all equipment must be thoroughly inspected, serviced, and ready for use upon delivery. All services provided must meet established industry standards of quality to be acceptable. Any unacceptable services must be corrected before payment is issued.

IX. Award

Awarding of the proposal will be based on the following:

- A. Quality and performance of equipment offered.
- B. Availability of equipment and parts.
- C. Prior history or experience with the Proposer and equipment (if no history or experience, references may be requested of the successful Proposer).
- D. Cost.

X. Specifications

This vehicle will become a complete construction/plow truck. Arrangements must be made at a later date to transport this vehicle to the completing dealer for finish work. A check for front-end alignment after all equipment has been installed must be performed before delivery of finished vehicle FOB destination to the City of Bangor,

Fleet Maintenance Department, 481 Maine Avenue, Bangor, ME 04401. All warranty dates shall begin upon date of finished delivery.

There shall be computer software training for both operators and technicians from Public Works and Fleet Maintenance provided at the City of Bangor Fleet Building in the amount of four (4) hours for each, if necessary, for both day and night shifts.

Vendor Name: _____

A. Unit

Heavy-duty 6-wheel dump truck cab & chassis with GVW of not less than 43,000 pounds; such as a Workstar SFA or Freightliner 108SD.

B. Wheelbase and Cab-to-Axle (CA)

1. CA shall be sufficient length to accommodate a swaploader hook lift. Chassis must also accommodate plow rigging. Measurement should be 114" CA.
2. Axle-to-Frame (AF) dimensions must allow for a minimum 12" of frame to extend past rear tires to facilitate mounting the hook lift system and brake controls with lighting adapters for a trailer.

C. Front Axle

1. 20,000 lb. min. capacity I-beam type, such as Meritor FL941 or equivalent.
2. Suitable for extreme snowplow and dump truck service; 9,500 lb. left spring and 10,500 lb. right spring.
3. Oil-lubricated and sealed wheel bearings with visible oil supply.
4. Front springs should be heavy-duty designed to support the plow and wing in travel position, under full ballast load, with no appreciable sag or deflection on either side.
5. Spring-mounted hardware and brackets shall be designed for extreme service.
6. Front axle should be the set-back type.
7. Must have airbag assist spring for the right side to aid spring deflection.

D. Rear Axle

1. 23,000 lb. axle with locking wheel differential; Meritor RS23-186 or equivalent.
2. Approximately 65 MPH at most economical RPM, in high gear.
3. Aluminum housings are not acceptable.
4. Magnetic oil drain plug.
5. Oil-lubricated and sealed wheel bearings.
6. Ratio shall be 5.38 to one.
7. Driver-controlled traction control.

E. Engine

1. Cummins diesel L9, 4-cycle 350 HP (minimum).
2. Engine brake.
3. Turbocharged.
4. Cruise control.
5. Air compressor 18.7 CFM.
6. 860 lbs./ft. minimum torque output.
7. Extreme service oil filtration system (remote mount filter assembly will not be accepted).
8. Stainless steel oil pan.
9. Magnetic oil drain plug.
10. Engine block heater: 1,500 watt minimum, 115-volt receptacle with spring operated lid mounted under driver's door.
11. Adapter for Spicer coupler 2-2-79 on crankshaft (factory installed).

Does the Proposer comply with Section X, Subsection A-E?

_____ Yes _____ No _____ Initials

F. Transmission

1. Allison MD 3500 RDS automatic transmission with power take-off (PTO) provision; 5th generation controls, 6-speed with double overdrive or equivalent.
2. PTO openings for mounted hydraulic pump.
3. Magnetic oil drain plug.
4. Transmission cooler.
5. Transmission oil check and fill with electronic oil level check.
6. On/Off Highway.

G. Driveline

1. Heavy-duty and factory balanced.
2. Main driveline shall use Meritor 176T or equivalent with half-round yokes.
3. Interaxle driveline shall use Meritor 17T or equivalent with half-round yokes.
4. Extended life u-joints.

H. Brakes

1. Dual air brake system with Wabco 4 channel system.
2. Front brakes shall be 16 ½" x 6" cam type ("Q" + style).
3. Rear brakes shall be 16 ½" x 7" cam type ("Q" + style) with two (2) 30/30 brake chambers on rear axles, with moisture-proof chambers.
4. All brake drums shall be outboard-mounted cast drums.
5. Haldex automatic slack adjusters.
6. All air tanks and reservoirs must be aluminum with pull drain cords.

7. Pull drains on each reservoir with loose end of the cable attached professionally in a location that is easily accessible to the operator.
8. Wabco SS-120 Plus air dryer with integral heater and governor (frame mounted).
9. Shall be wired for electric brake controller.
10. Electric brake controller shall be mounted in dash.
11. Shall have brake backing plates on all axles.

I. Rear Springs and Suspension

1. 26,000 lb. spring capacity, minimum.
2. Fore/aft and transverse control rods.
3. Must be leaf-style rear springs.
4. Clearance between dual tires shall be 2" minimum. Clearance between inner dual tires and suspension system or brake chambers shall not be less than 2". This minimum clearance must be retained under all normal operating conditions, under capacity loading. **Local modifications will not be accepted.** Special spacers or wheel components will not be accepted.
5. All hardware shall be designed for extreme services.

J. Steering

1. Heavy-duty design suitable for snowplow and dump truck service and for in-town driving.
2. Power steering with a replaceable filter with a large capacity reservoir.
3. The steering column shall be both tilt and telescopic.
4. Dual power steering box system.

Does the Proposer comply with Section X, Subsection F-J?

_____ Yes _____ No _____ Initials

K. Electrical

1. 12-volt Delcotron alternator, 160 amp. capacity, model number 28-SI or greater.
2. Heavy-duty Delco starter, 12-volt, #38 MT Positork type or equivalent with overcrank protection and full copper ground.
3. Minimum of three (3) 12-volt batteries, group 31 minimum of 2750 CCA maintenance free stud mounting type. Must be mounted so not to interfere with plow mounting.
4. Enclosed battery compartment with proper ventilation to prevent corrosion.
5. Sealed beam high-intensity halogen headlights.
6. All exterior wiring shall be salt resistant in suitable loom or conduit.
7. Manually operated master battery disconnect switch, mounted by the driver's seat on the floor and readily accessible to the operator. Must have lockout tagout capability.

8. Sealed battery cable ends.
9. Battery cable corrosion resistor.
10. Separate fused, seven (7) wire flat RV style trailer brake connector, mounted on rear most crossmember with trailer interrupter switch mounted on the dash.
11. Electronic features of manufacturer must be able to integrate with plow and sander requirements.

L. Frame

1. One piece, heavy-duty reinforced, high tensile heat treated steel, minimum 7/16" x 3 9/16" x 11 1/8", 120,000 psi yield minimum. Straight channel frame rail. Special reinforcements shall be provided to prevent diamond shaping under extreme snow plowing conditions, including a crossmember located behind cab and designed to transfer plow wing stresses to both longitudinal frame rails.
2. Bolted construction designed for extreme service and use.
3. Fish plates will not be accepted.
4. 18" front frame extensions are mandatory to mount the plow and still allow the hood to be opened.
5. Frame shall be designed and constructed to not interfere with Spicer crankshaft coupler 2-2-79.
6. Heavy-duty, gusseted cross members shall be provided. Extra cross member behind the cab.
7. Local installation of frame reinforcement will not be acceptable.

M. Tires & Wheels

1. Front tires shall be 315 80 R22.5 16-ply tubeless type such as Michelin XZA3+ or equivalent.
2. Rear tires shall be 11R x 22.5" 16-ply tubeless traction type such as Michelin XDE M&S or equivalent.
3. Spare wheel and tire; front and rear (one each).
4. Both front and rear hubs must be cast iron Hub-piloted (ten-hole).
5. Heavy-duty steel Accu-ride wheels shall be 22.5" x 8.25" Hub-piloted and powder coated painted white.

N. Fuel System

1. Fuel storage tank mounted on the left side of the truck, 60 gallons minimum **(fuel tank must not protrude beyond the rear of the cab).**
2. Non-skid step with stainless straps.
3. DEF tank shall be mounted in close proximity to fuel tank.
4. Fuel heater or approved equal; factory installed.
5. Fuel lines shall be the proper flexible wire braid type.
6. 12" road clearance minimum.

7. Tank shall be vented in such a manner to prevent fuel spillage if operating on a slope or on level ground, with tank full and fuel warm.
8. Suitable mud flaps shall be installed to protect the fuel tank from road debris.
9. Shut-off valve shall be installed at fuel outlet.

Does the Proposer comply with Section X, Subsection K-N?

_____ Yes _____ No _____ Initials

O. Cooling System

1. Radiator core and tanks shall be heavy-duty design and construction.
2. Ample capacity for continuous high engine output under extreme temperatures and/or operating conditions.
3. Heavy-duty mounting brackets and hardware.
4. Factory installed shut-off valves.
5. Gates Blue Stripe type radiator and water hoses, if available.
6. Radiator and mounts shall be designed and installed not to interfere with Spicer crankshaft coupler 2-2-79.
7. Space shall be provided under or through the radiator to mount the crankshaft-driven PTO and pump.
8. Extended life antifreeze to -40°F.
9. Fan drive: (Horton Drivemaster) two-speed, direct drive, with residual torque for disengaged fan speed.

P. Exhaust

1. Vertical exhaust designed and installed not to interfere with any customer installed accessories (i.e. snow plows, hydraulic tanks, wings etc.).
2. Rear-angled exhaust pipe tip shall be provided.
3. Heavy-duty mounting brackets, elbows, piping, and expansion joints.
4. Shall keep noise to lowest practical level in accordance with Federal and State regulations.
5. Aluminized muffler.
6. Handle mounted on the exhaust guard, for ease of getting into the passenger door.
7. Must comply with latest EPA regulations with regeneration capabilities and warning system.
8. All REGEN pieces shall be in spaces not to interfere with mounting of body.

Q. Filters

1. Air filter shall be heavy-duty dry type.
2. Option of drawing air from either under the hood or from the cab so not to clog filter with snow.
3. All filters must be located for ease of servicing.
4. All oil and fuel shall be disposable, spin-on type.

R. Cab

1. All lighting will be LED.
2. Dome light shall have an independent switch.
3. Heater and A/C shall be highest capacity available.
4. Automatic low oil pressure, high temperature, low coolant visual, and audible warning system wired in such a way as not to be easily accessible to the operator and operational only when ignition is on.
5. Electric windshield washer.
6. Heavy-duty, 2-speed electric windshield wipers, minimum with time delay.
7. Dual sun visors.
8. Remote-controlled heated West Coast style mirrors with 6" chrome spot mirrors on each.
9. Electric city horn and air horn.
10. Cab grab handles right and left sides.
11. Seat belts shall be Hi-Vis and safety orange in color.
12. Driver's seat shall be air suspension, high-back, bucket seat with adjustable lumbar support, fore and aft adjustment, seat and back angle adjustment, and adjustable armrests. Passenger seat shall be constructed in identical manner and materials and bolted solid to the cab floor.
13. Instruments shall include, but not be limited to:
 - a. Oil pressure gauge.
 - b. Water temperature.
 - c. Fuel gauge.
 - d. Brake warning light.
 - e. Low air pressure light and alarm.
 - f. Voltmeter.
 - g. Amp meter.
 - h. Air pressure gauge.
 - i. Dash mounted engine hour meter and engine tachometer.
 - j. All gauges shall be properly marked and illuminated.
14. Outside air temperature gauge.
15. Full coverage, insulated rubber floor mats.
16. Minimum of four (4) factory installed, up-fitter switches are required to connect customer's accessories.
17. Heavy-duty closed cab all steel construction.
18. Backup alarm 97dba.
19. AM-FM stereo with CB radio and Bluetooth. Additional CB hook-up required.
20. Truck will be pre-wired for a two-way radio, with a discrete harness and a wideband VHF antenna.
21. Suitable heavy-duty bumper must be supplied, mounted on frame.
22. Directional signals, non-cancelling type, with motorized flasher.
23. DOT approved, cab mounted 5 lb. fire extinguisher.

24. DOT approved, cab mounted triangle reflectors.
25. Power windows and door locks.
26. Exterior fiberglass visor.
27. Interior and exterior thermometer.
28. Electrically heated windshield.
29. Hood and fender shall be one-piece design, tilt forward type with factory-installed side access panels to provide safe, easy, and complete access to the engine compartment for daily service and periodic maintenance, with full plow gear (including wing and post) installed.
30. Stationary grille is preferred to increase engine accessibility when plow hardware is attached.
31. Fresh air intake for the heater/defroster must be protected or designed and installed to prevent the entrance of sand/salt.

S. Paint

1. Omaha orange color.
2. Chassis semi-gloss black enamel.
3. Cab interior to match the exterior.

T. Manuals

1. Three (3) operator manuals.
2. One (1) complete line chart (parts).
3. One (1) paper service manual and one (1) electronic service manual.
4. One (1) paper parts manual and one (1) electronic parts manual.
5. All manuals and software shall be delivered before acceptance of the final, completed vehicle. **All electronic software for either parts and service must accompany this vehicle.**
6. Software program to diagnose engine troubleshooting provided by the engine manufacturer, to be used with a shop-owned laptop. Engine supplier must train shop personnel in the proper use of the software program.
7. Software training must be supplied to two (2) work shift personnel.

U. Other Requirements

1. Chassis shall be completely serviced, tuned up, wheels balanced (front), and steering geometry adjusted, prior to delivery.
2. A computer analysis of the proposed engine, transmission, and rear-end combination must be provided.
3. It is the responsibility of the chassis manufacturer to provide or reposition components to provide a "clear frame" for the installation of accessories or accessory equipment.
4. Vehicles offered must comply with all applicable Federal, State, and most current engine EPA regulatory standards.
5. Certified GVWR MUST be furnished.

6. Vehicles must be fully operational and ready for service when delivered to the Fleet Maintenance Department.
7. Noise level at the operator's hearing zone must not exceed the applicable OSHA maximum amount with hours of exposure as specified in Table G-16 of Part 1910.95 and D2 of 1926.52. This sound level shall be an eight (8) hour time weighted average in accordance with SAE Standards J1166, J919, J1174, and J1175 or whichever is applicable.
8. This vehicle will become a complete construction/plow truck. Arrangements must be made at a later date to transport this vehicle to the completing dealer for finish work. A check for front-end alignment after all equipment has been installed must be performed before delivery of finished vehicle FOB destination to the City of Bangor, Fleet Maintenance Department, 481 Maine Avenue, Bangor, ME 04401. All warranty dates shall begin upon date of finished delivery.

Does the Proposer comply with Section X, Subsection O-U?

_____ Yes _____ No _____ Initials

V. Plow Equipment

1. Shall be a power reversible trip edge snow plow with ram reverse drive frame.
2. Cutting width: 11 ft. @ 0° and 9 ft. @ 37°.
3. Discharge opening should be able to change casting distances, direction, and moldboard shape without slowing down and shall be able to be altered from 51" to 33" while fully engaged.
4. There shall be a contour override, allowing the moldboard to assume the conventional contours of a straight, non-tapered reversible plow.
5. Cutting edge shall be one (1) in number and shall be from ¾" x 8" x 11' C-1090 Steel punched to AASHO standards on 12" centers and supported by reinforcement with at least 4" x 4" x 3/4" angled steel. The cutting edge shall be 12" standard punch, 5/8" x 8"; top punch carbide cutting edges.
6. The tripping edge mechanism shall be of the single-edge design, which shall activate whenever the cutting edge comes into contact with an obstruction on the pavement. Trip activation shall be achieved through five (5) torsion springs from not less than ¾" square wire, having a 3 ¾" O.D., with sixteen (16) active coils each. Each spring shall be pinned in place in a horizontal position and shall butt the lower moldboard reinforcement and to the cutting-edge reinforcement. Spring adjustment shall be provided so as to alter the pre-charge of springs for varying plowing conditions.
7. The plow shall contour when the plow is reversed.
8. The drive frame & reversing mechanism shall consist of an "A" frame, a truss frame, and two (2) single-acting hydraulic cylinders with 3 ½" diameter x 16" stroke. The "A" frame shall be a triangular weldment with 3/8" thick steel plates, top and ½" thick bottom, a rear member from not less than 1" thick steel plate and two (2) center reinforcements from not less than 3/8" thick

steel plate, so to form a boxed center section. The truss frame shall include a main drive member from 4 ½" O.D., 3/8" wall pipe fitted with gusseted tip and bottom semi-circles from not less than 5/8" thick steel plate.

9. The truss frame shall pin to the moldboard at not less than four (4) points over a span of not less than 100". Moldboard and truss frame shall pivot about the "A" frame, on a removable, lubricated pin not less than 3" in diameter; up to 37° either side of the chassis centerline.
10. Each cylinder shall have 3 ½" diameter pistons, which terminate with 2 ½" diameter connecting lugs. Both the rods and lugs shall be from Nitride and shall be protected by a hydraulic cushion valve.
11. The "A" frame shall be fitted with a three (3) point lift chain arrangement, which shall accommodate plow reversing operations with the plow either on the ground or at the carry position. This arrangement shall be of a design which prohibits plow list, when the moldboard is angled in the carry position.
12. The moldboard shall be made of 3/8" new polymer material (not recycled). It shall be color-impregnated to an orange color.
13. Two (2) moldboard shoes and two (2) curb shoes.
14. One (1) turn adjustable crank jack.
15. A rubber deflector mounted at the top of the blade; minimum 8".
16. Linch pins will be used to secure all plow, wing, and hitch pins.

W. Front Hitch

1. 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).
2. 31" plow pin centers with three (3) adjustable setting heights.
3. Four (4) 1 ¼" diameter pins attaching hitch to truck.
4. 48" front hydraulic wing post bolted to frame.
5. Control valve to power tilt must be external, mounted at LF corner of hitch.
6. Front upright supports must be constructed from ¼" tubing.
7. High-intensity halogen headlights and turn signals mounted on plow headgear, so the lights are not obstructed by the plow when in the raised position.

X. High Lift Patrol Wing Unit

1. 8" x 72" tall, front post with extra supports welded on for support, hydraulic lift, and 7" slide.
2. 10" saddle across both truck frames for rear support and 10" wide upright allowing for 4' shelving capabilities.
3. 3" x 23" single-acting lift cylinder for rear wing.
4. Overall length shall be 11 ft. with Carbide cutting edges; 12" standard punch x 5/8" x 6".

5. Wing shall be 29" front height and 38" rear height, with a reinforced nose plate and horizontal and vertical rib stiffeners.
6. Wing shall trip using a front trip block, using a rubber "Timbren" bushing, allowing the wing to trip upward and forward when an obstacle is encountered, approximately 30°.
7. Two (2) moldboard shoes are required.
8. Moldboard skin shall be 3/16" steel.
9. Wing's rear sliding support shall have a removable pin to allow for detaching the rear arm hydraulically, by use of the rear lift cylinder. Control valve shall be mounted at rear.
10. Wing must have the ability to be held up to prevent falling from the upright position. All necessary equipment must accompany the completed truck.
11. There shall be a work light mounted so as to see the rear of the wing.
12. 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.

Y. Hook Lift System

1. Swaploader Model SL-2418HD hook lift system installed painted black.
2. Two (2) hook lift sleds will be supplied and painted black to mount equipment already purchased by the City.
3. Remotely mounted, Pioneer Model 1500E electric tarp system installed. It should have fingertip controls for ease of operation, heavy-duty weather and corrosion-resistant aluminum components, and canvas tarp. The mounting frame should be painted black.
4. A "body up" warning light must be mounted in the dash.
5. Audible "body up" alarm.

Does the Proposer comply with Section X, Subsection V-Y?

_____ Yes _____ No _____ Initials

Z. Hydraulic System

This system will be used to operate a plow and wing assembly and hook lift.

1. Cirrus Central hydraulic system will be used to operate the plow, wing assembly, and hook lift.
2. Variable displacement piston pump; 40 gpm minimum, front-mounted with 1280/1310 series driveshaft components.
3. 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 filled and drained easily. The tank shall have an electric low oil level indicator, as well as an in-tank heater.

AA. Hydraulic Valving

1. Cirrus 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.
2. 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 (1) for spinner control and one (1) for the auger, for individual control.
3. The hydraulic valve will be controlled from inside the cab by DEL air controls.
4. 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.
5. All hoses will have male pipe thread connections on both ends. The attachment points will have a female swivel fitting.
6. All removable attachments shall have hydraulic couplers (ball lock).
7. There shall be a front remote to operate the lift cylinder on the front hitch and two (2) rear post remotes to operate the rear post slide and wing arms.

BB. Spreader Control

1. The spreader controller shall be capable of operating the following:
 - a. A granular spreader with auger/conveyor.
 - b. Pre-wetting system.
 - c. 3 booms, slip in anti-ice system.
 - d. Each function shall operate individually or simultaneously without additional controller hardware.
2. Spreader control system shall be capable, but not limited to:
 - a. Ground speed orientated closed or open loop operation.
 - b. Spreading in lbs. per mile (linear spreading) or lbs. per lane mile (area spreading).
 - c. Temperature-controlled operating mode with supervisor set points, automatically applying the material in correlation to measured road temperature.
 - d. Provide a means for an operator to reset and/or indicate the current volume of liquid in anti-ice and pre-wet tank(s) as part of the power-up routine.
 - e. Display the current liquid volume in tank(s) while the pre-wet and/or anti-ice system is active.

- f. Managing up to three (3) anti-ice boom operations with individual boom selection in a single or dual tier arrangement.
3. Spreader controller shall have a single 240 x 64 pixels liquid crystal display. The spreader control display shall have a blue luminance filter. The display shall be capable of simultaneous display of granular, pre-wet, and anti-ice application rates. The display shall also show other sensors (temp, GPS, etc) as well as actual ground speed and all active alarms.
4. 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.
5. System shall alarm either audibly or visually for the following conditions:
 - a. Off rate.
 - b. Sensor failure.
 - c. Low liquid remaining.
 - d. Low liquid flow shutoff.
6. Material rates, granular or liquids shall be by toggle actuation (+/-). Toggle paddle actuation shall cause the display to respond accordingly:
 - a. The first toggle touch shall cause the display to show the current rate set point.
 - b. The second toggle touch and all subsequent toggle actuation shall increase or decrease the current rate set point.
7. System shall provide up to ten (10) “supervisor settable” application rates in each of granular, anti-ice, and pre-wet materials. The controller must provide the ability to name each material with up to five (5) characters. Each material shall be able to individually set rate increments.
8. The controller shall offer multiple layers of access control to set up files:
 - a. Factory password-protected access to operating functions and setup files.
 - b. Supervisor reset capability for each password.
 - c. Laptop computer-only access control for higher security.
9. The controller shall have a blast feature that is capable of operating as:
 - a. Latched on.
 - b. Timed on or momentary on.
 - c. Blast is active only while the operator is activating the Blast switch and is disabled in the absence of a ground speed signal.

- d. The controller will default to the pass mode upon startup of the system to prevent spreading in the yard or shop.

10. Wiring Design

- a. The system controller shall have one (1) each from each hydraulic valve coil wired to a common ground point.
- b. The system must supply pulsed +12-volt power to the other lead for each individual valve coil.
- c. 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.
- d. The system shall include minimum-rated IP69 connections for all “outside the cab” connections.

11. The spreader control system shall be capable of the following:

- a. Collecting time, date and location stamped events for all operating modes, errors and alarms, and for all material dispensed.
- b. Recording digital or analog data that comes from up to four (4) sensors and will include at a minimum: gate height opening, pre-wet system sensor, auger position and have one empty position.
- c. 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).

12. Data collection system must contain at least 512 megabytes of non-volatile on-board memory and have the capacity to store spreading data for a minimum of seven (7) days at twenty-four (24) hours per day (one hundred sixty-eight (168) continuous hours).

13. Spreader control system must interface for automatic downloading of data in a wireless fashion directly to a base station computer without an intermediate device. The system must be capable of downloading data at a minimum of 1.5 megabits per second (Mbps). The system must be capable of storing downloaded data in a format that is compatible with the standard data input format (shape file format) for GIS systems.

14. Spreader control system must be able to output its data in a standard serial data stream format to any brand AVL system that can accept serial data.

15. All required computer hardware and software must be supplied and installed by the successful Proposer. 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 Proposer.

CC. Pintle Hitch and Trailer Hook Up

1. 24-ton swivel style pintle hitch, centerline mounted approximately 29" above level ground and mounted on a plate with D-rings.
2. Electrical connector for trailer shall be a seven (7) wire flat pin RV style connector and connected to the factory-installed electric brake controller.

Does the Proposer comply with Section X, Subsection Z-CC?

_____ Yes _____ No _____ Initials

DD. Lights and Wiring

1. All emergency lighting and plow lights must be operable from a main control panel and be protected by circuit breakers.
2. Emergency lighting (all lighting shall be Federal Signal numbers) shall consist of:
 - a. Two (2) Pulsator LED beacons, mounted on each mirror.
 - b. Two (2) No. 607105-04 Signal-tech LED Stop/Turn/Tail.
 - c. Two (2) clear LED backup lights.
3. All wiring shall be color-coded.
4. All wiring shall be in an easily replaceable wiring harness and a jacketed wire cable must be used whenever possible.
5. All wiring must terminate in a weatherproof junction box with each terminal clearly marked.
6. All exterior light terminals must be heat sealed or use Deutsch connectors
7. All wiring must be protected by circuit breakers.
8. Any switches used in the cab must be clearly marked and backlit.
9. All wiring must be protected by wire loom or conduit supported with ties or clamps every 12".
10. A complete wiring diagram of all work done by the successful Proposer must be supplied.
11. All wiring up into the cab must be neatly supported off the floor.
12. Plow headlights must be high-intensity halogen.

EE. General

1. Two (2) coat minimum, rustproof LEAD-FREE primer throughout.
2. Parts and repair manuals for each component must be provided that includes wiring performed by the successful Proposer for each piece of equipment and hydraulic piping.
3. Any computer-related hardware or software that is available for any component shall accompany this unit (price included).

FF. On-Board Automatic Grease System

1. Timken – Interlube AC-3 on-board grease system or equivalent.
2. To include all systems for the chassis, hook lift system, and plow equipment.

GG. Warranty

1. The complete package shall have a minimum two (2) year parts and labor warranty.
2. Specific manufacturer warranties will be executed and provided at delivery.
3. All hydraulic cylinders shall carry a three (3) year warranty.

Does the Proposer comply with Section X, Subsection DD-GG?

_____ Yes _____ No _____ Initials

HH. Installation

1. All components listed shall be installed on the chassis and shall be consistent with all Federal, State, and local regulations guidelines.
2. All systems shall be checked after installation and a checklist shall be provided at the time of delivery.
3. Equipment must meet site inspection to ensure all City specifications and layouts are met.
4. The completed vehicle shall be delivered back to original dealer so that they can perform a final alignment and chassis check before delivery to Fleet Maintenance.

II. Training

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 Proposer comply with Section X, Subsection HH-II?

_____ Yes _____ No _____ Initials



CITY OF BANGOR

**Bid Form
Dump Trucks and Equipment
Bid No. P24-49**

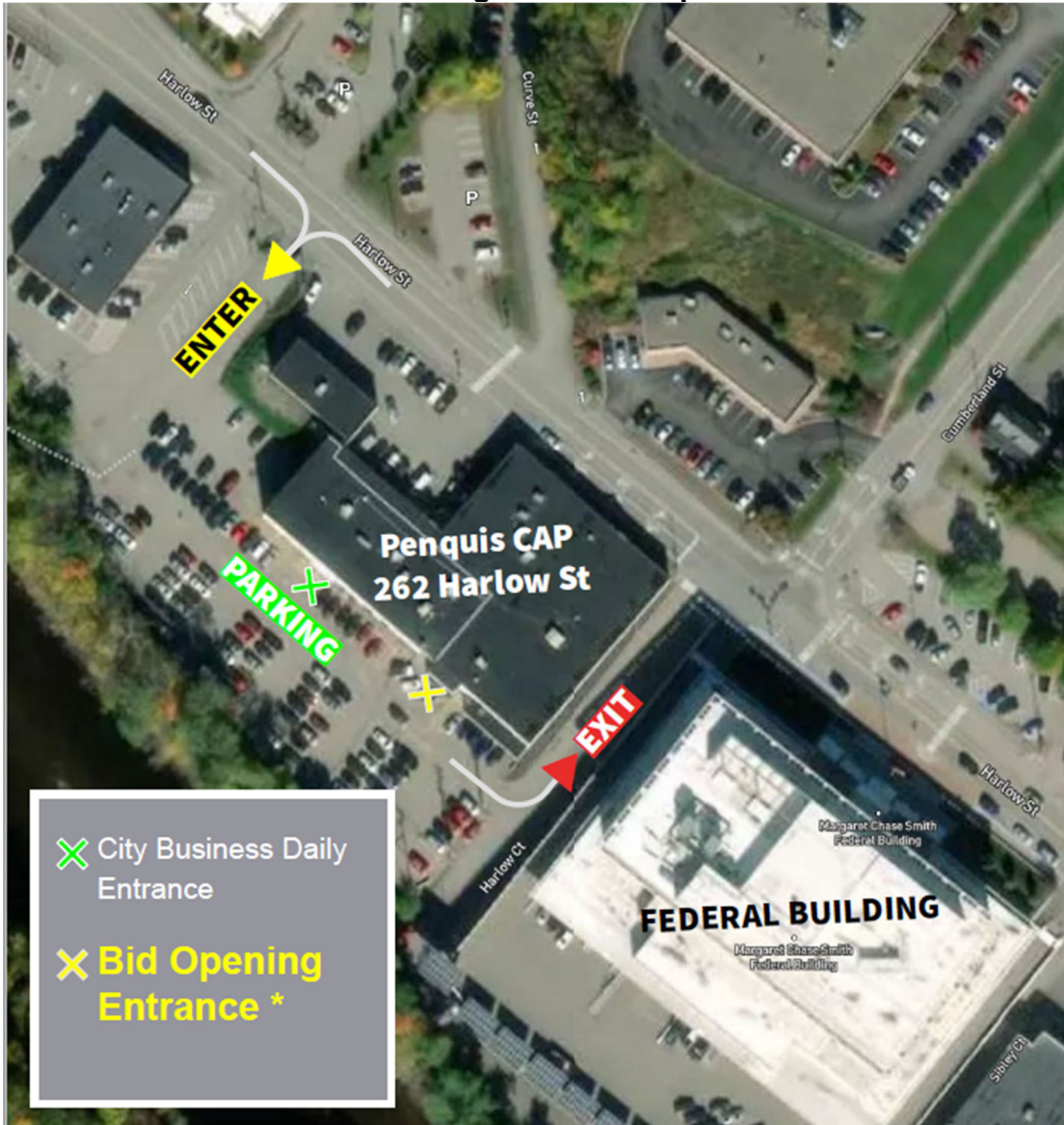
**Bid Deadline:
2:00 PM, Wednesday
May 15, 2024**

Note: Pages three (3) through eighteen (18), including this bid form, and complete Manufacturer's brochure must be submitted with bid proposal. Please attach detailed explanation of ALL exceptions, as requested. Failure to do so may result in disqualification.

Business Name:			
Contact Name/Title:			
Street Address:			
City, State Zip			
Telephone Number:			
Email Address:		Date	

Item	Description	Qty.	Unit	Total Price
1	Single Axle Cab & Chassis	2	EA	\$
	Year:			
	Make:			
	Model:			
2	Plow Equipment and Swap loader	2	EA	\$
Total Bid Amount				\$
3	Price for Extended Power Train (Engine, Transmission, Rear Axle) Warranty	2	EA	\$
Estimated time of delivery follow receipt of order (in weeks):				
Length of Warranty (in years):				
Address of Service Location:				
<i>Price must include all miscellaneous charges; no other charges will be accepted.</i>				

APPENDIX A
Meeting Location Map



* From Harlow Street, drive around to the back of the Penquis building (one-way traffic in parking lot). To the right, enter through glass vestibule door (yellow “X” on map above) and once in there, to the right, there is another glass door marked “Meeting Entrance”. Go to the end of that hallway and take a slight left. The room marked “Penobscot Conference Room” is the temporary Council Chambers location where Bid Opening meetings are held.

**“Meeting Entrance” door will be opened
10 minutes prior to the scheduled meeting time.**