

Purchasing Department

Duane McKinney Purchasing Coordinator

730 Wisconsin Avenue Racine, WI 53403 262-636-3700 fax: 262-636-3763

February 15, 2018

Dear Prospective Bidder:

You are invited to submit a bid to provide Racine County with One (1) New Current Model Year tandem axle truck, dump body with a sloped asphalt tail section, liquid prewet system, and a hydraulic system to control a front plow and right-hand front mounted wing plow. Sealed bids are due on or before 2:00 p.m. on Thursday, March 8, 2018 at the above address. Late bids will not be accepted.

Responses must be in a sealed envelope or box and show the firm's name, address, and solicitation number on the cover. Your response must be manually signed and dated and include all requested information.

Any general questions regarding this Invitation For Bid may be directed to Duane McKinney, Purchasing Coordinator at (262) 636-3700 between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday or via electronic mail at duane.mckinney@racinecounty.com.

Arrangements to view the trade-in unit and technical questions may be directed to Brett McDonald, Shop Operations Manager, at (262) 886-8446 between the hours of 8:00 a.m. and 3:30 p.m., Monday through Friday.

No other Racine County employees or representatives other than those specified above are authorized to provide information or interpret any portion of this solicitation. No contact from a vendor to any Racine County employee or elected official should be made during this process unless authorized by Racine County Finance Department.

Sincerely,

Duane H McKinney

Duane H McKinney Purchasing Coordinator

Encl: Bid Package

TANDEM AXLE TRUCK

GENERAL

This specification is to describe a <u>tandem axle truck</u>, <u>dump body with a sloped</u> <u>asphalt tail section</u>, <u>liquid prewet system</u>, <u>and a hydraulic system to control a front plow and right-hand front mounted wing plow</u>. All attempts have been made to ensure the following specifications are as accurate as possible. Racine County is open to other options provided they meet the intent of this bid. Bidders will submit current literature for make and model bid.

Lis	t Model Bid:	
1.	TYPE a. Tandem Axle Truck-Current Model Year b. Usable CA: approximately 120 to accommodate specified dump body c. GVWR: 58,000 lbs. minimum d. Wheel Base: approximately 186 inches e. Set back front axle model	
2.	AXLES, SUSPENSION AND EQUIPMENT 1. FRONT a. 20,000 lb. minimum rating tapered springs with front shocks Add an air suspension airbag with self-leveling valve to right front spring to accommodate weight of wing PRIOR to chassis going to body builder b. Front Tires – 425/65 R22.5 L rating c. Front Rims: Two (2) 12.25 x 22.5 ISO steel disc wheels powder coated light grey d. Seals- SKF Scotseal Plus XL or equal e. Front Brake Dust Shields f. Wheel cut: maximum allowed with specified wheel equipment g. All wheels are to have steel hubs. Aluminum not acceptable.	degrees
	 2. REAR a. 46,000# air suspension with leveling valves b. Rear Chambers on forward side of drive axles c. Rear Tires- 11R 22.5 H rating d. Seals- SKF Scotseal Plus XL or equal e. Rear Brake Dust Shields f. Rear Rims: Eight (8) 8.25 x 22.5 ISO steel disc wheels powder coated light grey g. All wheels are to have steel hubs. Aluminum not acceptable. 	
3.	BRAKE SYSTEM a. Full Air Brakes-S-Cam Type b. Front: S-Cam 16 ½" x 6" c. REAR-S-Cam 16 ½" x 7" d. Low pressure warning system e. ABS Brake System f. Meritor automatic type slack adjusters g. Wabco SS-1200 Plus Air Dryer with heater h. Manual drain valves	

		i.	Parking Brake-On both rear axles, spring set with dash mounted control	
4.	CA	ВЕ	EQUIPMENT	
			TERIOR	
			List construction of cab	
			Tilting fiberglass hood with butterfly inspection hatches	
			Rear cab window	
			Tinted and heated wiper blade area front windshield	
			Dual air horns, with shields, and a single electric horn	
			Heated West Coast Mirrors, RH & LH with stainless arms	
		•	and brackets	
		a.	Convex Mirrors - 8" mounted on lower arm of mirrors	
		_	Clearance lights-standard configuration	
			Front fender flares or extensions	
			Electric windshield wiper motor with delay	
		•	Two-gallon windshield washer fluid tank	
			Standard factory installed head lights, high and low beam	
			Passenger side door lower door window with Fresnel lens	
			LH and RH grab handles	
			Nonremovable bug screen mounted behind grille	
			Winter front installed on grill	
			Cab and hood painted Omaha Orange	
			•	
		IN	TERIOR	
		a.	Shall be custom interior to include but not limited to:	
			Full trim panels on doors, back of cab insulation,	
			headliner insulation, and cloth seats	
		b.	Premium high back cloth air suspension driver's seat with 3	
			chambered air lumbar, integrated cushion extension, forward	
			and rear cushion tilt and adjustable shock absorber	
			Passenger seat will be a fixed base and match driver seat	
			Arm rests for both right and left seats	
			Retractable seat belts on both driver and passenger seats	
		f.	Assist handles installed on the inside of the right and left door	
			Four-Way flashers	
		h.	Gauges to include:	
			(i) Air pressure gauge with light <u>and</u> buzzer	
			(ii) Voltmeter gauge	
			(iii) Engine coolant temp gauge with light <u>and</u> buzzer	
			(iv) Engine oil pressure gauge with light <u>and</u> buzzer	
			(v) Fuel level gauge	
			(vi) Electronic speedometer	
			(vii) Electronic tachometer with hour meter	
			(viii) Transmission oil temperature gauge	
		i.	Rubber floor covering	
		j.	Driver side and passenger side rubber floor mats	
		k.	Standard heater and defroster plumbing	
		l. m	Padded sun visors-right and left	
			Extreme climate thermal insulation	
		n.	Air Conditioning Tilt and telescoping steering column	
		0.	Tilt and telescoping steering column	
		p.	Steering Wheel-approximately 18"	
		q.	Radio-Factory installed AM/FM/WB	

		 r. Turn signals-signal stat, self-canceling s. Marker light switch with connections for plow lights. t. Overhead console with a 2-Way Radio wiring accommodation package. Wiring must be at least 12ga to accommodate a 40W radio 	
5.	a. b. c. d. e. f. g.	2-Volt System Batteries: 12 volt, Group 31, 3375 CCA at zero degrees F Fully enclosed battery box that will prevent road salt and debris from corroding terminals and located as such to allow access If battery box is in an inaccessible area, i.e. under or in the cab where the box is not easily accessible to jump start the vehicle, a jump stud must be provided on driver's side of vehicle Rear lights combination, stop, tail, directional, and back-up to be between frame rails. Shall have circuit breakers in lieu of fuses Shall have auxiliary harness for front headlights and turn signals for front plow lights	
6.	a. b. c.	Diesel-400 HP minimum @ 1625 RPM Torque-1650 ft. lb. minimum @ 975 RPM Specify make, model, CID, and HP @ rated RPM	
	e. f. g. h. i. j. k. l. m. o. p. q. r.	Alternator-Delcotron, 160 AMP 28-SI, brushless Air Compressor-16 CFM minimum Air intake-inside/outside with in cab control Air to air after cooling Engine hoses and tubing-Silicone Air operated on/off fan clutch Heated thermostatically controlled fuel/water separator All daily under-hood checks on drivers' side of engine Oil filter is engine mounted-disposable Delco 12V 39MT+HD/OCP, or equivalent, starter with thermal protection & integrated magnetic switch Coolant protection to minus 34F (-34F) degrees Exhaust: Vertical Stack configuration designed as not to interfere with mounting of the dump box, hydraulic tank, and controls. All flex tubing must be stainless steel. 5yr., 100,000-mile warranty on the engine, injectors, turbo, after-treatment & water pump Engine to be supplied with a fuel primer pump Front mounted PTO pump provision	
7.	a. b. c.	ASSIS 1/2"x 3 1/2" x 11 7/8" single channel steel frame, 120,000KSI Front frame extension must be part of parent rail continuous of main frame (integral) 20" integral front frame extension or adequate for plow mount installation. Not less than 14 inches from grill. 14" extension beyond rear of rear tires to accommodate a 13' length box	

Racine County Public Works Department Specifications for a New Tandem Axle Dump Truck(s) with Snow Plow(s), Wing(s) and Pre-Wet System(s) e. Tow hooks, front and rear f. Fuel Tank-Aluminum Left hand 70-gallon step tank with non-skid tread and stainless steel hold down straps g. Painted Gloss Black 8. DIFFERENTIAL a. Meritor Differential b. Differential to be geared for 65 mph with specified tires c. No spin rear axle d. Inter-axle differential and lock out with dash-mounted control e. Synthetic gear oil f. Have protection from dissimilar metal corrosion between wheels and wheels to hubs a. TRANSMISSION a. Automatic Allison 4000 RDS b. Synthetic Transmission Oil "TranSynd TES-295" c. On dash Push Button Shifting d. Transmission Cooler e. Close ratio six (6) speed f. Prognostics Enabled g. 5-year warranty covering entire transmission including electronics h. Vehicle interface wiring with body builder connector mounted inside back of cab b. MISCELLANEOUS 1. Provide a laptop computer with all software, and one year of internet access as required, to access ALL vehicle diagnostics and parameter settings (includes the engine, Allison "DOC" transmission software, antilock brakes, body building, Force America and multiplexing electronic system(s)) installed. Include all hardware, connectors, etc. needed to connect software computer to truck. 2. Included on computer will be i.Parts Manuals for Engine, Transmission, and ABS brake system ii.Engine Repair Manual iii.Shop Service Manual iv. Electrical Service Manual with Schematics v.Emission Service Manual vi.Service Bulletin with Updates 3. A **complete** set of service filters and belts for each truck ordered must be furnished when truck is **delivered** to Racine County. Provide list of filters being supplied in comment section. Any filters that are discovered at a later date (i.e. when truck is serviced) that were not delivered will still be the responsibility of vendor to provide at such date. Initial: 4. Three ignition keys provided. 5. Vendor shall provide onsite instruction for two (2) people

for servicing of major components such as engine, ABS,

5. Lubecore automatic grease system for chassis, wing, & dump box.

emissions etc.

HYDRAULICS FOR SINGLE AXLE TRUCK "HYDRAULICS SHALL BE FORCE AMERICA'S WITH NO EXCEPTIONS".

1. POWER TAKE OFF:

The power take off (PTO) shall be mounted to the Allison 4000RDS transmission. The PTO shall be a hotshift type. The PTO shall be designed to clear the integrated cooler on the Allison transmission. It shall mount like a standard side mounted PTO with an additional bracket at the rear of the transmission. The output of the PTO shall be extended past the back of the transmission where there is extra space. The main extension shaft and PTO shall be one piece to eliminate the need for input splines between the PTO and extension shaft. The clutch pack shall be located at the back of the transmission in the extension shaft. The input between the extension shaft and the pump shall be a wet spline. The PTO shall be a **Parker Chelsea 890 series** or approved equal.

2. HYDRAULIC PUMP:

The hydraulic pump shall be an axial piston pressure and flow compensated load-sensing type. The pump shall have a displacement of 5.61 cubic inches per revolution at maximum stroke which will deliver 23.7 GPM @ 1000 engine RPM. The pump shall have a minimum 2" inch suction line and ½" control drain line plumbed directly back to the reservoir. The pumps compensator shall have rear facing adjustments. The pump shall be rated for 5800 PSI maximum and 4800 PSI continuous. The pump shall have a Din type-mounting flange and a Din 5462 8-tooth shaft. The pump shall be **FORCE America TXV92** or prior approved equal.

3. SHUTDOWN SYSTEM

A single normally open, two position, two way, poppet style solenoid valve capable of stopping oil flow to the hydraulic system when actuated. The valve shall be mounted directly to the hydraulic pump discharge port. The valve assembly must also incorporate a high-pressure relief valve to protect the system from over pressurizing during system shut down. This solenoid valve shall be wired to a float type level indicator that is mounted from the top of the reservoir. The system shall be designed so that when the float contacts close, the solenoid valve stops pump flow and an enunciator in the cab that is on a control panel alerts the driver. The control panel will also incorporate an override switch wired to de-energize the shutdown system to facilitate diagnostics and equipment storage.

4. CONTROL CENTER

The Control Center shall be a **FORCE America Patrol Commander MPJC-6100-4-Ultra series** with spreader control.

Controls for all valve functions and electronic spreader control will be integrated into a single, self-contained control center. The control center shall be a padded armrest style that is ergonomically designed. Control center shall be modular in design for ease of installation and service, and wiring and connectors shall be keyed and color-coded throughout. All components must be durable for long life and trouble free operation.

The electronic controller shall be a fully proportional multi-stick controller to operate all cylinder functions. Multi-stick PWM driver electronics shall include as standard the capability to control at least 9 proportional outputs simultaneously. The control is available in a 3-stick or 4-stick configuration. Controls for spreader must be located on armrest at

the operator's fingertips. There shall also be four auxiliary rocker switches available with an additional fifth switch being the main power switch for the spreader control. The switches shall be located between the joysticks and spreader control interface and each shall be rated for 15 amps continuous current minimum. Console options shall be capable of supplying full rated power to switch outputs when all four auxiliary switches are at full 15 amp load.

For ease of operation the multi-stick control shall include the following features: LED-backlit nomenclature for all joystick functions and a momentary push-button at the top of the hoist stick to provide hoist-interlock. The "Hoist" decal shall be illuminated amber while disabled, and change to green backlighting when the driver engages the hoist interlock button. The green "Hoist" LEDs shall remain illuminated while the hoist is under operation and shall time-out after a period of hoist inactivity that is selectable from 0 to 15 seconds.

The plow, wing, scraper, or other joysticks shall have the option to include a momentary pushbutton for activation of remote spreader standby, remote spreader blast, or electric joystick interlock. The multi-stick communication hardware/software shall include 4 integral float options. The use of add-on float modules is unacceptable. For flexibility of use the integral float programming shall have the following standard features:

- (4) axis functional float on any or all of the outputs with selectable forward/back, right/left functionality
- 3-way or 4-way functionality
- Selectable (3) second float delay timer
- Optional float enable switch inputs
- When float output for a given joystick function is active, the LED-backlit nomenclature shall blink ON/OFF to provide visual feedback to the operator that the float function is engaged.

To ensure longevity of performance, all lighting to be solid-state LED technology. The use of incandescent lamps or EL backlighting is unacceptable.

All function joysticks shall be of contact-less Hall-effect design and offer up to a 5-Million cycle life. The use of potentiometers is not acceptable. To increase safety of operation, joystick communication hardware/software shall include the following standard features:

- Input power monitor circuitry with power quality diagnostics
- Redundant dual-reference joystick signals for each joystick axis
- Joystick input off-center checking on all axes and output shutdown on system powerup
- Joystick out-of-range fault condition checking and output shutdown.
- True outputs off with joystick centered
- LED-backlit nomenclature shall illuminate and flash RED when any error condition exists and an audible alarm shall sound
- LED-backlit nomenclature shall blink ON/OFF with increasing frequency as the corresponding function is increased in speed to give the operator visual feedback of each joystick output.

Multi-stick control shall communicate all joystick data over the spreader control CAN bus. For ease of service and diagnostics the multi-stick control shall have the following easily accessible through the spreader control calibration menus:

- Unique MIN/MAX adjustments for each joystick function (forward, back, left and right)
- On-screen output status indicators for each PWM output.
- Audible and visible output error status indicators with flashing error codes for

each joystick function

The multi-stick control joystick outputs shall be communicated over the spreader control CAN bus to the Valve Module. Spreader control outputs and joystick control outputs shall be operated on the same Valve Module or multiple modules as necessary.

The electronic spreader control shall be designed for precise, closed-loop control of granular and prewet liquid applications and operate on a CAN Bus protocol. The Central Processing Unit (CPU) shall have keyed and color coded connections to prevent incorrect installation. The CPU shall be mounted in the cab with visual access to diagnostic LED's. Mounting of the CPU unit outside of the cab is unacceptable. The unit shall have USB connectivity for file and data transfer, Ethernet connection, a J1939 communication port for connection to the vehicle bus; a second CAN bus communication port for spreader-only data use, a J1708 connection for a road and air temperature sensor, and a RS-232 connection for AVL communication. The CPU shall have on-board diagnostics, which provide real-time status of CAN bus communication, processor activity, and power status. The CPU shall have a built-in audible alarm for diagnostic purposes. The CPU operating system shall NOT be Windows-based.

The spreader control interface shall have two, color-coded, continuous rotation encoders for granular and spinner control. These encoders shall have integrated push buttons for blast mode and stand-by. The controller shall have a third multifunction 4-way joystick that has an integrated rotary encoder and push button, that can be used for menu navigation, prewet liquid control, or an additional conveyor function. There shall be four, two-way soft keys included in the interface that are generically-labeled and user-configurable for different functions depending on the equipment needs. The controller shall also utilize iButton technology that is capable of using a Supervisor key to provide access to the calibration parameters without the access code. The entire operator interface shall be backlit and encased in flexible silicone material with wear-limiting coating applied to the base silicone material. The operator interface shall communicate on the spreader control system CAN bus.

The spreader control display shall be a remotely-mounted, 7" diagonal color TFT LCD, with a low-profile 16:9 widescreen format and minimum of 800X480 pixel resolution. LCD shall have variable LED backlighting. CCFL backlighting is unacceptable. The display shall include a scratch-resistant polycarbonate lens with anti-glare coating. A power status LED shall be immediately visible on the front of the display and shall report display diagnostics including loss of CAN communication. Display unit shall have a built-in audible alarm. To avoid driver distraction, the display shall have no integrated dials or pushbuttons and shall not be touch screen. LCD shall communicate on the spreader control system CAN bus.

Mounting of LCD shall be where a "normal" rear view mirror would be installed. It shall be installed in such a way that will prevent it from vibrating loose from its mounts over time.

The operator menus shall be color-coded to match the encoder knobs on the operator interface. The display shall be capable of displaying the following on-screen simultaneously: Granular material name, granular material set point and actual application rate including units of measure, prewet liquid name, prewet liquid set point and actual application rate including units of measure, spread width, road temperature, air temperature, material usage total, liquid usage total, vehicle speed, and current date and time. The operator shall have the option of selecting five data items to be displayed onscreen during operation. The display will also provide four warning light indicators for low oil level, body up, oil temp, and filter bypass. These warning lights are to be functional regardless of spreader operation or status.

The display must provide visual indication that the spreader control is connected to a compatible AVL device. The spreader control shall warn operator if communication with the AVL device fails at power-up.

A proportional PWM driver and input module (Valve Module) shall be remotely-mounted inside the hydraulic valve enclosure for control of both spreader control and joystick control outputs. The entire Valve Module shall be of rugged design for the mobile environment, and must meet IP68 requirements for dust and water ingression. The Valve Module shall include a minimum of eight proportional PWM outputs with potted valve output connections. All outputs shall be protected against short-circuits. Outputs shall be currentcompensated and have adjustable PWM frequency. There shall be a minimum of five switch-to-ground type inputs for monitoring hydraulic system inputs such as oil level, body up, Hi and Low filter bypass, and oil temperature warnings. A minimum of two switch-toground type pulse train inputs shall be included in the Valve Module for connection of Force America supplied feedback sensors such as auger feedback and prewet liquid flowmeter feedback. A keyed and color-coded connection shall be provided for CAN bus connection to the CPU module inside the cab. A second CAN bus connection must be provided for daisy-chaining of multiple Valve Modules within the valve enclosure. Diagnostic LED's shall be included for every input and output on the Valve Module, as well as a power status LED and CAN bus activity LED's. The Valve Module shall be potted. The Valve Module shall include a stainless steel legend plate with engraved text for easy cleaning and identification of Valve Module connections.

The integrated spreader control and joystick control system shall be equipped with a qualified E-STOP device that immediately disconnects battery power from all outputs. All spreader control and joystick-operated outputs shall immediately cease to function and the system display shall inform the operator that the E-STOP device has been activated. The E-STOP device must remove power from all output devices, while maintaining power to the display and CPU for diagnostic purposes. Resetting of the E-STOP device shall not result in spreader control and joystick-operated outputs returning to an ON state without operator acknowledgement.

	t to be supplied with Pl play on-screen	reCis	se® MRM Temperature Sensor to integrate and	
5.	VALVE CONTROLS			
		a.	Dual axis on/off plow control	
		b.	Dual axis on/off wing control	
		c.	Proportional dump body with center safety lock	
		А	The valve controls must be tested before delivery	

6. HYDRAULIC RESERVOIR

The hydraulic reservoir and valve body must be located as not to interfere with the installation of an underbody plow blade or any other aspect of the chassis or installed equipment. Racine County would consider other options regarding location of said items. Please provide photos and/or shop drawings of how the truck would be constructed along with specification literature of proposed items.

- a. The hydraulic reservoir will be of 30 gallons nominal capacity.
- b. The hydraulic reservoir will be constructed of 10-gauge stainless steel and be internally baffled.
- c. All mounting and hose fitting connections will be stainless steel.
- d. Reservoir shall be mounted in manner as to not transmit any truck torsion loads thru the tank.
- e. All valve fittings, hose ends, filter(s), filler breather, sending units and any electrical connections are to be protected from the elements.
- f. The tank shall come equipped with an electrical temperature/level-sending unit.
- g. A warning light and buzzer shall be mounted in the cab and wired to the electrical indicator.
- h. The reservoir supplier will provide all valve fittings (JIC connections) and plumb the return line from the valve to the filter.
- i. The use of bulkhead fittings is not permitted.
- j. Hose exit and entrance must allow for components to be mounted adjacent to the enclosure.
- k. A two inch (2") full flow brass ball valve shall be plumbed at the suction port of the tank.
- I. Hydraulic oil filter shall be mounted IN NEXT TO the reservoir. (CIRCLE ONE)
- m. Hydraulic filter shall be a 16-micron absolute and rated for no less than 60 GPM.
- n. Have a basket type breather cap.
- o. Magnetic drain plug.
- p. Two inch (2") NPT suction with 100-mesh screen type filter.
- q. Separate return port for control drain line.
- r. Sight-temperature gauge externally mounted.
- s. Hydraulic oil shall be equivalent to Service Pro AW 32 with blue dye added.

	nonnouse and the above.	
a.	Hydraulic Valve Enclosure	
	1. The valve assembly shall be mounted in a weather-tight enclosure.	
	,	
	The valve enclosure shall be fabricated of 12-gauge stainless steel.	
	3. The valve cover shall be held to the enclosure by four heavy rubber	
	latches (one on each side).	
	4. All plumbing shall be external, directly into the bottom of the valve.	
	manifold base (no hydraulic plumbing in the enclosure).	
	5. When cover is removed, the valve must be exposed on 3 sides for ease	
	of service.	
	6. Valve enclosure location is to be approved by Racine County Public Work	.s

Acknowledge all of the above:

b. Force America Add-A-Fold control valve (no Exceptions)

The hydraulic valve shall be of modular manifold design. Valves requiring the removal of tie rods and disassembly of valve to service a work spool section will not be accepted. Each hydraulic function requires an individual manifold stacked together to form the manifold base. The manifold base shall consist of an inlet section with SAE#16 inlet porting, SAE#20 outlet porting, and SAE#4 load sense porting. There shall be a main system relief in the inlet section to protect the system from high pressure in case the pump compensators fail. The dump body manifold

shall be stacked next to the inlet section, and capable of 40 GPM with SAE#12 porting. The hydraulic valve segment shall be individually mounted to the manifold base assembly and be serviceable without removing any hydraulic hoses or any other hydraulic valve segments. Each hydraulic valve segment shall have individual pressure compensation to achieve independent simultaneous operations. All segments shall have heavy-duty continuous duty coils and connections shall be with Din connectors. All coils shall operate at 12VDC and require a maximum of 1400 mille-amps. Each segment shall be equipped with a manual override except for the auger, spinner, & pre-wet sections. The dump body segment shall be rated to 40 GPM, with all other segments rated to 20 GPM. If a double acting hoist is utilized, the dump body segment shall be equipped with a downside relief to protect the body down function. This relief shall be set to the hoist manufacturer's specifications. Valve segments shall be Add-A-Fold model. The valve is to be arranged as follows:

Hoist 4-way with 500 PSI down side work port relief valve

Plow lift 4-way Plow angle 4-way

Right Wing toe 3-way with lock valve to prevent drift down Right Wing Heel 4-way with 1500-psi (A) port relief valve

Auger 4-way Spinner 2-way Liquid/Prewet 2-way

Please note: The wing heel sections shall be equipped with hydraulic wing locks plumbed to the cylinders to prevent wing drift down.

Hydraulic valves, electrical components, and electrical connections shall be mounted in a weather-tight enclosure that will protect from both road and pressure washer spray.

8. CONTROL VALVE KICK-OUT

- a. The body hoist cylinder shall be connected to control valve and provided with kick-out to prevent over extending the cylinder.
- b. A 904S-C-16 cable pull off valve plumbed between the valve and cylinder.

7. HIGH PRESSURE HOSE/TUBING

- a. All hydraulic lines and plumbing shall be of sufficient capacity so as not to create heat or turbulence within hydraulic system. Suction line between reservoir and pump shall be a minimum of 2 in. I.D. with a minimum SAE 100-R4 rating and shall be secured on both ends via heavy duty banding straps, radiator hose clamps are unacceptable. All pressure hoses to have a minimum SAE 100-R2 rating. Return lines and case drain shall have minimum SAE 100-R1 rating.
- b. Hydraulic lines shall be routed away from exhaust manifolds pipes, bolts, sharp edges, and exhaust system to prevent wear, fatigue, or fire. Support brackets, grommets, and jackets shall be provided where appropriate to protect lines from damage by abrasion, cutting or impact.
- c. All hydraulic hoses shall be Gates Global M3K Mega3000 MegaTuff
 Hose with a minimum working pressure of 3000 lbs. psi and bursting
 pressure of 13,000 lbs.
- d. Each hydraulic hose shall be sheathed with protective hose sleeve prior to having hose ends crimped.
- e. ½" (minimum) stainless steel tubing will be routed from front to rear of chassis with minimal interference as possible with equipment and chassis components that require

	periodic servicing. All tubing to metal jacketed and separated (not wire-tied). Stainless steel fittings to be used on all stainless steel tubing. Maximum distance between support jackets on all hydraulic tubing shall be 24 in.
f.	A return line manifold to be used to minimize the length of return lines to hydraulic tank.
g.	Pipe fittings are not acceptable in any high-pressure line. No street ells are to be used. Only hydraulic fittings may be used. Black pipe and Galvanized pipe will not be accepted.
h.	Two plugged tees provided in the return line for connecting the spreader return line to the hydraulic system.
i.	All lines to attachments shall be equipped with Pioneer 4050-4 and 8010-4 (with dirt covers) quick couplers for quick assembly and removal of attachments.
j.	All hydraulic quick couplers shall be mounted to the rear of the chassis.



10. MANUALS PER UNIT

 a. One (1) parts manual must be supplied for each accessory listed 1-9 above.

DUMPBODY FOR TANDEM AXLE TRUCK

1. GENERAL

(i) This specification is to describe a 201 stainless steel <u>Cross-memberless</u> dump body with trunnion mounted double acting front telescopic hoist.. The body, as bid, will be a current design. Bidders will submit current literature for make and model bid. All items are to be stainless steel unless otherwise noted.

		uniess otherwise noted.		
	Mode	el Bid:		
2.		NSIONS All dimensions are approximate. Please contact chassis deale	er prior to	
	b. W c. Ca d. St e. He f. Ta	/idth: 84 inches inside. apacity: 13.5 - 17 cu. Yd. traight sides: 44 inches high eadsheet height: 60 inches.	ft ft	in cu. yd. in. in. in.
3.	a. O b. 10 c. O sid d. O e. Al f. Vi	s AND HEADSHEET ne piece 7-gauge sides and front head sheet) ga. seamless boxed top and rub rails sloped outward ne piece 7-gauge front and rear corner posts with 2 inch deboard pockets ne welded on horizontal brace I seams are to be fully welded both inside and out brator mount controlled from inside cab ear body design is to be asphalt body, sloped tailgate style		
4.	b. Si	OR ne floor shall be 1/4-inch AR400, 180,000 PSI seamless floor des to be joined to floor by 5 inch radius, 10 gauge stainless steel ong sills from minimum 8" single piece steel I-beams. No splicing.		
5.	b. Si c. Sh d. Ul e. Ta f. Ai g. La h. A	panel gate, 7 gauge with full perimeter boxing ngle intermediate horizontal tailgate brace nall have double acting tailgate chains pper and lower pins shall be 1-1/4" stainless steel ailgate pins should be mounted as low as possible at bottom of gate to allow gate to "lay flat" when open. r operated tailgate latch atch hooks and latch plates made from stainless steel "tailgate open" light shall be mounted in the dash hall have grease zerks at all pivot pins		
6.	a. 8- b. Do	T AND FRAME inch I-beam frame. ouble acting hoist itride piston rod		

e. f. g.	Trunnion mount cylinder Minimum rating - 37 ton Shall have grease zerks at all pivot pins. Shall Include all OSHA approved equipment and labeling.	Tor
	Body up light switch in Force 6100	

7. GENERAL

a. Rear step plates above rear wheels inside **and** out of box to allow access into and out of box.



b. Lights must not weaken rear posts.

of wiring

c. All lights must conform to all State and Federal Standards.

d. Wiring harness must be a sealed construction to prevent corrosion



b. Stainless steel walking rail along both sides of body c. One piece cab protector. Cab protector shall be sized accordingly to completely protect cab from damage and installed by fully welded protector to head sheet. Skip welds are unacceptable. d. Body-up warning light located in the cab e. Left and right dump grab handles f. Roll-Rite (only) brand asphalt tarp electrically controlled from cab g. Mud flaps mounted on rear of chassis with removable brackets h. Must conform to all Federal and State regulations. i. Rust Proofing on the following: Entire underside of dump body floor **Truck Chassis** j. No rust proof holes in dump body or truck chassis. k. Two (2) OSHA approved body props I. All mounting fasteners attached to dump body and salter are to be stainless steel. m. Any material not stainless steel will be painted black and rustproofed. n. Electronic backup alarm 112db 8. DUMPBODY TAIL LIGHTS a. Tail lights shall be Truck-Lite 60050R lights recessed in dump body posts using rubber grommets.

9. DUMPBODY WARNING LIGHTS	
a. Shall be Star Warning Systems DLXTHU-8BA amber strobes with	
weather-pack connectors and be recessed in dump body post and	
connected to a switch in the Force 6100 control center. Lights will	
be connected to turn signal so when turn signal is on, flasher works	
as a turn signal. Video: https://youtu.be/_SfppSA8ks0	
b. Two (2) Strobe lights shall be a Star Warning Systems 9018LED mounted	
solidly on top outer corners of cab protector and wired to Force 6100 control center.	
c. Shall install a J.W Speaker 670-12/24V HTD Worklamp AMB FLD,	_
Item Number 1403491 salter light.	
d. Shall install a J.W Speaker 670-12/24V HTD Worklamp AMB FLD,	
Item Number 1403491 wing light.	
e. Contact Racine County prior to placement of lights.	
10. PLOW LIGHTS	
a. Two plow lights shall be mounted on reinforced brackets on the	
front fenders so that their light beam clears the top of the plow	
moldboard in the raised position.	
b. The plow lights shall be JW. Speaker Model 9800 12V SAE, heated.	
c. Plow lights shall be connected to the headlight switch and have a	
selector switch between driving lights and plow lights.	
d. Plow lights shall be properly aligned for night time driving.	
11. ELECTRICAL SYSTEM	
a. All wiring is to be double jacketed with ethylene-propylene rubber	
to keep out moisture and protect from damage.	
b. All electrical connections are to be made using Weather-pack	
connectors and protected from moisture entering the connection.	
c. All junction boxes are to be completely waterproof.	
 d. Any wires that are subject to abrasion are to be covered with vinyl tubing for additional protection. 	
 e. All lights are to be grounded through wiring system not to mounting bolts. 	
12. MISCELLANEOUS	
a. A pre-build meeting shall be conducted at dump box vendor's	
facility prior to work commencing on truck to answer any questions	
or concerns between entities. b. A pre-delivery meeting shall be conducted at the dump box vendor's	
facility at the 85% completion point prior to truck being delivered to	
chassis vendor to ensure the truck has met Racine County's	
expectations and specifications.	
•	

SNOW PLOW AND PATROL WING WITH HITCH

1.	PLO	W HITCH
	a. S	shall be Quick Coupling Push Hitch
	b. F	litch push channel shall be reinforced with a 5/8 x 4" steel plate
	а	cross entire top of push pad contact area.
_		
2.	_	CK HITCH
		Shall be Burke UBF (Universal Bumper to Frame) Plow hitch to be mounted as close to truck as possible.
	υ. г	low flitch to be mounted as close to truck as possible.
3.	SNO	W PLOW
•		thall be a 12 FOOT BURKE ROAD TAMER 2000 "NO Exceptions"
) The moldboard shall be broke not rolled.
	(i) Moldboard face shall be constructed of 10-gauge steel.
	(ii) Five (5) hinge points
		v) Shall have rubber deflector installed
	(v) Winter Equipment Razor XL plow blades with left and right
	,	PlowGuard CurbRunner installed
	•	vi) Moldboard Height shall be 42".
	(vii) The moldboard is to be reinforced with no less than eight (8)
	(one-piece vertical ribs, contour fit to the moldboard. viii) All ribs are to extend from the lower cutting edge
	(reinforcement to the top edge of the moldboard.
	(x) The center rib(s) shall have a lifting eye or rod located in
	`	a position that allows for a balanced lifting of moldboard
		and push frame.
	(x) The bottom of the moldboard shall be reinforced by a
		one-piece 5"x 3"x1/2" angle. This angle shall be reinforced
		by ten (10) ½-inch thick gussets.
	(xi) This angle shall be punched with fourteen (14) 11/16"
	,	holes in standard highway punch configuration.
	(xii) The plow when attached to plow hitch shall be capable of level lift and being reversed to the right or left and maintaining
		a level height when fully angled.
		a lover neight when raily angled.
4.	PAT	ROL WING RIGHT SIDE
	A. S	shall be a 10' Burke Snow Patrol DKJ Patrol Wing "NO Exceptions"
	į.	9' x ½" x 6" trip cutting edge.
	ii.	Winter Equipment Razor XL plow blades with heel PlowGuard
	iii.	CurbRunner installed
	ııı. i∨.	Dual A-frame lift, (No Cable). 4" x 10" Lift cylinder-nitrided
	۱۷. V.	3 ½" x 10" Toe cylinder
	vi.	4" x 19" Heel cylinder.
	vii.	All cylinders to have 2" nitrided rods.
	viii.	Shall be equipped with a decelerating cylinder.
	ix.	Wing lock in hydraulics.
	х.	Full hood clearances with no side shift or tilt mechanism needed.
	xi.	Shall have two (2) Whelen Wing WPLOW3AA warning lights
		installed on heel of wing.



Note: All mounted framing and hardware for plow/wing(s) shall be painted black and rustproofed.

ONE (1) V-BOX MATERIAL SPREADER WITH A HYDRAULIC LIQUID SPRAY SYSTEM "V-Box and all associated metal shall be stainless steel"

1. General

- a. Shall be designed to fit inside proposed dump body.
- b. Model:
- c. Minimum 11.6 cubic yard capacity.
- d. Shall be equipped with a Buyers Products Company lightbar (P/N LB8665SST) or equivalent, with Star Warning Systems DLHTHU-8-R lights and DLXTHU-8-A strobes installed. Lights should be wired same as Section 9.a



e. Side Height 68 inches.

2. Body

- a. 12 gauge stainless steel sides
- b. 7 gauge floor
- c. 304 stainless or equal
- d. 5 side supports and properly sized bracing to fit in dump body
- e. Reinforced top screens hinged to longitudinal channel
- f. Grease manifold installed to lubricate front auger bearing
- g. Slip in mounting kit to safely secure the hopper to the dump box, shall be included using a combination of four (4) 1 1/4" diameter stainless steel rods of sufficient length installed:
 - i. Through upper tailgate pivot point and into sides of spreader
 - ii. Through a 5 ½" (bottom) by 3 ½" (top) by ¾" (thick) trapezoidal shaped stainless steel bracket welded to the top of dump box as close as practical to the front edge of the spreader.



Front Rear

h. Tailgate latch kit will be used for additional support in securing the V-box spreader into the dump body. 2" thick wall square tubing of sufficient length to reach the tailgate latches will be installed along with 1" x 10" shafting.



3. Auger System

- a. Shall be 7" in diameter running longitudinally with the body, feeding material the full length of the hopper. The auger shall consist of a 4" pipe with a 2" cold roll end shaft and flitting continuously welded the full length. The auger trough shall be removable and manufactured of 7-gauge steel. The auger shall be driven by an 18 H.P. hydraulic motor directly coupled by a splined shaft coupling. The coupling shall be equipped with grease fitting so that the motor spline and coupling can be lubricated. The idler end of the auger shall be supported by a 4-bolt flange, heavy-duty dust sealed, self-aligning ball bearing. This bearing must be able to be lubricated from outside of the dump body. Both the auger drive and idler end plate shall be manufactured from 3/8" steel. An adjustable in height inverted vee shall be provided to keep the material load off the auger for easier auger start-up.
- b. A protective grid shield shall be placed over the exposed auger outside the hopper.
- c. A metal protective shield shall be installed around hydraulic motor. _



4. Spinner

- a.) The entire spinner assembly will be capable of repositioning vertically without the use of special tools to allow the unloading from the conveyor without interference from the spinner assembly. This assembly shall be capable of being secured in a horizontal position without the use of tools.
- b.) 18" diameter minimum tip-up type material chute.

Racine County Public Works Department Specifications for a New Tandem Axle Dump Truck(s) with Snow Plow(s), Wing(s) and Pre-Wet System(s)

		 c.) Spreader pattern shall be capable of spreading material in an e pattern to both left and right of the truck. d.) Spinner height shall be approximately 20" above ground level w placed on a dump body with a floor height of approximately 54". e.) The spinner disc shall be driven by an independent low speed high-torque "orbital type" hydraulic motor. 	
5.	Mis	cellaneous	
	Α	Spreader shall have the hydraulic capacity required to operate with truck hydraulics.	
	В	Hoses required to couple to truck.	
	С	Natural Stainless Steel Finish	
	D	The inverted vee shall be adjustable in height and located	
		approximately 8" - 10" above the V-box sides. The inverted vee	
		manufactured of 10-gauge stainless steel and 3/16" x 1 ½" x 1 ½"	
		angle iron. The entire assembly shall bolt to the inside supports	
	_	welded above the outside side supports.	
	Ε	Wet spray system must be compatible to operate with Force Americ	cars
	F	CommandAll 6100 hydraulics and control center. The following manuals will be supplied upon delivery of truck:	
	Г	1. Parts manual	
		2. Service manual	
		3. Operators manual.	
		or operators manuall	
6.	Pre	Wet System	
	Α	Shall be equipped with Varitech LDSVB-200-HCL or Swenson	
		LLS-H Hydraulic Liquid Spray System, with two (2) 100-gallon min.	
		polyethylene molded reservoirs.	
	В	Pre-Wet system shall come complete with a liquid spray pump,	
		sprayer tanks, tank-mounting straps, discharge nozzle bar, closed	
	_	loop flow meter, plumbing, and hardware.	
		Pre-Wet tanks shall be fully removable.	
	D	1 ½" Fill valve with cover at lower point on tank	
	_	(see picture in Section 3.c above)	
		Fill line between tanks shall be 1 ½"	
	F	Stainless steel hold-downs	

1. WISCONSIN DOT GPS SYSTEM

A. Install PreCise IX-403 GPS system (Racine County will provide the IX-403 silver boxes) and all associated Force America (only) required items to meet the Wisconsin Department of Transportation's AVL-GPS Program into truck. Contact Bob Braovac from Force America @ 1-262-513-2304 for more information. Please provide itemized list below for Wisconsin Department of Transportation's approval.

Description	Quantity	Cost
AVL-GPS Equipment & Installation	\$	
Plow Sensor	\$	
Pavement Temperature Sensor	\$	
Auger Sensor	\$	
Gate Sensor (as needed)	\$	
Flow Meter Sensor (as needed)	\$	
Other:	\$	
Labor	\$	
TOTAL	\$	

Wisconsin Department of Transportation

By:		
Title:		
Date:		

OPTIONS

Bid#

Tandem Axle Dump Truck

1.	One (1) Hydraulic Underbody Scraper Installed WAUSAU MODEL "PB-11" UNDERBODY BLADE
	Cutting Width@ 0°-11'0", 15°-10'7", 35°-9'0", 45°-7'9"
	Moldboard Thickness 1"
	Moldboard Height 20"
	Reverse Table 1"
	Weight (lbs.) 2680
	Add:
2.	CHASSIS MANUFACTURER – Ensure proper ground clearance for battery box, air tanks,
	fuel tank, muffler and any other item are located as high as possible and in locations to make
	room for underbody scraper.
	Add:
3.	HYDRAULICS - Ensure appropriate controls and plumbing are added to accommodate the
	underbody scraper. Control placement per Racine County
	Add: each
4.	LEFT HAND – MID MOUNTED WING
	A. One (1) left hand, mid mounted, patrol wing in addition to right hand mounted patrol wing.
	Smaller wing size may be required. Contact Racine County for details.
	B. Shall have two (2) Whelen Wing WPLOW3AA warning lights installed on heel of wing.
	Contact Racine County prior to placement of lights.
	Add: each

Provide any optional items that your company feels would be beneficial to Racine County Public Works that is not listed in specifications. Provide documentation, pricing, etc. on items and the reasons why the recommended options would be of benefit to Racine County.

CERTIFICATION OF VENDOR

Bid #17-PW-001

TANDEM AXLE DUMP TRUCK

I fully understand the requirement of the County of Racine and certify on behalf of my Company that we can meet the requirements stated above.

SIGNATURE	
TYPED/PRINTED NAME	
TITLE:	
COMPANY:	
ADDRESS:	
CITY/STATE/ZIP:	
TELEPHONE:	_FAX:
E-MAIL:	
DATE:	

BID FORM (1) TANDEM AXLE DUMP TRUCKS

Bid#

PRICE: New Current Model Year Tandem Ax	le Dump Truck(s Truc		Truck 2
TRUCK CHASSIS Make/Model:			ea.
DUMP BOX and HYDRAULICS Vendor:		(
Make/Model: SNOW PLOW complete with HITCH:		ea.	ea.
Vendor:Make/Model:	 \$	ea. \$_	ea.
RIGHT SIDE PATROL WING complete: Vendor: Make/Model:	\$	ea. \$_	ea.
PRE-WET SYSTEM Vendor: Make/Model:	\$	ea. \$_	ea.
HYDRAULIC TAILGATE SPEADER Vendor: Make/Model:		ea.\$	ea.
WISCONSIN DOT GPS SYSTEM			ea
Manufacturer Discount-Deduct	\$	\$_	
	TOTAL Two Ti	rucks \$_	
TRADE IN ALLOWANCES-Racine County Ve #63 2000 Sterling L7501 Single Axle Dump V #68 2004 Sterling L7501 Single Axle Dump V	V/Plow & Wing-D		

BID FORM (2) If bidding additional body equipment vendors.

TRUCK CHASSIS	Truck) that include: 1 Tru	ıck 2
Make/Model:	\$	ea. \$	ea.
DUMP BOX and HYDRAULICS Vendor: Make/Model:	 \$	ea. \$	ea.
SNOW PLOW complete with HITCH: Vendor: Make/Model:	\$	ea. \$	ea.
RIGHT SIDE PATROL WING complete: Vendor: Make/Model:	\$	ea. \$	ea.
PRE-WET SYSTEM Vendor: Make/Model:	\$	ea. \$	ea.
HYDRAULIC TAILGATE SPEADER Vendor: Make/Model:		ea. \$	ea.
VISCONSIN DOT GPS SYSTEM		ea. \$	
Manufacturer Discount-Deduct	\$	\$	
	TOTAL Two Tru	ıcks \$	

Racine County Public Works Department		
Specifications for a New Tandem Axle Dump	Truck(s) with Snow Plow(s),	Wing(s) and Pre-Wet System(s)

DELIVERY TIMES:

Truck Vendor delivery time from DATE OF PURCHASE ORDER:	(Approx. # of Days)
Installation of additional items on chassis PRIOR to delivery to Other vendors	(Approx. # of Days)
Installation of Plow and Wing:	(Approx. # of Days)
Installation of Hydraulics, Dump box, Prewet systems, AVL-GPS, etc.:	(Approx. # of Days)
Final preparation work by Truck Vendor:	(Approx. # of Days)

WARRANTIES

Bid #17-PW-001

TANDEM AXLE DUMP TRUCK

LIST ALL APPLICABLE WARRANTIES (attach copies as necessary)

1. Truck Chassis/Engine

Please detail:

Additional Warran	ties Availabl	<u>e</u>		
	Months	Miles	Provider	Cost
Engine:				
Transmission:				
Turbo:				
Injectors:				
Frame:				
Front Axle:				
Rear Axle:				
ABS Brake:				
Chassis Electronics:				
Chassis Wiring:				
3. Dump Body Please detail: 4. Snow Plow, Wi	ing. and Hitc	ch		
Please detail: 5. Pre-wet System				
Please detail:	_			
List location where		ork shall be perfor	med.	
Is pick-up and deli	very of item a	a no cost item for	warranty work perform	ed at dealer's facility?
Yes		No		