NOTICE OF BID

The City of Pigeon Forge is receiving bids on commercial refuse collection trucks for the Public Works Sanitation Department.

Specifications may be obtained from the Public Works Department at City Hall between the hours of 8:00 a.m. and 4:30 p.m., Monday thru Friday.

Bids will be received until 2:00 p.m., August 7, 2012; at which time they will be opened and read aloud. All bids must be in sealed envelope with bidders name and address on outside and marked "Bid on Automated Refuse Truck."

The City reserves the right to reject any or all bids or to accept the bid most favorable to the City.

This 31st day of July, 2012.

Department of Public Works City of Pigeon Forge

BID SHEET

Bidder:		-	
Contact:		-	
Address:		-	
		-	
Phone:	_Fax:	-	
Email:			
Truck Brand & Model:			
Body Brand & Model:			_
One (1) complete unit:			
Delivery Time:			
Two (2) complete units:			
Delivery Time:			

BID SPECIFICATIONS

FOR FRONT LOADING REFUSE COLLECTION BODY

INTENT:

This specification describes a hydraulically actuated partial pack front loader with a container hoisting device capable of handling 1-10 cubic yard containers with side pockets. The body shall be capable of compacting and transporting refuse to a landfill or transfer station and discharging the load by means of hydraulically ejecting the load from the body.

GENERAL TERMS:

All equipment furnished under this contract shall be new, unused and the same as the manufacturer's current production model. Accessories not specifically mentioned herein, but necessary to furnish complete unit ready for use, shall also be included. Unit shall conform to the best practice known to the body trade in design, quality of material and workmanship. Assemblies, sub-assemblies and component parts shall be standard and interchangeable throughout the entire quantity of units as specified in this invitation to bid. The equipment furnished shall conform to ANSI Safety Standard Z245.1-1992.

GUARANTEE:

Bidder shall state his normal warranty and extended warranty where available.

PARTS MANUAL:

Bidder shall furnish a complete parts, maintenance, and operator's manual with each body, truck and chasis sold.

Bidder shall complete every space, in the specification's bidder's proposal column, with a check mark to indicate if the item being bid is exactly as specified. If not, the "NO" column must be checked and a detailed description of the deviation shall be listed on a separate sheet (one deviation per sheet).

BODY SPECIFICATIONS

YES NO

A. CAPACITY

- The partial pack front loader body shall have a body capacity, excluding the receiving hopper, of not less than 28 cu. yd.
 The hopper shall have a capacity of twolve (12) cubic yards min.
- 2. The hopper shall have a capacity of twelve (12) cubic yards, min.

B. BODY DIMENSIONS

- 1. Body Length, including cab shield: 352".
- 2. Overall length with arms down and forks in horizontal position: 453".
- 3. Body width, outside (maximum): 96".
- 4. Body height above chassis rail, arms down (maximum): 107".
- 5. Hopper width (bottom) (minimum): 80".
- 6. Hopper length at roof (minimum): 94".
- 7. Hopper depth (minimum): 91".
- **C. CONSTRUCTION:** Packer body will have flat hopper and body floor with curved roof and body sides and of overhead loading design. Hopper will be designed to properly handle containers from 1-10 cubic yard capacity. Body shall be equipped with front head closure screen.

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E.	 SIDE WALLS Lower hopper sides - minimum 3/16" AR 400 abrasion resistant steel plate, 184,000 PS minimum yield Upper hopper sides - minimum 8 gauge high tensile steel sheet, 80,000 PSI minimum yield Body Sides - minimum 8 gauge high tensile steel sheet, 80,000 PSI minimum yield. 	il 	
F.	 FLOOR 1. Hopper floor - Minimum ¹/₄" AR400 abrasion resistant steel, 184,000 PSI minimum yield 2. Body floor - Minimum ¹/₄" AR400 abrasion resistant steel, 184,000 PSI minimum yield. 		
G.	 HOPPER SIDE REINFORCING The bottom side brace shall be 7 gauge formed 6" x 2"channel, 80,000 PSI minimum yiel Lower and intermediate side bracing - minimum of five (5) 11 gauge 80,000 PSI minimum yield 7¼" x 1½" formed angles of lap construction. Upper hopper side braces (2) shall be 11 gauge formed 5¾" x 1⅛" channel, 80,000 PSI minimum yield. All external welds of hopper side bracing shall be continuous full seam. 		
н.	 FLOOR REINFORCING Shall be 6" x 3", 7 ga 80,000 PSI formed channel on approximately 15" centers. Cross members shall be full width, single piece construction. Cross members shall interlace with body longitudinals to fully support the floor. 		
I.	BODY LONGITUDINALS: Shall be minimum 7 ga." 80,000 PSI minimum yield formed box section.	x	
J.	SIDE ACCESS DOOR: The side access door shall be located at the front street side of the body with a minimum opening of $27" \times 291/2"$ (796.5 in ²). Steps and grab handles shall be provided for ease of entry. Electrical interlocks shall be provided to disable the pump wheneve the side door is open		
K. ROOF ACCESS LADDER: A ladder shall be provided on the rear of the tailgate for access to the body roof. Steps must be of anon-slip material and bottom step must be no higher than 28" above ground.			
L.	 SLIDING TOP DOOR A hydraulically actuated sliding top door will be provided to cover the hopper for traveling the discharge site. The top door cylinder shall be double acting and have a minimum 2½" bore x 90" stroke a 1½" diameter chrome plated rod. An in-cab mounted light will be provided to indicate when the door is not fully open. Top door to be constructed of 12 gauge hot rolled sheet with 2" x 2" x ½" structural tube frame. Door shall be reinforced to withstand packing forces generated within the body. The door hat channel guide track shall be constructed of a minimum 7 gauge 80,000 PS minimum yield steel. 	with	

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D. ROOF: Minimum 8 gauge high tensile steel sheet (80,000 PSI minimum yield).

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			YES	<u>NO</u>
М.	PA	CKING MECHANISM		
	1.	A hydraulically actuated packer traversing a minimum of 831/2" into the body, from the front head, shall clear the hopper of material with a maximum cycle time of twenty-six (26) seconds.		
	2.	The lower packing panel face will be a minimum 3/16" AR400 abrasion resistant steel, 184,000 PSI minimum yield. The upper vertical face will be a minimum 7 gauge, 80,000 PSI minimum yield. The packer will be reinforced with a combination of structural members for maximum		
		rigidity.		
	3.	Packing mechanism guide rails		
		a. The hopper zone packer guide rails (2) in the side of the body shall be comprised ³ / ₆ " 50,000 PSI minimum yield formed channel welded to 3 ¹ / ₂ " x ¹ / ₄ " x 3/16" ASTM A500 Grade B structural tubing on each side of body. The structural tubing shall be of a continuous piece the full interior length of the hopper, 128" long.		
		b. Abrasion resistant wear bars (145,000 PSI minimum yield) shall be clad to the hopper		
		zone guide rails, each side, as follows:		
		I. Bottom (lower) track wear bar, 1/4" thick x 31/2" wide located 31/2" above floor at corner.		
		ii. Top (upper surface) track wear bar, $\frac{1}{4}$ " thick x $2\frac{1}{2}$ " wide.		
		iii. Outer (vertical surface) track wear bar, 1/4" thick x 21/2" wide.		
		c. Ejection zone guide rails shall be 3/8"50,000 PSI minimum yield formed channel welded to the full length 31/2" x 31/2" x 3/16" ASTM A500 Grade B structural tube. A 1/4" x 21/2" HRS		
		wear bar shall be welded to the inside vertical surface of the structural tube.		
	4.	The packer panel shall be guided on each side of the body with 3" x 6" x 1/4" ASTM A500 Grade B		
		structural tubing clad with 145,000 PSI minimum yield abrasion resistant wear bars in the following manner:		
		a. Bottom (lower) packer panel wear bar to be $\frac{3}{6}$ " thick x 3" wide x 41" long.		
		b. Top (upper surface) packer panel wear bar to be ¹ / ₄ " thick x 3" wide x 41" long.		
		 c. Vertical surface packer panel wear bars (2 each side), located below the structural tubing shall be 1/4" thick x 2" wide x 18" long. 		
	5.	a. The packer panel shall be provided with bolt-on lugs for each of the two (2) packing		
		cylinders. The cylinders shall be attached to the packer panel lugs via two inch (2")		
		diameter pins. Cylinder removal may be accomplished by either pulling the pins or by		
		removing the entire bolt-on lugs. The lugs shall be attached to the packing panel with six (6) ³ / ₄ " diameter bolts for each lug assembly.		
		 b. The body front head shall also be provided with bolt-on lugs for packing cylinders. The lugs shall retain each cylinder pin with four (4) ³/₄" diameter bolts. 		
	6.	a. The packer will be hydraulically actuated by two (2) double acting telescopic cylinders with		
	0.	51/2" bore x 182" stroke.		
	-	b. Packer cylinders shall have spherical bearings both ends.		
	7.	Packing force - minimum cylinder compaction force shall be 105,000 pounds.	<u> </u>	
N.	вu	ISTLE TAILGATE		
	1.	Tailgate must be one piece, top hinged and shall open approximately 30 ^o above horizontal.		
	2.	Tailgate shall be constructed of a minimum 11 gauge, 80,000 PSI minimum yield on rear walls.		
	3.	The tailgate shall be reinforced by a minimum 1/4" 80,000 PSI minimum yield, horizontal boxed braces.		
	4.	The tailgate will be secured to the body by two (2) sets of hinges with 2" pins at the roof line.		
	5.	A heavy duty rear door positive seal of rubberized gasket material will be installed the full length		
		of the bottom and 68" up the sides of the tailgate to prevent leakage.		
	6.	The tailgate shall be secured in the closed position by means of a fully automatic latching mechanism actuated by a separate control in the cab.		
	7.	a. The tailgate shall be raised and lowered hydraulically actuated by two (2) double acting		

cylinders with a minimum bore of $3^{\circ} \times 28^{1/4}$ stroke with $1^{1/2}$ diameter chrome plated rod.

		Cylinder design shall also include an orifice fitting in the base port which will prevent the rapid descent of the tailgate in the event of a hydraulic failure.		
	8. 9.	 b. The tailgate shall be locked by two (2) lock cylinders with a minimum bore of 3" x 3%" stroke with 1½" diameter hardened chrome plated rod. Lock and tailgate raise cylinders shall be actuated by separate controls in the cab. All lights will be recessed into the tailgate with the lens flush with the outer skin. Clearance, backup and directional lights shall be a Lexan lens, shock mounted in a protective housing. The whole unit will be pop-out and replaceable. All vehicles will meet FMVSS #108 and State lighting and reflector requirements. An in-cab mounted light and audible alarm will be provided to indicate that the tailgate is not fully closed and locked. Physical tell-tale devices must be included to indicate that the tailgate is locked. 	<u>YES</u>	<u>NO</u>
О.	LIF	TARMS		
	1.	The lift arms will be 3" x 8" box reinforced type construction rated and capable of lifting 8,000		
	2.	pound gross container and payload. Lift arms shall be capable of lifting loaded containers from a truck dock with 10' maximum		
		pocket height.		
	3. 4.	Lift arm cycle time will be approximately 18-20 seconds Pick up, dump, and disengagement will be done without the need for assistance and without the		
		driver leaving the cab.		
	5.	The lift arms, during the dump cycle must not obstruct or interfere with the opening of the truck cab doors on either side.		
	6.	Two (2) 3" x 8" rigidly constructed lift arms will be clamped to a 4" diameter rear torque tube.		
	7.	The arm torque tube will be mounted in four (4) sets of split bearing blocks with four (4) sets of replaceable split bronze bushings with grease provisions. The split bearing blocks will be rigidly		
		welded to the lower front of the body.		
	8.	a. The lift arms will be hydraulically actuated by two (2) double acting cylinders $4\frac{1}{2}$ " bore x $4\frac{1}{2}$ " domester induction bordened and abrems plated red		
		41½" stroke with a 2½" diameter induction hardened and chrome plated rod.b. The cylinders will be located outside the body at the body floor level and directly attached to		
	•	the lift arms.		
	9.	 a. Two (2) 1¹/₂" high tensile, 50,000 PSI minimum yield forks shall be welded to a 4¹/₂" O.D. x ³/₈" wall C-1018 Seamless tubing fork cross shaft assembly. This assembly shall include 		
		Rubber bumpers to reduce impact and prevent damage to containers.		
		b. Fork cross shaft assembly shall be attached to the arms with two (2) split bearing blocks with replaceable split bronze bushings fitted with grease provisions.		
	10.	The forks will be hydraulically actuated by two (2) double acting cylinders, 4" bore x 25" stroke		
		with a 2" diameter induction hardened and chrome plated rod and fork stops to limit travel of the forks in the dumping operation.		
	11.	Forks shall be designed to provide the necessary dump angle to assure complete discharge of		
	10	materials from the refuse containers. Lift arms shall be brought to a smooth stop in the raised and lowered position.		
		Heavy duty bolt-on hard rubber arms stops located at the side of the body will cushion and		
	4.4	prevent over travel of the lift arms.		
	14.	14. Maximum height with the lift arms raised in the full up and forks fully tucked position will be 13' 6" (based on a chassis rail height of 42").		
	15.	An in-cab mounted warning light will be provided to indicate when any part of the arms are raised		
		above the body.		
Ρ.	HYI	DRAULICS		
	1.	The maximum operating pressure of the system will be 2500 PSI.		
	2.	The hydraulic pump shall be a front engine, crank driven, Denison single vane pump with		

electronic over-speed control. The packer panel operation shall be limited to a flow of 52 GPM @ 1500 RPM in neutral or foot on the brake.

NO

- 3. All hydraulic tubes will be securely clamped to prevent vibration, abrasion, and excessive noise.
- All hydraulic hoses shall conform to S.A.E. standards for designed pressure. Bends shall not be less than recommended by S.A.E. standards. Flat spots in hoses will not be acceptable. Fabric guard covering shall be installed over all high pressure hoses.
- 5. a. The hydraulic oil reservoir shall have a minimum capacity of 47 gallons filled with 41 gallons of hydraulic fluid.
 - b. The tank shall be complete with a screened fill pipe and cap, filter breather, clean out cover, shut off valve and oil level sight and temperature gauge.
 - c. The hydraulic system shall be protected by a three (3) micron, in tank, return line filter along with a 100 mesh (140 micron) reusable oil strainer in the suction line.
 - d. The return line filter shall also include an in-cab filter by-pass monitor which shall alert the operator or service personnel when the filter is in need of replacement.
- The main control valve will be a six (6) section stack valve with relief to prevent overload damage. Valve capacity will be minimum 50 GPM @ 2500 PSI and designed to properly operate all hydraulic components.

Q. CONTROLS

- 1. Arm, fork, packer, top door, body hoist and tailgate raise air controls with four-way joystick shall be provided. All control levers and joystick shall be located inside the cab within easy access to the driver. A separate in-cab control shall be provided for tailgate lock function.
- 2. Each control handle shall be properly labeled and indicate the direction of travel (i.e., arms up, arms down, etc.) with warning lights to indicate Tailgate Open, Top Door Closed, and Arms Above Cab.
- 3. The controls shall be self centering type, returning to the neutral position when released.

R. ELECTRICAL

- 1. A PLC (Programmable Logic Controller) electronic control center shall be provided to monitor system functions and operate the "Auto Pack" function. The PLC shall be installed inside the truck cab and shall possess self-diagnosing error codes which identify the trouble source. Both audio and LED outputs must be made available to aid in locating trouble source.
- All electrical wiring connectors to be automotive double-seal, with wiring in split convoluted loom. All wiring connections to be soldered with rubber molded covering or crimp type connectors with shrink wrap. Unprotected wiring in any application is unacceptable.
- 3. All switches not manually operated shall be proximity in type. Mechanical switches are not acceptable.

S. LIGHTING

- 1. Clearance, back up, and directional lights shall be Lexan lens, shock mounted in a protective housing. The whole unit shall be pop out and replaceable and LED in design.
- 2. All lights shall be provided in accordance with FMVSS#108, plus mid body turn signals on each side of the body and a center brake light on the rear.
- 3. Body shall be equipped with rear strobe light with in-cab switch.
- 4. Body shall be equipped with hopper floodlight with in-cab switch.
- **T. CAB SHIELD:** Body shall be equipped with a full cab shield to fully protect the roof of the cab and the windshield from falling debris. Shield shall have folding front section to facilitate tilting of the cab.
- U. CAMERA: The body shall be equipped with a rear vision camera system, with in-cab flat screen color monitor. Monitor, camera and cables shall use water proof connectors.
- V. REAR UNDERRIDE GUARD: The body shall be equipped with a rear underride guard as standard

			<u>YES</u>	<u>NO</u>
W.	MC	DUNTING AND PAINTING		
	1.	Unit shall be installed within accepted industry standards. There shall be no welding on the		
	~	chassis frame.		
	2.	The entire body shall be properly cleaned of all dirt, grease, and weld slag. Cleaning shall be in keeping with accepted industry practices.		
	3.	A liberal coat of high grade self etching primer is to be applied.		
	4.	Top coat finish shall be high grade acrylic urethane enamel, White.		
	5.	Unit shall be delivered to the City of Pigeon Forge, TN.		
Χ.		RRANTY: Bidder shall enclose a copy of the warranty on the body. Minimum acceptable		
		rranty shall be 100% coverage on:		
		Total Body - 12 months.		
	2.	Hydraulic Cylinders - 60 months.		
Υ.	TR	AINING AND DELIVERY:		
	1.	Bidder shall provide at least two (2) days of training on the proper operation and maintenance of		
		the unit at the city's facility.		
	2.	Bidder shall also provide to two (2) city personnel, three (3) days of factory training at the		
		manufacturer's educational training facility on advanced maintenance of the equipment. The		
		cost of this training shall be included in the bid price.		
	3.	At the time of delivery, equipment must meet or exceed all federal, state and local safety, health,		
	4	lighting and emission standards.		
		State the time, in days, needed for delivery after receipt of order.		Days
	ວ.	Bidder shall state the location of their service center and the qualifications of its service personnel.		

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6. The vehicle shall be equipped with a full supply of fuel, oil and lubricants upon delivery.

CHASSIS-CAB SPECIFICATIONS

YES	NO

Α.	CAB: New and Unused 2013 Forward Control Chassi	s, Tilt Cab with cab over engine, Color: WHITE
А.	CAB: New and Unused 2013 Forward Control Chassi	s, The Gab with cab over engine, Color: WHITE

B. ENGINE

 In-line 6 cylinder, Diesel, 4-cycle, 11 liter, turbo-charged, intercooled, cooled EGR, 325 HP @ 1500- 1900 RPM and a torque rating of 1200 lb/ft, electronic, 2010 Emissions. Replaceable cylinder sleeves. Chassis mounted aftercooler in front of 1000 square inch radiator. Vertical Exhaust with DPF Silicone engine hoses and tubing, including heater and radiator hoses. Coolant protection to -34° F. Dry air filter with restrictor gauge. Regeneration Control Manual Initiate & Inhibit Motion or stationary 120V engine block heater, 1500 Watt. Engine protection alarm system with lights and buzzers for high coolant temperature, low oil pressure, low coolant level in radiator. Air cleaner; 13" single element dry type. Front crankshaft adapter for front pump. 	
C. TRANSMISSION: Allison 4500-RDS-6 Speed	
 D. FRONT AXLE & SUSPENSION 1. 20,000# capacity I-beam front axle. 2. 20,000# capacity multi-leaf front suspension. 3. Sheppard 592S power steering with 20,000# capacity. 	
 E. REAR TANDEM AXLE & SUSPENSION 1. 46,000# dual-reduction tandem rear axle with top mounted bogies, bronze trunnion bushings and automatic power divider. 2. 46,000# anti-sway multi-leaf rear suspension. 3. Transverse torque tube. 	
 F. FRAME Heavy-duty double channel frame, 120,000 PSI, with ¼" frame reinforcement, 26.06 SM. Front tow pin. Swept-back heavy-duty front bumper with 10" extension for refuse service and provisions for front mount pump. Front skid plate. 210" WB, 297" Load Platform. 	
 G. BRAKES Dual Air Brakes, Cam-type Service Brakes with Dual Air Reservoir Tanks with ABS Brakes. Spring Loaded Parking Brake. 37.4 CFM Air Compressor. Bendix Heated Air Dryer. Front Brakes - 6" x 16½" Cam-type. 	

 Rear Brakes - 7" x 16¹/₂" Cam-type. Automatic Front and Rear Slack Adjusters. Raised Rear Brake Chambers. 		
H. FUEL TANK: Frame-mounted 80 Gallon RH, steel.	<u>YES</u>	<u>NO</u>
 I. ELECTRICAL 12V Electrical System with Circuit Protectors, Auto Reset Type. 160 Amp Alternator. Three (3) Maintenance Free Batteries, 1950 CCA. 12V Starter. Directional Signal Switch. Battery Cut-Off Switch. 		
 J. WHEELS & TIRES 1. 22.5 x 12.25 front hub piloted disc wheels. 2. 22.5 x 8.25 rear hub piloted disc wheels. 3. 425/65R22.5 20 Ply tubeless front tires. 4. 11-R-22.5-14PR tubeless rear tires. 		
 K. CAB EQUIPMENT Welded Steel Shell Cab, Galvanized. Tinted Glass All Around. Stainless Steel West Coast Heated Mirrors with Bright finish 7½" LH and RH Convelor. 2-Speed Dual Pandgraphic type Electric Windshield Wipers & Washers with interm Twin Trumpet Air Horns. Roll-up LH & Sliding RH Door Windows. Mid Back Bostrom Cloth Driver's Seat & Standard Passenger Seat. AM-FM/Cassette Stereo Radio. Factory Integral Air Conditioning. Refuse Noise Reduction Package. One cylinder, Hydraulic Cab Lift. Full dash instrumentation - Low air buzzer and light, voltmeter, fuel gauge, Oil gauge temperature gauge, speedometer, odometer, tachometer, high beam indicator, control. Fender Mounted Front Mud Flaps. LH and RH Entry Assist Handles. 	nittent feature.	
 L. WARRANTY: Bidder shall enclose a copy of the warranty on the chassis, Minimum warranty shall 100% coverage on: 1. Total Vehicle - 12 months / Unlimited Mileage. 2. Engine - 60 months / 150,000 Miles. 3. Drivetrain - 60 months / Unlimited Mileage 4. Frame - 60 months / Unlimited Mileage. 5. Air Conditioner - 12 months / Unlimited Mileage. 6. Cab Corrosion - 60 months / Unlimited Mileage. 7. Cab Structure - 24 months / Unlimited Mileage. 8. Emissions - 60 months / Unlimited Mileage. 9. Transmission - 60 months / 150,000 Miles. 	۱ Acceptable	
M. DELIVERY: Unit shall be delivered to Pigeon Forge Sanitation Department. Bid sh delivery costs.	all include all	