



Antrim County Road Commission

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NOTICE TO TRUCK EQUIPMENT BIDDERS

Sealed bids will be received for providing and installation of various truck mounted equipment until 1:00 PM, Monday, March 12, 2012, at which time they will be publicly opened and read. Bids will be received at the office of the Antrim County Road Commission, P.O. Box 308, 319 E. Lincoln St., Mancelona, Michigan 49659-0308. Bids will be tabulated and a recommendation will be made to the Board of County Road Commissioners at their next regular meeting.

General Description

The Road Commission will be purchasing a tandem axle truck and will outfit it with a twelve (12) foot multi-purpose material spreader. The truck will also be equipped with a twelve (12) foot underbody scraper, a front mounted plow hitch and a nine (9) foot side mounted snow wing. A dump body hinge line and "fish mouth" hitch will be installed for future use. This bid will also cover supplying and installation of a behind the cab fuel/hydraulic tank. This bid will be for a "work ready" truck, in that it will include installation and testing of all equipment, ground speed spreader controls, lighting and any other work necessary to make the truck "work ready".

This bid will be a complete package price. These specifications are minimums. Bidders may offer options, stating specifications and pricing. All installations must be done according to the various manufacturers' procedures. The completed vehicle must meet all applicable federal and state motor vehicle standards

Prior to the start of work, the successful bidder will arrange a meeting with the Road Commission to outline all work details.

The following are some general specifications for the new truck. The exact specifications shall be determined at the time of award.

New Truck General Specifications

GVWR	66,000 pounds
Wheelbase WB	216 inches
Cab to Trunion CA	132 inches
End of Frame EOF	70 inches
Front axle FA	20,000 pounds
Rear axle RA	46,000 pounds
Diesel engine	400HP, 1550 lb/ft torque, 1350 crankshaft adapter flange
Transmission	To be determined at time of award
Rear suspension	Hendrickson Haulmax
Electrical	Four (4) bodybuilder switches in cab, wired for front plow lights

FUEL/ HYDRAULIC TANK

Provide and install a combination fuel/hydraulic oil tank behind the cab. The tank shall be UL certified and meet FHWA requirements. Testing data shall be provided. The tank capacities shall be approximately 150 gallons diesel fuel and 30 gallons of hydraulic oil. The tank shall be sized so that it sits on the frame and does not interfere with any emission control apparatus that may be present. The tank shall be mounted in a fabricated frame with oil resistant cushions. The tie-down straps shall be spring tensioned to absorb vibration. The fuel tank shall have a fuel level sensor and the hydraulic tank shall provide for in-tank filtration and a sight tube visible from ground level drivers side. The hydraulic tank shall have a low level sensor wired to a warning light in the cab. Both tanks shall be accessible from the driver's side of the truck. There shall be a fabricated step/platform at the lower edge of the tank on the driver's side to provide for driver's access. The tank shall be painted to match the cab and be labeled as to the contents. The hydraulic tank shall be filled to the appropriate level with AW32 standard hydraulic fluid.

IN-CAB FEATURES

Ground speed spreader controls

Controller to be Rexroth 420RC closed loop system. Controller head to be mounted on a fabricated stand to be within easy reach of driver and shall not interfere with any other in-cab controls. All transmission and spreader connections shall be made.

Hydraulic controls

Install air operated hydraulic control levers as outlined in the hydraulics section of this proposal.

Electrical

Connect bodybuilders switches for flashing warning lights and fog lights. Provide and connect switches for tarp control and tailgate operation. Tarp and tail gate switches are not to be dash mounted. Install low hydraulic oil warning light.

County two-way radio

Coordinate with the Road Commission to allow for placement of the county two-way radio.

Approval

The exact placement of all in cab features shall be approved by the Road Commission before installation.

OUTSIDE CAB FEATURES

Electrical disconnect switch

The switch shall be a Flaming River brand and shall disconnect the ground circuit at the battery. A red LED indicator light, Trucklight 33050R3 or equivalent, shall be mounted next to the switch to indicate the switch is in the "on" position. The switch and light shall be located on a fabricated bracket on the driver's side below the fuel tank. The exact location is to be determined by the Road Commission.

OUTSIDE CAB FEATURES (cont.)

Fog lamps

Provide and install amber fog lamps, Nordic N200 55W amber. Located inside the front mounted plow hanger and wired to a bodybuilders switch inside of cab.

Plow lights

Provide and install front mounted plowlight/turn signal combination on the upper front corners of the hood. The lamps shall be mounted with a fabricated aluminum bracket and be reinforced on the inside of the hood. The lamps are to be wired to the truck manufacturers provided plow lamp circuit/switch.

Electrical and Hydraulic Accessibility

The Road Commission interchanges between the dump box and the material spreader with the seasonal needs. Therefore all electrical and hydraulic circuits that are common to both or that would need to be disconnected are to be terminated at a fabricated manifold device typically located under the fuel tank and between the frame rails. These circuits include but are not limited to the tarp, all lighting, dump box tailgate, dump box raise/lower, material spreader auger/spinner and material rate sensor. The electrical circuits shall be linked using approved weatherproof trailer plug connectors and the hydraulic circuits shall be linked using SS flat face drip-proof quick connectors.

DUMP BOX HINGE LINE

The truck half of a 12 foot Crysteel dump body hinge line will be installed according to manufacturer's specifications.

MATERIAL SPREADER

Box

The spreader shall be twelve (12) feet in length and have a capacity of approximately ten (10) cubic yards. It shall be of 3/16" 201 stainless steel (SS) and be continuously welded throughout. The box shall have a 1/4" 201 SS, bolt in floor. The box shall have SS lighting enclosures at both rear corners. The enclosures shall have three (3) oval cutouts to accommodate 60 series lighting fixtures. There shall be catwalks on each side of 3/16" 201 SS and shall have anti-slip coating applied.

Cab Shield

To be of 3/16" 201 SS and will be half cab style. The shield shall be continuously welded inside and out to eliminate rust pockets at a height to be determined at the time of installation.

Tailgate

The tailgate shall be of 3/16" 201 SS. It shall have a manually operated feed gate and shall lock with dogs operated from the driver's side front of the box. The hinge pins shall be greaseable

MATERIAL SPREADER (cont)

Tarp System

The tarp system shall be Roll-Rite system with aluminum arms angled to avoid loader bucket and aluminum wind guard. The tarp is to be standard mesh. The tarp system is to be electrically operated from cab.

Flight chain

The flight chain shall be 34" conveyor pintle chain, 28,000 pound tensile strength. Crossbars shall be ½" x 1 ½", welded every other link. The chain shall run on 8 tooth drop forged steel sprockets with 2" shafts and shall use heavy duty 4 bolt bearings in the rear and heavy duty slotted adjusters in the front. The bearing shall be greaseable from a central point, front and rear. The flight chain shall be shielded with 3/16" SS removable chain shields.

Hydraulics

The flight chain will be powered by its own circuit and will be controlled by the ground speed controller in the cab. The chain drive shall use dual White Roller Stator motors with Rawson 6:1 gear boxes. The right side motor shall have a speed sensor. A series/parallel valve shall be installed. All lines running the length of the box shall be SS tubing with poly clamps. A switch to control the flight chain shall be mounted at the rear of the box.

Lighting

Provide and install two (2) amber flashing lights, preferably LED, visible for 360°. The lights must meet SAE J845 Class 1 specifications. The lights shall be mounted on the uppermost front corners of the cab protector and shall be guarded against tree limb damage. Rear lighting is to be installed as follows; top and bottom cutouts shall be a Soundoff EOVREBZA amber flashing warning light, the center cutout shall be a Maxima M85615R, stop/tail/turn/backup LED combo. All six (6) amber warning lights shall be wired together and driver controlled. All required marker lights, preferably LED, and license plate illumination shall be installed. Two (2) work lights, Nordic Lights N25, shall be installed. One (1) at the driver's side rear corner, to illuminate the spinner and the other on the passenger side located to illuminate the snow wing. Both work lights shall be wired together and shall be wired to an in-cab bodybuilders switch.

Miscellaneous

Included shall be top screens and a fold down SS ladder. Both shall be installed.

REAR MOUNTED TAILGATE SPREADER

Construction

The tailgate spreader shall be of 3/16" SS with 7 gauge SS trough and lid and ¼" SS ends. Trough cutouts for driver's side discharge. All welding shall be continuous. The trough shall be able to swing away for cleaning and shall have safety latches and a center mounted handle.

Auger

The auger shall be 9" x 96" and shall be hydraulically driven by a direct SS coupling. The idler end of the auger shall use a heavy duty 4 bolt bearing.

REAR MOUNTED TAILGATE SPREADER (cont)

Spinner Assembly

The spinner assembly shall have a swing away self leveling design and shall be constructed of 201 SS where possible. The spinner disc is to be hydraulically driven and will be poly. The spinner will be mounted for centerline discharge.

Mounting

The tailgate spreader shall be mounted using 201 SS mounting brackets and will be mounted three (3) inches left of centerline.

Hydraulics

The auger will be powered with return oil from the main flight chain circuit. The spinner will be on its own circuit controlled by the ground speed controller in the cab.

UNDERBODY SCRAPER

Construction

12 foot hydraulic operated scraper, hanger board shall be built of 10 inch by 30 lb. structural channel, reinforced by 2 inch by 8 inch plate and by 4 inch S&C 13.8 lb. channel the entire length of the hinge line. The hinge line shall be a 2.25 inch OD solid carbon steel shaft. The moldboard shall be 1 inch thick by 20 inches high by 12 feet long and shall be actuated by two (2) 3 inch DA cylinders. The moldboard shall be cushioned by spring shock absorbers. Cylinder and shock assemblies are to be mounted horizontally on the scraper by 3/4 inch thick reinforced steel trunnion brackets. Trunnion bearings are to be 2 inch OD by 1 3/4 inch carbon steel. The scraper shall have 4 inch S&C heavy duty hangers and 1 inch solid one piece abrasion resistant circle assembly, no notches, with flange type center bolt, with two (2) 4 inch double acting reverse cylinders including power reverse cylinder hold down wear pads and cushion valve. Circle clamps shall have poly inserts (shims). All moving parts shall be equipped with grease zerks.

REAR MOUNTED PATROL WING

Design

The wing shall be designed to be mounted on the right hand side, between the underbody scraper and the front rear axle

Construction

The wing shall be approximately nine (9) feet long, with the following dimensions

Top	113"
Bottom	108"
Height	33"

Moldboard shall be of 5/16" A36 steel with the top formed to a 2-3/4" x 1" channel for strength. A 3/8" reinforcing rod shall be welded to the discharge end. The moldboard bottom shall be reinforced between cutting edge mounting holes with 4"x4"x3/4" angle The moldboard shall have no fewer than six (6) reinforcing ribs of 2" steel, flame cut tapered from 2-1/2" top to 4"

REAR MOUNTED PATROL WING (cont)

bottom. The moldboard shall have angles welded at the discharge end to allow for push arm adjustment. The front pivot attachment shall be of boxed 2" steel, pivot tube shall be 1-1/2" diameter with minimum 5/8" wall. The moldboard shall be equipped with 2" safety eyelet and 2" lift loop welded to the front

Front post assembly

Front post mount shall have a minimum 1/2"x4"x6" cross tube passing through two (2) 1/2" mounting plates. Moldboard mounting plate shall be hinged with a 1 1/2" pin. The moldboard mounting bolt shall be 1 1/2" G8 with castle nut. The bolt shall be drilled to accept a cotter pin. The front lift assembly shall be of a trailing link design and shall allow for 18" of lift and 14" of float. A slotted plate design will not be accepted.

Rear push arm assembly

Rear push arm assembly shall consist of mounting plates and cross tube, with two (2) 2 1/2", schedule 80, adjustable spring cushioned lift arms. Lift arms shall be equipped with shear pins. Rear push arm assembly shall be able to mechanically float to follow road contours.

Cutting edges

The cutting edge shall be of 7/8"x 8" flamed hardened steel with a recurve design and shall have two (2) cast steel wear shoes mounted on either end.

Patrol wing hydraulics

Both the front post assembly and the rear push arm assembly shall be hydraulically controlled by double acting hydraulic cylinders of appropriate size. No lift cables or chains will be accepted. The patrol wing shall be equipped with a sequencing valve and shall be adjustable for both up and down sequencing. The valve shall be equipped with a locking feature that prevents drifting when in the stowed position and shall allow wing to hydraulically float when in the plowing position. The valve shall be equipped with a metering function to control the speed of lowering the wing. The wing shall be removed seasonally; therefore, all connections shall be of dripless quick connectors. All fasteners necessary for removal from truck shall be coated with an anti-seize compound

Patrol wing lighting

The wing shall have a rear facing amber strobe and a forward facing amber guide light mounted at the outermost upper point of the wing. The lights shall be wired to the truck strobe circuit and shall be able to be disconnected using a weatherproof connection. The model of both lights will be determined at the time of installation.

Miscellaneous

The wing shall be equipped with 3/8" safety chain.

FRONT MOUNTED PLOW HITCH

Construction

The plow hitch shall be a Husting's style heavy duty 34" quick hitch. The top of the hitch shall be gusseted with 3/8" plate steel. Plunger style lock pins shall have grease zerks and secondary locking tabs,

Hydraulics

The plow lift cylinder shall be a double acting cylinder with 3" bore and 10" stroke.

Mounting

The plow hitch shall be mounted to a fabricated bumper. The bumper shall be constructed of 10"x 20# structural channel steel. The ends shall be flared back and boxed in. The hitch shall have upper and lower bracing to the truck frame. All grade 8 fasteners shall be used. Cut outs will be made to accommodate the tow hooks. Any necessary modifications to the hood support cables shall be made to insure the hood does not hit the plow hitch.

TRAILER HITCH

Hitch

A trailer hitch of "fish mouth" design will be installed at the rear of the truck. Holland Model PH-990ST71 or equivalent shall be used. Any manufacturer other than Holland must be approved by the Road Commission.

Installation

The rear of the truck frame shall be reinforced and the hitch shall be installed according to the hitch manufacturer's specifications. The hitch shall be installed in a manner that will allow for seasonal removal, to allow for spreader installation. Provisions for safety chain hook-up shall be installed also.

HYDRAULIC SYSTEM

Pump

The pump shall be a front crankshaft driven piston pump. It shall be of sufficient size to allow for simultaneous operation of multiple functions. It shall be equipped with a low oil shutdown system with a manual over ride switch.

Valves and Controls

The valves shall be a Rexroth M-4-12, seven (7) section with five (5) sections air controlled and two (2) electronically proportional control. It shall have pressure limiting abilities. The individual sections shall be sized to control their designed functions

The five (5) air controlled sections are to be for scraper raise/lower, scraper angle, wing raise/lower, plow and dump box. The two (2) electronically proportional sections are to be for main sander auger and spinner and will be driven by a Rexroth 420RC closed loop ground speed controlled system. No liquid capabilities needed.

HYDRAULIC SYSTEM (cont)

The dump box circuit will be plumbed through an electrically controlled valve allowing for one circuit to operate both truck mounted dump body and a dump trailer. The switch shall be in-cab mounted.

The in cab mounted air control valves shall be mounted parallel to the back cab wall on a custom fabricated stand and positioned for comfortable access to the driver. The handles shall be angled so as to not infer with each other and be easily operated with a gloved hand. The valves shall be arranged in the following order, left to right, scraper raise/lower, wing raise/lower, scraper angle, plow, dump box raise/lower. The controls shall be self centering with the exception of the dump box, which shall have a detent lock.

The hydraulic valves shall be enclosed in a stainless steel enclosure of sufficient size and be located to allow for easy access. The scraper cushion valve and down pressure relief valve shall be located inside the enclosure.

Hoses and plumbing

All hoses shall be minimum 3000 psi rated and where possible will terminate with a female swivel fitting to allow for easy changing. The line from the tank to the pump shall be hard pipe of sufficient size and have short hose assemblies on either end.

All hoses and lines shall be mounted using insulated hangers to prevent wear. All hoses shall be routed to eliminate rubbing and will avoid high heat areas. In high wear area the hoses shall be wrapped in an abrasion resistance covering. The hose routing shall avoid areas necessary for maintenance. (i.e., filters and clutch linkage)

Completion

The entire hydraulic system will be filled with AW32 oil and shall be pressure tested. All operating pressures will be set and tested.

PRIOR TO DELIVERY

Paint

The fuel/hydraulic tank, dump box and wing shall be painted to match the cab. The scraper and plow hanger shall be painted a gloss black to match the frame. The outside 18" of the scraper moldboard shall be painted Omaha orange on both ends.

Safety features

All applicable safety/warning stickers shall be affixed in the proper locations. The scraper shall have 5"x10" step of serrated grating welded on top of the moldboard, located so the driver can use it as a step for access. Mud flaps shall be affixed on both bodies, both in front and behind the tandem axle assemblies. DOT approved conspicuity tape will be affixed to the outward facing edges of the spreader box catwalks, also a single strip crossing the rear facing surfaces of the cross auger housing.

PRIOR TO DELIVERY (cont)

Testing

The following shall be tested, all hydraulic circuits, all lighting and all warning/shut down features.

Inspection

The bodybuilder shall arrange with the Road Commission for a final inspection prior to delivery.

MISCELLANEOUS

All manufacture's operations/parts/installation manuals shall be provided

Operator training shall be provided as needed

Provide warranty information, both manufacture's and workmanship.

OPTIONAL BID #1

Multi Purpose Material Spreader

Substitute carbon steel for stainless steel

Spreader to be painted to match the cab

The Road Commission will pick up the truck after completion and acceptance

Bids shall be placed in a sealed envelope and marked "**TRUCK EQUIPMENT BID**".

Complete specifications and informational brochures shall accompany the bid.

The truck must be completed and accepted by the Road Commission with 75 days of delivery to the successful bidder.

Bidders are to provide a least four (4) contacts for reference for similar work.

Antrim County Road Commission contact: Ron Chapman, Shop Foreman. Telephone 231-587-8173 (6am-3:30pm) or Email (preferred) rchapman@antrimcrc.org.

The Antrim County Road Commission reserves the right to accept or reject any or all bids, to waive any irregularity or defect in a bid, or to accept the bid which in the opinion of the Road Commission is in its best interest.

Burt R. Thompson, P.E.
Engineer/Manager