CITY AND COUNTY OF DENVER
Technical Specifications and Bid Items
For a
Refuse Truck 25 Yd³ Rear Loader

1.0 General Description

A new current model year truck, cab over engine with low entry bench style three seat, cab forward design left hand drive. Powered by a turbo-charged diesel engine with charge air cooling, a 66,000 GVWR (plate certified) with 25-yard rear loader body. Collection operations shall be conducted in narrow City alleys with deep drainage transitions and steep angles at street intersections. The truck shall be suitable for a minimum of 8 years service by Solid Waste Management in loading of residential waste materials. The truck's rear loader body shall operate at maximum efficiency and speed when the truck engine is at "low idle" approximately 800-rpm or less, revving engine shall not increase speed /efficiency. The truck shall be fully equipped and road ready, easily capable of transporting over the road, into, trash transfer facilities or into landfills a fully packed minimum 25 yard load.

1.1 Standard Factory Equipment

All standard factory equipment shall be included with the vehicle/equipment; no deletions of standard factory equipment will be permitted unless specifically superseded in these specifications. Accessories not specifically mentioned herein but necessary to furnish a complete unit ready for use shall also be included.

1.2 Government Requirements (where applicable)

The vehicle/equipment shall be built to, and perform in accordance with, all the requirements of the latest edition of the following standards and specifications:

- FHWA, Federal Highway Administration
- SAE, Society of Automotive Engineers Specifications
- FMVSS, Federal Motor Vehicle Safety Standards
- DOT, Department of Transportation Regulations
- AWS, American Welding Society Standards
- PUC, Public Utilities Commission (Colorado)

1.3 Workmanship and Durability

Workmanship throughout the vehicle/equipment shall conform to the highest standards. Durability shall be sufficient to allow safe and efficient operation of the equipment/vehicle.

1.4 Completion of Bid Items and Alternates

Vendor shall complete each line item in "Offered Equipment" and "Cost" columns in the following manner:

A. Provide vehicle/equipments technical information: in "Offered Equipment" provide technical information as requested and provide cost of item in "Cost" column.

B. Included Standard Equipment: in "Offered Equipment" column provide technical information as requested for standard equipment in, "Cost" column write NC for "No Charge".

C. Differences: in "RED" ink in "Offered Equipment" column adjacent to Description of Equipment provide information on the item being offered, in "Cost" column provide cost if there is a bid item cost.

D. Vendors shall break out and list costs for each specification section. Failure to break out proposed costs may cause proposal to be non-responsive. Breakout costs will be used for comparisons clarifying cost issues and if deletions to the specifications need to be made.

1.5 Major Areas of Concern

	Description of Concern
A.	Left Side Operator Cab Area to include: 1. Visibility from the driver's seats (Blind Spots). 2. Steering wheel belly room. 3. Shoulder leg and hip room. 4. Head room. 5. Operator's vision. 6. Floor height and step distances. 7. Ergonomic layout of vehicle and rear loader body controls. 8. Ease and speed of operation of collection and packing functions.
B.	Operator/Passenger Seat Configuration 1. Street Side and Curbside captains seats with a two passenger bench-seat between Captains Seats
C.	Mirror width for use in obstructed areas to include: 1. Overall extended mirror width. 2. Minimum mirror width. 3. Ability for mirrors to be hit by obstructions (branches etc) and absorb the hit with out damage. 4. Ability for mirrors to be reset or adjusted into position without operator leaving operator's station.
D.	Warranty: 1. Ability and cost to obtain a 5-year warranty on cab and chassis. 2. Ability and cost to obtain a 5-year warranty on rear loader body, packer panel, hydraulic pump, motors cylinders and controls. 3. Location of warranty providers.
E.	Service Ability: 1. Ability to easily service cab and chassis items that require regular (yearly or less) servicing and maintenance 2. Ability to easily service rear loader body components/items that require regular (yearly or less) adjusting, servicing and maintenance.

2.0 Build Status of Vehicles:

2.1 Contractor and all sub vendors after receipt of the City's purchase order shall:

The primary Contractor (prime vendor) shall be responsible for providing within 15 business days to the City a "Preliminary Build Status Plan" to include but not limited to:

A. The "Build Status Plan" shall include sufficient detail to assure that the ordered units will meet specifications and be built to the highest quality standards and be delivered on time.
B. Placement date of initial order with the cab and chassis manufacture.
C. Cab and chassis manufacturer's date of order acceptance. Written order confirmation is required.
D. Placement date of initial order with the body manufacture.
E. Body manufacturer's date of order acceptance. Written order confirmation is required.
F. Build dates for all cab and chassis to include start date and completion date.
G. Build dates for all bodies to include start date and completion date.
H. Delivery date of the cab and chassis to the sub vendor's body manufacturer.
I. Beginning and completion dates for installation of the body on each cab and chassis.
J. Ship date for each completed vehicle (cab and chassis with body) from sub vendor's body manufacturer to Denver and which location shipped to.
K. Contractor and sub vendors local vehicle preparation time.
L. Delivery of a completed vehicle meeting specifications to the City.

2.2 The Contractor shall contact all sub vendors:

The Contractor shall contact all sub-contractors providing accessories and equipment for the vehicle (s) and provide the sub-contractors with the a list of all accessories and equipment, manufacturer's order confirmation, order number, vehicle specifications, build date and delivery date to dealer from the vehicle manufacturer on the ordered vehicle. It is the primary selling dealer's responsibility to assure that the sub-contractors orders the accessories and equipment and has the items in stock and is prepared to install the accessories and equipment items when the vehicle arrives at the dealership.

3.0 Basic Requirements, or approved equal.

When a brand/model is referenced in the specifications unless it is stated as "No Approved Equal" it is only a statement of expected quality, information on alternative products shall be provided with the bid so a full technical comparison can be made of the product submitted as an "approved equal".

3.1 Basic Vehicle

	Description of Equipment	Offered Equipment	Cost
A.	Cab over engine, 3-man design, cab forward tandem axle 1. Sit-down left side operator controls, 2. Tandem axle 66,000 lb. GVWR (plate certified), 3. Wheelbase approximate 210 inch. 4. Effective clean cab to axle approximately 156-inch. 5. After frame 60". 6. Front tire cut angle 50°. 7. Wall-to-wall turning diameter 71 ft. **8. Vendor shall verify wheelbase is appropriate for specified body**	Make: CCC Model: LET 2 Crew Cab Left Side: (Yes) No Rating: 66,000 lbs Wheelbase: ~~188~~ 182" C to A: 152 " A F: 106 " Cut Angle: Left 46 ° Right 46 ° Turn Dia. : 72.4 '	
B.	The left side operator configuration is very important for operator		

	Description of Equipment	Offered Equipment	Cost
	comfort and efficiency. The operator position shall accommodate operators of various physical sizes providing good visibility, steering wheel/belly clearance, and shoulder width room. Also all the controls for operating the attached equipment shall be in an ergonomic layout/configuration that promotes minimal operator movement, operator comfort and operation efficiency.		
C.	Frame: 1. Rating 66,000-lbs. GVWR minimum, 2. Heavy-duty 120,000-psi full channel heat-treated steel, with main frame 2,086,000 in-lb. RBM and deep frame section 3,235,000 in-lb. minimum.	Frame Rating: 66,000 -lbs Yield Strength: 120,000 psi Section Modulus/rail: 25.05 in^3 Frame RBM/rail: 3,369,600 lbf-in	$ STD
D.	All components that require regular servicing shall be easy to access and be located as much as possible to protect the components from road splash. Access to rear engine mounts or transmission removal should not require the removal of electrical wiring, hydraulic hoses, air tanks or air dryers. Air dryer shall be easy and quick to access for servicing.	(Yes) No	$ STD
E.	Towing Provisions: 1. Tow hooks, two front and two rear, frame mounted. 2. Air brake 3/8" female quick-connect hook up system on vehicle for wrecker air brake connection. Quick-connectors shall be accessible and protected but shall not stick out where they could get damaged. 3. A check valve shall be provided at the vehicles air tank to prevent air loss.	(Yes) No Make: TBA Model: TBA *installed by CCC (Yes) No	$ STD
F.	Keying: 1. Keys keyed alike Ignition, Door, (same) and Toolboxes (same), 2 standard sets per vehicle. 2. Additional 5 key sets 3. If the City has similar make and model trucks in fleet the trucks shall be keyed the same as existing trucks.	Cost for 5 additional set of keys: $ 150 (Yes) No	$ NC $ 150 $ STD

3.2 Engine or "Approved Equal"

	Description of Equipment	Offered Equipment	Cost
A.	Engine: Cummins ISX-11.9 liter, VGT turbocharged diesel engine, rated at 330 hp @ 2,100 rpm, torque 1,350 lb/ft @ 1,200 rpm, 2,100 rpm governed includes: 1. Engine shall utilize DEF (diesel exhaust fluid) to meet current	Make: Cummins Model: X12 HP: 350 @ 1700 rpm Torque: 1450 @ 1700 rpm Emissions Rating: 2016	$ STD

	Description of Equipment	Offered Equipment	Cost
	EPA regulations and reduce NOx 2. Engines shall be electronically controlled with following components: a. Engine protection system to monitor low oil pressure, high coolant temperature and low coolant level that will prevent component damage with manual over-ride on truck engine: b. Low oil pressure. c. High oil temperature. d. High coolant temperature. e. Low coolant level. f. High transmission oil temperature. g. Idle shutdown timer. h. Speed limiter top gear and cruise. i. Programmed to shut-down after 7 minutes of idle time and no ability for operator to overide 3. Computer controlled fast idle and PTO protection. 4. Thermos bottle stopper-type dipstick. 5. Magnetic drain plug. 6. Delco-Remy 22-SI, 145 amp alternator. 7. Delco-Remy 42 MT, 12v starter with over-crank protection.	(Yes) No (Yes) No (Yes) No (Yes) No (Yes) No (Yes) No (Yes) No (Yes) No (Yes) No (Yes) No (Yes) No Make: TBA Model: TBA Make: TBA Model: TBA	
B.	Power Take Off (PTO) 1. Transmission direct mounted Chelsea 890 series with hydraulic pumps direct mounted to Chelsea 890 PTO at rear of the transmission – left side 8 o'clock position. NO FRONT MOUNTED PTO 2. PTO control electrically actuated from inside cab. 3. PTO speed limiter shall be connected to the engine computer not to an external overspeed box (EOS). 4. PTO shall efficiently operate all hydraulic systems at engine "low idle" 800 rpm or less. Increasing engine speed above 800 rpm shall not improve hydraulic operations except when ejecting the trash load.	Make: Chelsea Model: 890 Location: Front Engine ~~A~~ *PTO installed by Body Company (Yes) No (Yes) No (Yes) No PTO Idle rpm: 800	$ NA $ STD $ STD $ STD
C.	Filtration: 1. Oil: Fleetguard LF3000 full flow/bypass oil filter. 2. Fuel: Racor 690RP12 fuel/water separator with thermostatically controlled fuel line heater.	Make: Fleetguard Model: LF3000 Make: Cummins Model: X12 parts	$ STD $ STD
D.	Engine Air Intake: 1. The air intake shall be on the right side of the vehicle at cab height.	Yes (No) left side	$ STD

	Description of Equipment	Offered Equipment	Cost
	2. The air intake shall be positioned so that it can not draw in exhaust gases. 3. Air filter dual element dry type with air inlet restriction indicator located in cab	(Yes) No Make: Parker Model: ECO III XL135	
E.	Exhaust Meeting 2017 EPA Standards: 1. Exhaust discharge shall be center back of cab. 2. The exhaust after treatment device shall be horizontally mounted above the engine so as to not obstruct maintenance/repairs underneath the truck. 3. Maximum exhaust system height shall not be higher than the highest point on the body or truck. 4. Horizontal with a vertical chrome stack and stainless steel exhaust guard that will easily fit up to Denver's exhaust gas evacuation system. 5. Exhaust discharge shall be above roofline and exhaust gases shall not discolor the body or be drawn into the operator's cab. 6. Exhaust "90 degree chrome elbow" directed toward outside of body.	Trap Make: Cummins Model: X12 Location: BOC (Yes) No (Yes) No (Yes) No	$ STD
F.	Fuel Tank: 1. Fuel tank 80 gallons minimum, 2. The tank shall frame mounted on the right side of chassis to provide step and platform for accessing the body clean-out door. 3. Fuel tank may be combined with body supplier's hydraulic tank.	Size: 80 gallons Location: Right Side	$ STD
G.	Diesel Enhancement Fluid Tank: 1. Location behind fuel tank 2. Size 6-gallons minimum 3. Tank fill opening shall be easily identified as "DEF Fluid Only" and shall not accept the entrance of a standard diesel fuel nozzle.	Location: Right hand Side DEF Tank Volume: 10 gallons (Yes) No	$ STD
H.	Coolant Hoses: 1. Gates Blue Stripe hoses 2. With constant torque hose clamps. A	Silicone hose clamps Blue Rubber hose	$ STD
I.	Fan: 1. Fan clutch heavy-service-duty with automatic fan control. 2. The fan shall operate off of engine coolant and transmission coolant temperature.	Make: TBA Model: TBA Viscous Auto Fan	$ STD
J.	Air System: 1. Air compressor Bendix 18.7-cfm Tu-Flo minimum 2. Air tanks mounted horizontal inside frame. 3. Air drain values shall be ¼-turn brass with "Flag" style handle and	Make: Bendix Model: Tu-Flo Capacity: 18.7 cfm Location: inbetween rails (Yes) No	$ STD

	Description of Equipment	Offered Equipment	Cost
	air blast routed away from the person operating the valve. 4. The drain valves shall be installed under battery box, left side in an easy to access and operate position. 5. The valve bracket shall be permanently labeled (engraved): "Drain Air Tanks Daily" ½" font size "Air Valve 1" "Air Valve 2" "Air Valve 3" ¼" font size 6. Air lines shall be color-coded nylon type.	(Yes) No (Yes) No (Yes) No	$ STD
K.	Cold weather starting aids on truck engine. 1. Block heater, Phillips "Zero-Start" 120vAC, 1500 Watt, engine coolant temperature controlled to: a. Turn "on" at 40°F engine coolant temperature. b. Turn "off at 55°F engine coolant temperature. 2. The plug-in station shall have 2 LED indicator lights to: a. Light when plugged into "hot line" to show "hot line is energized. b. Light when engine coolant drops below 40°F. 3. Plug-in shall be mounted below driver's door, protected from mechanical and weather damage. Heater plug shall be a male standard grounded 15 amp rated plug. 4. A decal or information plate shall be provided describing how the system functions. The decal/plate shall be heavy-duty UV protected and capable of withstanding pressure washing and other normal vehicle functions. 5. Cold weather starting assist (no either allowed).	Make: Phillips Model: Zero Start On Temperature: 40° Off Temperature: 55° Yes (No) 1 indicator light (Yes) No Location: Front of Vehicle "Bumper" (Yes) No Type: Cummins	$ STD $ STD $ STD $ STD $ STD

3.3 Transmission and Drivetrain

	Description of Equipment	Offered Equipment	Cost
A.	Transmission shall be an Allison New World HD4560P, wide ratio, 6-speeds with the following components: 1. Transmission and rear differential gearing shall be optimized for "Best" fuel economy, speed shall not be less than 60 mph. 2. The shift point calibrations both primary and secondary shall be factory S-1 set for reducing the shift point below maximum governed speed but the engine shall not drop below the peak torque point. On engines with 2,100 rpm full-load governed speed the shift point is reduced 200 rpm. For engines with higher or lower full-load governed speeds the shift point will need to be determined on a case-by-case basis. 3. Transmission interface wiring for Allison MD/HD transmission.	Make: Allison Model: 4500 Speeds: 6 (Yes) No (Yes) No (Yes) No	$ STD $ STD

	Description of Equipment	Offered Equipment	Cost
	4. Electric push-button transmission controls shall be located on the "dog house" not under the joystick armrest. Location to be mutually agreed upon.	(Yes) No	
	5. TranSynd TES 295 automatic transmission fluid.	(Yes) No	
	6. Deep pan transmission sump with "Gold Series" filter kit rated for severe duty of 75,000 miles or 36 months.	(Yes) No	
	7. Transmission water-to-oil cooler.		
	8. Remote mounted transmission filter.	(Yes) No	
	9. Magnetic drain plug.	(Yes) No	
B.	Rear Axles: 1. Eaton single reduction, capacity 46,000-lbs. 2. Driver controlled main power divider locking differential. 3. Oil pump. 4. Axle temperature sensor. 5. Axle ratio for best fuel economy with an approximate 60-mph top speed. 6. Oil seals, Union 76 Triton EP 75W-90 synthetic gear lubricant. 7. Magnetic drain plug.	Make: Dana Spicer Model: D46-170P Gear ratio: 6.14 Top Speed: 64 mph level	$ STD
C.	Front Axle: 1. Eaton, capacity 20,000-lbs. minimum with oil seals and Union 76 Triton EP 75W-90 synthetic gear lubricant.	Make: Dana Spicer Model: D2000F Capacity: 20,000	$ STD
D.	Springs: 1. Front leaf with graphite impregnated spring pin bushings. Front: capacity 20,000-lbs. minimum. 2. Rear Hendrickson HMX-460 Haulmaxx varirate spring system. Rear: capacity 46,000-lbs. minimum.	Make: Parabolic Model: Taper leaf Capacity: 20,000 - lbs Make: Hendrickson Model: HMX-460 Capacity: 46,000 - lbs	$ STD $ STD
E.	Brakes: 1. Bendix, 17" disc front, model ADB22x extended service brakes with non-asbestos brake pads. 2. Bendix, 17" disc rear, model ADB225 extended service brakes with non-asbestos brake pads. 3. High temp/Heavy Duty Brake pads installed upon delivery 4. Brake chambers type 2824, size 24 chamber.	Front Make: Bendix Model: ADB-22X Disc Size: 17 in Rear Make: Bendix Model: ADB-22X Front Chamber: 17 Rear Chamber: 17	$ STD
F.	Anti-Lock Brake System / Automatic Traction Control system: 1. Anti-Lock Brake System (ABS): Eaton 6S/6M with ATC, 6-channel with (6 sensors & 6 modulators) and 5-9 psi crack pressure relay valve. 2. Automatic Traction Control (ATC) shall work in conjunction with the Eaton ABS brake system in low traction situations limiting	Make: Bendix Model: 6S/6M (Yes) No	$ STD $ STD

	Description of Equipment	Offered Equipment	Cost
	torque to least loaded tire allowing most loaded tire to receive torque and pull the vehicle. The ATC system in conjunction with the Interaxle Driveline Lock shall provide traction control very similar to the Driver Controlled Differential Lock system. 3. Interaxle Driveline Lock (IADL) to lock front and rear drive axles together. The interaxle differential lock shall be automatically locked via the ATC or manually locked by the driver. The IADL switch shall activate a flashing LED warning light. 4. Air lines shall be color-coded nylon type.	(Yes) No (Yes) No	$ STD $ STD
G.	Air Dryer, (No Approved Equals) 1. Bendix AD-IP with heated steel reservoir, automatic moisture ejector and cable operated air tank drain valves accessible from outside of vehicle. . 2. Air dryer shall be installed on the outside of the frame rail in a location that is easy access and does not exceed 15-minutes to service unit.	Make: Bendix Model: AD-IP	$ STD $ STD
H.	Driveline: 1. Eaton Permalube type U-joints.	Make: Dana Spicer Model: SPL-170	$ STD
I.	Power Steering: 1. TRW with 2-qt. reservoir.	Make: Sheppard Model: XD-120 Reservoir Size: 16	$ STD

3.4 Electrical System

	Description of Equipment	Offered Equipment	Cost
A.	Alternator: 1. Alternator shall be a heavy duty, internally regulated, output 160-amp minimum.	Make: Leece Neville Model: 160 amp bolt Rating: 160 amps	$ STD
B.	Batteries: A. Two or three Group 31 batteries with a total CCA of 1950 minimum. B. Battery location frame mounted left hand side. C. Battery shut-off switch easy to see and access. D. Jump start provision easy to access. E. Battery cables (00) stranded copper minimum. F. PulseTech XC-Parallel Charger P/N 100X013	Quantity: 3 CCA's: 925 Battery Location: left hand (Yes) No (Yes) No (Yes) No (Yes) No	
C.	Circuit Protection: 1. Circuit breakers with manual reset, no fuses. 2. Circuit breaker panel shall be easy to access. 3. Circuit breaker panel shall be clearly labeled for easy identification.	Type Protection: Circuit Breakers (Yes) No (Yes) No	$ STD
D.	Wiring: 1. Wiring shall be color coded with hot stamped wire numbers.	(Yes) No	$ STD

	Description of Equipment	Offered Equipment	Cost
	2. All wiring shall be run in sealed wiring looms to reduce corrosion from magnesium chloride products	(Yes) No	
E.	Body Builders Junction Box: 1. Body builder's junction box shall be mounted behind the cab 2. Terminal shall be marked for easy identification.	Location: Body Company Supplied Yes No	$ STD
F.	Back Up Alarm: 1. Back up alarm 107 dB, SAE type B, fully sealed, back-up alarm system wired into vehicle's backup light system using OEM plug-in adapter. 2. The alarm shall be mounted out of the vehicle's rear wheel splash area.	dBa rating: 107 (Yes) No	$ STD
G.	Cab and Chassis Lights: 1. Halogen sealed beam headlights, 12v. 2. Daytime running lights. 3. Wiring shall be sealed modular plug-in type. 4. Marker lights LED type.	(Yes) No (Yes) No (Yes) No Make: TBA Model: TBA	$ STD $ STD

3.5 Cooling System

	Description of Equipment	Offered Equipment	Cost
A.	Cooling system with coolant recovery tank capable of maintaining engine manufacturer's recommended operating temperatures at an elevation of 6,800' in 120° F low humidity ambient conditions shall be provided.	(Yes) No	$ STD
B.	Coolant protection shall be -34° F.	Provide specs: -34° Below Zero XL	$ STD
C.	Fleetguard coolant filter WF2071.	Provide specs: Fleetguard WF2071	$ STD

3.6 Tires and Wheels

	Description of Equipment	Offered Equipment	Cost
A.	Tires: 1. Tires: 315/80R22.5, tubeless, 20-ply, load range L. 2. Front: Michelin XZUS, Steer Tires. 3. Rear dual: Michelin XDY3, Traction Tread	XZU52 Make: Michelin Model: ~~XZUS~~ Make: Michelin Model: XDY-3	$ STD $ STD
B.	Wheels: 1. Disc, 10-hole, Hub piloted type, Single nut, Meets ISO Standard 4107. 2. Aluminum wheels all axle	Make: TBA Model: Aluminum (Yes) No	$ STD

	3. Front 22.5" x 9". 4. Rear 22.5" x 9"	Size: 22.5 x 9 Size: 22.5 x 9	

3.7 Interior

	Description of Equipment	Offered Equipment	Cost
A.	Left side operating controls: 1. Vehicle operation shall be only from left side of vehicle. 2. Driver's controls shall be ergonomically laid out for maximum driver efficiency in operating the rear loader collection body. 3. Since the vehicle will be used in rear loader trash collection with an "operate at idle" hydraulic system the transmission shifter location needs to be in a location the driver can easily access but not where it will be covered by the rear loader body's controls. With an "operate at idle" hydraulic system the driver will not be required to shift the vehicle into "neutral" at each collection and after collection back into "drive" to proceed to next stop. 4. Doors: a. Left and right doors shall be front hinged. b. Left and right doors shall have electric full roll up/down windows.	(Yes) No (Yes) No (Yes) No (Yes) No	$ STD $ STD $ STD
B.	Driver Viewing Environment/Area: 1. Requested SAE J1750 and SAE J1050a "Target Evaluation" method operator view area information must be submitted with bid for evaluation. 2. Failure to submit the requested information may make bid non-responsive. 3. Vendor using the "Target Evaluation" method shall provide with bid, top view drawings with dimensions of the visibility values from the operator's seat at eye level for operators of the following percent quartile sizes: a. 5th % male height 1554 mm or 61.18" b. 50th % male height 1668 mm or 65.67" c. 95th % male height 1783 mm or 70.20" 4. Drawings shall be on 11" x 17" paper ("B" size drawing paper) for easier reading. 5. Good operator exterior visibility is a major safety concern and increasing operator viewing area and eliminating "blind spots" is beneficial to the City	Drawings Provided: Yes (No) Paper Size: _____ " X _____ "	$ -
C.	Seats: Drivers seats shall be: 1. Left seat shall be air suspension Bostrom, high back driver's seat,	Make: Sears Model: C2 air ride	$ STD

	Description of Equipment	Offered Equipment	Cost
	gray vinyl with cloth insert and armrests. 2. Right seat shall be air suspension Bostrom, high back passenger seat, gray vinyl with cloth insert and armrests. 3. Seat Belts (all) shall be orange in color.	Make: Sears Model: C2 air ride	
D.	Required Submittals with Bid: 1. Requested information must be submitted with bid for evaluation. Failure to submit the requested information may make bid non-responsive. 2. Vendor shall provide with bid, drawings with dimensions and photographs of the proposed cab interior for review. 3. Interior left side dimensions measured: a. Belly Room: seat back to steering wheel. b. Leg Room: seat front edge to brake pedal. c. Head Room: seat cushion to ceiling. d. Torso Room: Width from door to doghouse or other obstruction. e. Seat fore/aft travel: f. Seat height travel: g. Steering Wheel Knuckle Clearance: distance to closest object h. Floor Height: measured ground to cab floor. i. Cab Step Heights: measured from ground. j. Steering Wheel Tilt and Telescoping: 4. Location of the transmission shifter: should not be obstructed by automated barrel loader's joystick.	Provide Materials: _____ Seat full forward: TBA " Seat full back: 23 " Seat full forward: TBA " Seat full back: 25 " Seat full lowered: TBA " Seat full raised: TBA " Smallest measurement: 26 " Travel: TBA " Travel: TBA " Clearance: TBA " Height: TBA " 1st Step: 18 " 2nd Step: 14 " Tilt: TBA ° Telescoping distance: TBA " _____	
E.	Engine Cover "Doghouse" 1. The engine cover "doghouse" shall be recessed to accommodate the ergonomic positioning of the automated barrel loader controls. 2. The vehicle manufacturer shall work with the body supplier to assure that the controls are the most ergonomic possible to assure operator comfort and reduce repetitive motion injuries. 3. The transmission shifter should be located in a location convenient to the operator but not directly adjacent to the driver's side. Since the vehicle has "operate at idle" hydraulic system the transmission does not require shifting into and out of "neutral" at each stop. 4. The City has operators of varying statures and adjustable controls will minimize on-the-job related physical problems. 5. The City, body vendor and the vehicle supplier shall mutually determine control locations after Contract award.	~~Yes~~ No ~~Yes~~ No ~~Yes~~ No ~~Yes~~ No ~~Yes~~ No	$ 570

	Description of Equipment	Offered Equipment	Cost
F.	Instrumentation: 1. Instrumentation shall include speedometer, engine hourmeter, tachometer, voltmeter, coolant temperature, oil temperature, oil pressure, fuel level and air pressure with low-pressure alarms (light, audible).	(Yes) No	$ STD
G.	Steering: 1. Steering controls shall comfortably accommodate operators of various sizes, from short and small to tall and larger. 2. Steering tilt easy to adjust 3. Telescoping easy to adjust,	(Yes) No Tilt: (Yes) No Telescoping: (Yes) No Travel In-Out: 5 in	$ STD $ STD
H.	Upfitter's Switch Panel: 1. The vehicle manufacturer shall provide for the rear loader body manufacture an upfitter's switch panel for automated body control switches. 2. The panel location shall be in an ergonomic location and shall not require more than 30° head movement and be within easy reach of driver's of various sizes and physiques. 3. The switch panel shall have permanently labeled and lighted rocker switches for all optional sundries equipment and lights etc.		$ STD
I.	Windshield Wipers: 1. Wipers 2-speed self parking. 2. Intermittent wiper mode.	Speeds: 2 (Yes) No	$ STD
J.	Floor Covering: 1. Floor covering shall be heavy-duty black rubber/vinyl flooring.	(Yes) No	$ STD
K.	Air Conditioning: 1. Factory installed cab R134A air conditioning 2. Cab shall be insulated to include floor, firewall, roof and walls.	Refrigerant Type: R-134A Yes No	$ STD
L.	Radio: 1. Radio AM/FM stereo with two speakers.	(Yes) No	$ STD
M.	Fire extinguisher: 1. Extinguisher ABC, 5-lb. dry type rechargeable 2. Installed in cab. 3. Location labeled with 1" letters on outside of the cab.	Type: TBA (Yes) No	$ STD
N.	Grab handles: 1. One each on exterior of cab for operator and passenger assist and one interior for passenger. 2. Grab handles shall provide adequate clearance to other objects to	(Yes) No (Yes) No	$ STD

	Description of Equipment	Offered Equipment	Cost
	provide easy access and clearance to prevent pinch or other hazards.		

3.8 Exterior:

	Description of Equipment	Offered Equipment	Cost
A.	Vendor shall provide with bid drawings with dimensions and photographs of the proposed cab exterior including mirrors for review. Failure to submit the requested information may make bid non-responsive.	Provide Materials: Brochure included	$ STD
B.	Cab Design: 1. Heavy-duty or severe-duty type with steel or aluminum body. 2. High visibility tilt forward design. 3. Front hinged doors. 4. Low floor cab over with steps mounted to body. 5. Maximum step height 15".	Body Rating: Heavy Duty Body Material: Steel (Yes) No (Yes) No Step Height: 18 in	$ STD
C.	Front Bumper: 1. The front bumper shall be straight and fit as close to the front of the cab as possible with adequate reinforcing to not allow the bumper to be driven back into the cab with minor impacts. 2. The bumper shall be chrome	Bumper Type: steel Reinforced on outside corners: (Yes) No Bumper Finish: Steel-Painted Black	$ STD $ STD
D.	Paint: 1. Polyurethane paint equal to DuPont Imron 5000, "Bright White", applied following manufacture's procedures to include: 2. Color top coat, 2 coats, applied to all non-stainless steel components following manufactures procedures. 3. Removing all mill scale and slag. 4. Variprime 615S self-etching primer or approved equal. 5. Treating bare metal with manufacturer's conditioners and conversion coatings or approved equal.	Make: Dupont Type: Imron Color: White	$ STD
E.	Engine Accessibility: 1. Engine fully accessible and serviceable, 2. Cab shall tilt forward for access 3. Tilt shall be by easily operated momentary switch and 12v DC electric pump located on right side of vehicle.	(Yes) No	$ STD
F.	Mirrors: "No Approved Equal" 1. Rear view mirrors to be Moto Mirror Model 7-5400 "Flat Back Traditional" 7" x 16" motor head, remote, heated, stainless steel left and right, mounted on the cab. 2. Convex 8" stainless steel mirrors mounted under primary mirror	Make: CCC Model: O-Package Overall mirror full extended width: 107 inches Overall mirror width with left side mirror folded in: TBA inches 19" x 8"	$ STD

	3. A right hand down mirror shall be provided to cover front and side blind spot for shorter drivers	Make: Convex Model: 8" 2 each side Rear Facing	$ STD
G.	Splash/Spray Suppression: 1. Spray suppression skirting, Fleet Engineering Inc. 4" brush filament P/N 997-70174, black polyethylene, (800.333.7890) 2. Local distributor: Fleetpride 7725 Dahlia St Commerce City CO (303.288.1166) 3. Skirting shall be installed on the front steer axle wheel housing to reduce road spray from being thrown up onto the truck's rearview mirrors.	Brand: Fleet Engineering P/N: 997-70174 (Yes) No	$ STD

VEHICLE SUB TOTAL COST $ 189,900

$189,900

4.0 Dealer Provided Optional Equipment

4.1 Electrical Systems:

A. All non-factory wire connections (splices, connectors, etc.) shall be soldered and shrink tube insulated with adhesive/meltable sealant, thick wall polyolefin shrink tubing (3M EPS-300 or equal). No non-factory crimp connections allowed. No cutting or splicing into the factory wiring harnesses allowed.
B. All accessories (strobe lights, operator controls, light bar, etc.) shall be wired through a 12-vDC constant-duty solenoid and controlled by bus bar mounted and permanently labeled auto-resetting circuit breakers. The solenoid shall be wired to the key switch.
C. All dealer/vendor installed items, which require connecting into the vehicle's electrical system shall be done using an OEM factory modified wiring kit whenever possible.
D. All non-factory wiring shall be encased in a totally sealed wiring harness (no plastic split loom) to prevent corrosion from magnesium chloride. The wiring harness shall be well secured to the truck with neoprene aircraft stainless steel tubing clamps. Rubber grommets shall be used at all areas where the wiring passes through areas that could damage the wiring. Unprotected wiring in any application is unacceptable.
E. Electrical cables and wiring harnesses shall be neatly run and clamped with neoprene aircraft stainless steel tubing clamps. Clamp spacing shall not exceed 18-inches.
F. Dielectric grease shall be applied to all electrical plug terminals and connections to reduce corrosion.

4.2 Fasteners:

A. Grade 5 (SAE or USS) or 8.8 (metric) minimum, bolts, nuts, washers minimum. Vendor shall use Grade 8 or 10.9 for all critical areas or where good engineering practice suggests.
B. All fasteners shall be zinc plated to prevent corrosion.
C. Anti-Seize: all fasteners shall have Fel Pro C5A Anti-Seize compound applied before assembly to prevent corrosion, rusting, galling and aid in equipment servicing and repair.
D. All fasteners shall be of appropriate length, diameter and strength (grade) for the application,
E. Bolts and screws shall extend a minimum of 1-1/2 threads beyond the nut and maximum of 6 threads past the nut.
F. Flat washers shall be used under bolt heads and nuts.

G. Lock nuts (nylon insert, metal, slotted, castle nuts) shall be used lock-washers are not acceptable.

4.3 Hydraulic Systems:

A. All hydraulic circuits shall be pressure relief protected.
B. Hydraulic hoses shall be Parker ST 451 (tight bend radius) 2-wire braid hose meeting SAE-100R17 specifications where the hose meets operational criteria or approved equal.
C. Hydraulic hoses shall have swivel fittings on both ends. Hose ends shall be located to facilitate easy component replacement.
D. High-pressure hydraulic hose shall not be used for suction lines.
E. Close/tight radius 90° elbow fittings shall not be used if short, medium or long drop steel stem 90° elbow fittings can be used. Over use of 90° elbows shall not be permitted.
F. Hydraulic hoses and rigid lines shall be run parallel where possible; routing shall look neat and well planned.
G. Rubber cushioned metal hydraulic clamps shall be used on all hydraulic ridged lines and hoses at proper intervals for supporting the line/hose 36" maximum distance. Clamps shall be securely mounted to the equipment.
H. Hydraulic hoses and lines shall not be routed near exhaust, close to rotating components or over, around or through sharp edges. . Rubber grommets shall be used at all areas where the hydraulic lines through areas that could damage the lines.
I. Galvanized fittings and thread tape shall not be used.
J. Hydraulic hoses shall be covered with protective spiral nylon anti-chaffing wrap or sock type protective sleeves at all areas where chafing/rubbing could cause premature wear/failure.
K. Hydraulic oil tanks shall magnetic drain plug, oil level and temperature gauge.
L. Hydraulic hoses over 4' long shall be labeled on both ends for easy identification.
M. Shut off valves ¼-turn on each side of filter.

4.4 All fabricated parts, brackets etc. shall have all sharp corners, edges etc. radiused or rounded for safety.

4.5 Welds:

A. All welds shall meet AWS (American Welding Society) standards for the type weld, material joined and welding method.
B. Weld joints shall have proper design and fit for the application.
C. Welds joints shall have proper penetration and be smooth in appearance with no undercuts or overlaps at edge of weld.
D. Weld joints shall be properly prepared with cut ends ground to remove all slag, create a smooth surface and beveled end.

4.6 Rear Loader Body or (Approved Equal)

When a brand/model is referenced in the specifications unless it is stated as "No Approved Equal" it is only a statement of expected quality, information on alternative products shall be provided with the bid so a full technical comparison can be made of the product submitted as an "approved equal".

	Description of Equipment	Offered Equipment	Cost
A.	Manufacturer Qualifications: 1. Units shall be completely assembled, mounted and ready for operation. Parts not detailed shall be constructed in accordance with the best standard practice of the industry at the time of construction.	Yes No	

	Description of Equipment	Offered Equipment	Cost
	2. Only new models in current production, which are catalogued by the manufacturer and for which printed literature and specifications are available, will be accepted. 3. The loader body shall be the product of a manufacturer actively engaged in the production of rear loading refuse collection vehicles of this size and capacity as specified. 4. The City will consider only those bidders who can demonstrate that a minimum of 100 units have been manufactured and have been in use for (1) year. 5. Name (s) of users and contact personnel shall be supplied with bid. 6. All accessories not specifically mentioned herein, but necessary to furnish a complete unit ready for use shall also be included.	(Yes) No Itemized pricing not Available. (Yes) No (Yes) No (Yes) No (Yes) No	
B.	A current year, new rear loader refuse truck of at least 25 cubic yard capacity, Heil Dura-Pack 5000-25 heavy-duty commercial package or approved equal, installed with the following equipment:	Make: Heil Model: Dura Pack R5000 Capacity: 25 yds³	$82,936 $82,936
C.	Vendor shall within 45 days of contract award submit drawings to the City showing the placement of all major components to include but not be limited to: front/rear bumpers, air filter, exhaust system with trap, air dryer, air tanks, fuel tank, battery box, daily fluid checks/fills, rear riding steps and hand holds, rear packer body controls, hydraulic tank, hydraulic valves, electrical junction box, access doors, tool holders etc.	Provide specs:	
D.	The compactor body shall have: 1. Body capacity 25 cubic yards. 2. Capable of packing 1000-lbs. to 1200-lbs per cubic yard based on average household refuse. 3. Hopper cycle time 28-seconds. 4. Hopper capacity must be greater than 3.5 cubic yards. 5. Hopper loading height must not exceed 40" while using XDY 3, traction tires. 6. Ejector panel shall fully travel full length of the body to completely eject the compacted load of refuse.	Capacity: 25 yds³ Packed Capacity per Yard ³: 1000 lbs Hopper Cycle Time: 28 Seconds Hopper Capacity: 3.5 yds³ Hopper Loading Height: 40 in (Yes) No	
E.	The compactor body shall be: 1. Installed with 7" clearance from the exhaust or air intake system. 2. Body width shall not exceed 96-inches. 3. Body length, 22'-6". 4. Body height above frame rails, 96" maximum. 5. The body shall be mounted on steel runners (wood not permitted). 6. Body shall be designed/constructed to withstand repeated maximum packing pressures without distortion. The vertical	Clearance: 7 in Body Width: 96 in Body Length: 22 ft 6 in Body Height from Ground: TBA ft _____ in (Yes) No (Yes) No	

	Description of Equipment	Offered Equipment	Cost
	channel bracing must interconnect with roof channels to form a wrap-around channel design. All welds shall be continuous.		
	7. Body sides, top, 8-gauge hi-tensile 80,000-psi steel.	Thickness: 3/16 Steel Strength: 80K psi	
	8. Body floor, 3/16" hi-tensile 80,000-psi steel with 3/8" hi-tensile 80,000-psi steel rear ramp.	Thickness: 3/16 Steel Strength: ~~80K~~ psi	
	9. Floor smooth no trough, 5/16" 150,000-psi steel.	Thickness: 3/16 Steel Strength: 150K psi	
	10. Hopper floor 5/8" 150,000-psi hi-tensile abrasion resistant steel.	Thickness: 3/16 Steel Strength: 150K psi	
	11. Hopper sides lower 3/16" 150,000-psi steel.	Thickness: 3/16 Steel Strength: 150K psi	
	12. Main floor 5/8" 150,000-psi steel.	Thickness: 3/16 Steel Strength: ~~150K~~ psi	134K
	13. Packer plate, heavy-duty 3/16" 150,000-psi steel.	Thickness: 3/16 Steel Strength: 134K psi	
	14. Carrier plates, 3/16" 150,000-psi steel.	Thickness: 3/16 Steel Strength: 150K psi	
	15. Carrier plate rotates on 2 heavy-duty forged arms, with tapered roller bearings with easy to access grease fittings.	Yes No	
	16. Ejector panel, 3/16" 80,000-psi steel.	Thickness: 3/16 Steel Strength: 80K psi	
	17. Ejector panel shoes shall ride on brass or ultra-high-molecular-weight (UHMW) polyethylene shoes. The shoes shall be replaceable without removing the ejector panel.	Yes No	
	18. Full exterior continuous body welds.	Yes No	
	19. Access door 30" x 30" located on street side front hinged with turn handle lock.	Size: _____	$ incl.
	20. Tailgate lock automatic locking.	Yes No	$ incl.
	21. Tailgate seal 1-piece rubber seal with tensile strength of 1500-psi. The seal shall extend across the bottom and up the sides to prevent leakage.	Yes No	$ incl.
	22. Tailgate props (one per side) to hold tailgate in open position.	Yes No	$ incl.
	23. Tailgate top sheet if required shall be 2-piece polyethylene, color "white" secured with quick release (no tools required) fasteners.	Yes No	$ incl.
F.	Rear Riding Support Handles shall be:		
	1. Located in positions that allow riders of various sizes and physical statures to comfortable and safely ride on the rear steps. **The location and design shall be mutually agreed upon at installation**	Yes No	$ incl.
	2. Handle design shall not interfere with rear operator controls.	Size: 1 1/4 in	
	3. Handle diameter shall be 1-1/4" diameter to allow for good grip.	Yes No	
	4. Handles shall have durable deep knurled non-slip grip surface and powder epoxy painted "Safety Yellow".	Yes No	
	5. Handles shall be easily replaceable bolt-on design with safety wired or tack welded to prevent loosening.		
G.	Rear Riding Step:		

	Description of Equipment	Offered Equipment	Cost
	1. Rear riding step, meeting American National Standard Z245.1-1999 shall be provided. 2. Width 8" x 36" long approximate extending to rear of hopper. 3. Material steel, open grate grip-strut material. 4. Rear riding step will not exceed 20" from ground using XDY3 Traction tires.	(Yes) No Size: 8X36 in Make: Grip Strut Model: Grip Galv Height of Step: TBA	$ incl.
H.	Toolbox, 1. Mounted underneath right side body, 2. Size 36" long x 18" high x 18" deep. 3. The door shall be side-mounted bottom hinged. 4. The box shall have a flush mount latch/lock assemble.	Location: Right Side Size: 36"x18"x18" (Yes) No (Yes) No	$ incl.
I.	Hydraulic System: "Operate at Standard Low Idle". 1. Hydraulic pump(s) PTO "hot shift" driven through a Chelsea 890 series direct drive off the transmission at 8 o'clock position. The gear pump(s) shall have an automatic pump oil bypass system in normal bypass mode when the hydraulic system is not engaged. 2. Hydraulic system shall be Parker Hannifin Corporation designed and certified and use as many as possible Parker components to assure compatibility of the system and 3 year Parker warranty for using a complete Parker system. 3. Hydraulic system shall operate all hydraulic functions at engine low idle speed (750 rpm) and shall not require shifting transmission out of "Drive" gear or applying "Parking" brake. System hydraulic pressure and flow shall not increase above low idle speed, which could encourage an operator to increase engine rpm to try to increase hydraulic performance. 4. Hydraulic pump performance, sufficient pressure and volume at low idle rpm to produce one cycle of the compactor blade at 75% load in less than 12-seconds. 5. Operating pressure, 2,500 psig maximum. 6. Hydraulic valves shall have LED lights on valve coils to aid in troubleshooting the system. 7. The hydraulic pump suction line shall be: a Steel tubing with hydraulic hose sections at both the pump and tank end for vibration isolation. b The suction line shall be routed for maximum ground clearance and damage protection. c Hose swivel ends shall be used on all connections. 8. Hydraulic Cylinders shall:	Pump Make: Chelsea Model: 890 Mounting Location: Front Engine Make: Parker Model: Hannafin Pump Operating Speed: 750 rpm Pump Output: TBA gpm @ 1000 rpm (Yes) No Operating Pressure: 2500 psi LED Coil Lights: Yes (No) Material: Rubber (Yes) No (Yes) No	$ incl. $ incl. $ incl. $ incl. $ incl. $ incl. $ incl. $ incl.

	Description of Equipment	Offered Equipment	Cost
	a. Properly sized to efficiently and continuously perform their function without any cylinder degradation. b. Cylinders shall have industrial hard chrome piston rods. c. Main ram cylinder at the rod end shall have a 4" wide mounting. d. Cylinders shall be fast and easy to remove and replace.		
	9. Hydraulic Reservoir: a. Capacity 45-gallons minimum b. Oil level and temperature gauge, c. Suction and pressure shut-off valves d. Magnetic drain plug. e. Bung for Future Hydraulic Oil Pre-heater System 1) Possible future installation bung for an Arctic Fox Hydra Liner H-4000 hydraulic fluid warmer. 2) Tank bung shall be schedule 80 2" NPT female thread coupling. 3) Bung shall be welded to 0.250" thick 8" dia steel tank reinforcing ring. 4) The bottom edge of the tread section of the bung and hydraulic oil pre-heater shall be 1 ½" off the bottom of the tank. 5) The baffles shall be suitable to accept a 24" long heater element and provide a 1" clearance all the way around the element.	Hydraulic Reservoir Size: 45 gallons	$ incl.
	10. Hydraulic oil shall be ISO Grade 32 multi-viscosity with a -40°F pour point. 11. Hydraulic filtration, return line replaceable 10-micron with bypass mode indicator light, easy to access for replacement. Suction strainer 100-micron.	Return Line Filter Rating: 5 micron return Suction Strainer Size: 100 micron	$ incl.
	12. Hydraulic Filtration, pressure line Parker WPF 7000 psig rated at 7 micron absolute tandem type.	Make: Parker Model: Hannifin [redacted]	$ incl.
	13. Hydraulic system shall maintain oil temperature at no more than 90°F above ambient temperature. 14. Hydraulic system test ports shall be provided for each circuit. Test port connections shall be compatible with the Parker Hannifin PD type connector.	Make: Parker Type: ST451	$ incl.
	15. All hydraulic hoses and tubing shall be neatly routed, shielded and secured/supported to prevent chaffing under truck. 16. All hydraulic hoses shall be Parker series ST 451 extra-high-abrasion resistant hoses to reduce hose failure from hose cover	(Yes) No	$ incl.

	Description of Equipment	Offered Equipment	Cost
	damage. Hydraulic hoses shall have swivel ends on each end. 17. Pump protection, protected from 5-mph impact. Pump and protection shall not extend any more than 12" in front of the bumper. Bumpers shall be as close as practical at outer corners of the vehicle to reduce wall-to-wall turning diameter yet still offer good body protection. 18. A hydraulic oil recirculation filter system connection system shall be provided with the following: a. The suction and return tubes shall be 1" ID and be installed in the tank top side on each tank end (cross flow) approximately 4" inside the end caps and extending to within ¼" off the tank bottom at the lowest point. b. The hydraulic connections shall be 1" Parker FF male (flat face) fittings and orientated so they face to the inside (each other). c. The suction and return lines shall be 1" ID with a 60° cut on the bottom to assure adequate hydraulic oil flow. 19. The suction and return lines shall be interchangeable in use so it does not matter which hydraulic tank fitting the filter system suction and return lines are connected to.	Tubing Size: 2 inches Suction Distance of Tank Bottom: 4 inches Make: Parker Type: FF (Yes) No (Yes) No	
J.	Electrical: 1. All remote electrical inter face connections shall be terminated on stud-type terminal strips or with plug type connectors in a waterproof junction box. 2. Connectors/wires shall be permanently and individually labeled. 3. Electrical schematics shall be affixed inside the cover of the junction box. 4. Dielectric grease shall be applied to all terminals and connectors to prevent corrosion if connector is not waterproof.	(Yes) No (Yes) No (Yes) No (Yes) No	$ incl. $ incl. $ incl. $ incl.
K.	Packer Controls: 1. Located on forward street side of the body: a. Engine speed control. b. Tailgate lock/unlock control. c. Tailgate raise control. d. Ejection control. 2. Packer controls located on curbside of body tailgate: a. Packer controls shall not interfere with rider and shall not pose a catching or snagging of loose clothing possibility. b. Packing control shall not interfere with rider. c. Buzzer driver signal, push button on each side of tailgate.	Location: Street Side (Yes) No (Yes) No (Yes) No (Yes) No (Yes) No (Yes) No (Yes) No	$ incl. $ incl.

	Description of Equipment	Offered Equipment	Cost
L.	Vehicle Rear Lights: (No Approved Equals)		
	1. All lights shall be Truck-Lite "Lifetime Warranty" 12vDC, LED type, flush mount, sealed lexan body, grommet insulted with Fit' N Forget multi-pin plugs where possible.	Make: LED Model: Truck Lite	$ incl.
	2. Integral Stop/Turn/Tail/ lights mounted in the rear corner post of the dump body model Super 44 P/N 44302R or model 60 P/N 60250R.	Make: " " Model: " "	$ incl.
	3. Third Brake Light use the same used light used for Stop/Turn/Tail light and disable the Turn and Tail light sections.	Make: " " Model: " "	$ incl.
	4. Back up lights Truck-Lite LED, flush mount, sealed lexan body, grommet insulted, multi-pin units model 44 P/N 44206C.	Make: " " Model: " "	$ incl.
	5. Marker lights Truck-Lite LED 3 per side model 10 P/N 10250R or 10250Y or model 30 P/N 30250R or 30250Y.	Make: " " Model: " "	$ incl.
	6. Rear ID bar Truck-Lite LED model 35 P/N 35741R or 35740R.	Make: " " Model: " "	$ incl.
	7. License plate light, Truck-Lite model 15 P/N 15040	Make: " " Model: " "	$ incl.
	8. Light bar mounted above the hopper for maximum visibility shall contain 2 stop/turn, 2 tail lights, 2 clear seal beam utility lights (separate cab switch) and one license plate light.		
	9. Work lights Two (2) Hopper mount Signal-Stat 623W Halogen work lights with lighted on dash mounted control switch.	Make: Signal Stat LED Model: Bright	$ incl.
	10. Wiring shall be sealed Fit' N Forget modular plug-in type where possible.	Make: " " Model: " "	$ incl.
	11. Lights shall not protrude into rear riders area or be below the hopper in an area 20" in from the outer hopper sides		
	12. Dielectric grease shall be applied to all plug connections and terminals to prevent corrosion.		$ incl.
M.	Warning Alarm:		
	1. Audible when transmission is in reverse or tailgate of body is not fully lowered and locked.	(Yes) No	$ incl.
	2. 107 dB, SAE type B, fully sealed, back-up alarm system wired into vehicle's backup light system using OEM plug-in adapter.	dBa: 102	
	3. The alarm shall be mounted out of the vehicle's rear wheel splash area.	(Yes) No	
N.	Mud Flaps:		
	1. Mud flaps shall be heavy-duty anti-sail type	(Yes) No	$ incl.
	2. Installed front and rear on rear wheels.	(Yes) No	
O.	Conspicuity Tape:		
	1. DOT-C2 Standard No. 108 reflective conspicuity tape.	Brand: DOT C2 Type: X 108	$ incl.
	2. Tape shall be on both lower sides and rear of the body.	(Yes) No	
	3. Tape shall be applied in symmetrical pattern from middle of panel	(Yes) No 3M	

	Description of Equipment	Offered Equipment	Cost
	outward.		
P.	Paint Main Body: 1. Polyurethane paint equal to DuPont Imron 5000, Color "Bright White", 2 coats applied to all non-stainless steel components following manufactures procedures to include: 2. Preparation to include: 3. Removing all mill scale and slag. 4. Variprime 615S self-etching primer or approved equal. 5. Treating bare metal with manufacturer's conditioners and conversion coatings or approved equal. 6. Paint to be applied with all body members painted.	Make: Dupont Type: Imron Color: White (Yes) No (Yes) No (Yes) No (Yes) No (Yes) No	$ incl.
Q.	Special Tailgate Paint: 1. Polyurethane paint equal to DuPont Imron 5000,: a. Top ½ of tailgate "Bright White", b. Lower ½ of tailgate and packer panel solid "Safety Yellow" 2. Preparation to include: 3. Removing all mill scale and slag. 4. Variprime 615S self-etching primer or approved equal. 5. Treating bare metal with manufacturer's conditioners and conversion coatings or approved equal. 6. Paint to be applied with all body members painted.	Color: White Color: Yellow (Yes) No (Yes) No (Yes) No (Yes) No	$ incl.
		Packer Body Equipment SUB TOTAL COST	$ 82,936

$82,936 Total

4.7 Sundries Equipment

When a brand/model is referenced in the specifications unless it is stated as "No Approved Equal" it is only a statement of expected quality, information on alternative products shall be provided with the bid so a full technical comparison can be made of the product submitted as an "approved equal".

	Description of Equipment	Offered Equipment	Cost
A.	Flashing Warning Light with brush guard: 1. Whelen IONSMC -Wide Angle LED color (Amber) safety lights (4 required). 2. The 4 strobe lights shall be vertically (2 per side) mounted in the rear body light bar panel. 3. The power switch (switch body behind dash) shall be-mounted in an easy to access location. The control switch shall be installed in an easy to see and access position, but not in a location that interferes or could interfere with the driver or passenger during	Make: Whelen Model: IONSMC (Yes) No (Yes) No	$ incl. Included in $82,936 above

	operation or while entering and exiting the vehicle.		
B.	Driver Height Warning Sign 1. Installed on truck dash providing the travel height of the vehicle. 2. Sign shall be in 1" "white" block letters.	(Yes) No (Yes) No Included in $82,936 above	$ incl.
C.	Tool holders, 1. Three shovel/broom holders mounted on curb side of body. 2. Location to be mutually agreed upon at installation.	(Yes) No (Yes) No Included in $82,936 above	$ incl.
D.	Sign Boards, Two body mounted Roadway Displays Inc. (909.587.0207) mobile display systems shall be provided to include: 1. Frame model SS315955 95-1/2" long x 31-1/2" high x 2-1/4" frame width with .025" aluminum backing. 2. Frame material, 6463-T6 aluminum extrusions with satin anodize. 3. Sign panel size 93-3/16" x 29-3/16" x .060" high impact styrene. View size 91" x 27". 4. Sign frame shall be securely mounted to body yet be easy to remove and replace.	Brand: Kois Included in $82,936 above (Yes) No	$ incl.
E.	Tailgate winch 1. 12,000-lb drum winch mounted in upper tailgate structure 2. Hydraulically controlled with control lever at right rear of truck 3. Hydraulic winch hydraulic circuit shall be integrated with the tailgate hydraulic circuit and must maintain pressure while operating each function simultaneously. 4. Winch location must not interfere with CNG tanks or plumbing Diesel	Brand: Heil "Option" Required-NOT included in $82,936 Yes No "Option"	$ 3610
F.	Tuck-Away Cart Tippers 1. Perkins Model # D6220 Required-NOT included in $82,936	Brand: Perkins D6220 "Option"	$ 12,270
		Sundries Equipment SUB TOTAL COST	$ 17,880

4.8 Complete Vehicle Sub Total Cost:

COMPLETE VEHICLE SUB TOTAL COST	$ 280,716

4.9 Optional Equipment

Do not include Optional Equipment in the total price of the vehicle; however an equipment price must be provided. The City will determine if the equipment is to be purchased.

When a brand/model is referenced in the specifications unless it is stated as "No Approved Equal" it is only a statement of expected quality, information on alternative products shall be provided with the bid so a full technical comparison can be made of the product submitted as an "approved equal".

	Description of Equipment	Offered Equipment	Cost
A	CNG Fuel System: Engine Option: Do NOT include		
	1. Cummins ISL-G, 8.9 liter, VGT turbocharged natural gas engine, rated at 320 hp @ 2,000 rpm, torque 1,000 lb/ft @ 1,300 rpm, 2,200 rpm governed	Make: _____ Model: _____ HP: _____ @ _____rpm Torque: _____ @ _____ rpm	$ N/A
	2. The CNG engine shall meet all required EPA on-highway emissions standards	Yes No	$
	3. Fuel Tank:		
	a Fuel tank shall meet or exceed		
	1) NFPA 52 standards	Yes No	
	2) US-DOT/FMVSS304	Yes No	
	3) ISO 11439	Yes No	
	b Tank Manufacturer	Make: _____ Model: _____	$
	c Tank Information		
	1) Tank Construction Type: composite	Material: _____	$
	2) Service Life Years: 20 years	Service Life: _____ yrs	
	3) Recertification Period: 8 years	Recertification: _____ yrs	
	4) Type of Recertification Inspection Required	Inspection Type: _____	
	5) Tank Service Pressure Full: 3,600 psig @ 70°F (21°C)	Service Pressure: _____ psig	$
	6) Each CNG fuel tank shall have a ¼-turn ball stainless steel shutoff valve mounted at the tank inlet.	Yes No	$
	4. Tank Installation Location:		
	1) The CNG tank mounting location shall be mutually agreed upon by the vendor and the City prior to the ordering of the cab and chassis. The vendor shall provide drawing of proposed CNG tank location(s). The locations shall not increase the truck wheelbase or the overall height of the truck and body 12' – 6" or body length over a regular non-CNG configuration:	CNG Tank (s) Location: _____ _____ _____ _____ _____ _____ _____	$
	a) Tank Size: provide diameter x length	Size: _____ dia x _____ long DEG Net _____ gal	
	b) Tank Weight each: Empty	Tank Weight: _____ lbs	
	c) Quantity of Tanks for 75 gallon DGE	# of Tanks: _____ DEG Net _____ gal	
	d) Weight All Tanks: Empty	Weight all tanks and brackets etc: _____ lbs	
	a) Weight All Tanks: Full CNG	Weight All Tanks Full CNG: _____ lbs	
	e) Tank Enclosure Width, Length, Height	Enclosure Size: _____ x _____ x _____	
	f) Tank Enclosure Material: Steel/Gauge	Material: _____ Gauge: _____	

	d Tank Mounting: 1) End/dome/ boss, 2-piece saddle mounts on each tank end. The tanks shall be installed inside a steel tank mounting frame. The frame shall be 3" x 1 ½" x 3/16" tubing. The frame shall be powder coat finished for durability.	Yes No Frame Size: _____ x _____ x _____	$ N/A
	2) CNG tank manufacturer 2-point band type CNG bracket with rubber cushion between tank and bracket to prevent slippage and eliminate chaffing, accommodate tank growth by changes in internal pressure.	Yes No	$
	e The primary tank relief valve (PRD) shall be vented up and away from the vehicle and any ignition sources. The vent shall be protected from rain or vehicle wash water from entering the vent line. The vent line shall be ½" diameter minimum.	PRD Pressure Release: _____ psig Yes No Tubing Size: _____	$
	5. CNG Pressure Reducing Regulator System: a The pressure reducing regulator system shall be mounted inside a protective steel enclosure no more than 6 ft from the CNG fuel tank.	Yes No	$
	b From the CNG fuel tank to the regulator the tubing shall be ½" od x 0.049" wall 300 series stainless steel minimum.	Tubing Size: _____ x _____ Type: _____	$
	c The pressure reducing regulator system shall have 2 pressure gauges installed in the system. 1) High Pressure gauge 0-to-5,000 psi installed on tank side to show tank system pressure.	Pressure Range: _____ to _____ psi	$
	2) Low pressure gauge 0-to-250 psi to show engine down-stream fuel delivery pressure to the engine.	Pressure Range: _____ to _____ psi	$
	3) Gauges shall be stainless steel glycerin filled.	Yes No	$
	d The engine coolant flow to the pressure reducing regulator shall be minimum of 1 gallon/minute of 180°F coolant per 50 hp of engine output. For coolant flow the heat exchanger for the engine shall be rated at 450 hp to cover engine rating increases after the truck is delivered.	Yes No	$
	e Engine coolant flow and CNG fuel supply shall enter the regulator on the same side of the regulator.	Yes No	$
	f Coolant ports shall be oriented vertical (up) in horizontal regulators to prevent air from becoming trapped in the regulator.	Yes No	$
	g The pressure reducing regulator shall not under any circumstance be installed in series with the truck cab heater system.	Yes No	

	6. Automatic Fuel Shut Off:		$_____
	a The automatic fuel shut off valve shall be plumbed directly to the exit/warm side of the engine coolant heated pressure reducing regulator.	Yes No	NA
	b The automatic fuel shut off valve shall have its weight supported by a mounting bracket.	Yes No	$_____
	c The automatic fuel valve shall have a Cv of 2.0 minimum to assure adequate fuel flow.	Valve Cv: _____	$_____
	d The automatic fuel shut off shall be a NC (normally closed) valve when the ignition is in "Off" position.	Yes No	$_____
	7. Fuel Lines:		
	a All high pressure shall be ½" od x 0.049" wall stainless steel 316L tubing appropriate for the application.	Make: _____ Type: _____	$_____
	b Stainless steel lines shall have thermal expansion/contraction loops for smaller diameter lines and S-bend expansion joints for larger diameter lines.	Yes No	
	c All CNG lines shall be supported with stainless steel rubber bushed aircraft P-type clamps. The maximum distance between clamps shall no more than 24".	Yes No	$_____
	d Fitting for the CNG fuel system shall be:		
	1) Stainless steel tube fittings shall be Swagelok or Parker A-lok with thread sealant.	Make: _____ Type: _____	$_____
	2) Special NPTF pipe fittings shall be stainless steel with thread sealant.	Yes No	
	e All NPT fitting shall be installed on male pipe threads using proper thread sealants.	Yes No	
	1) Thread sealant and anti-seize shall be a nickel impregnated or nickel coated Teflon tape.	Sealant Type: _____	
	2) Teflon tape shall start at 2nd thread.		
	3) On ½" and under use 2 wraps of tape		
	4) On 5/8" to 1" use 3 wraps of tape.		
	5) Assure last section of tape is pulled down tight against the threads.		
	6) Do not use sealant on compression threads		
	f Post heat exchanger hoses and lines may be Parker 929 heavy-wall PTFE hose exceeding SAE100R14A or stainless steel tubing.	Make: _____ Type: _____	$_____
	8. Fuel Fill System:		
	a The fuel receptacle and fuel fill system shall be rated for both "fast fill" and "slow fill" with a minimum ½" od x 0.049" wall 300	Yes No Tubing Size: _____	$_____

	series stainless steel. b The fuel fill nozzle: 1) Shall be a male NGV1 OPW with rubber protective cover boot 2) Fuel Fill Locations(2/vehicle). One at front bumper driver's side and one at tank fill enclosure driver's side of the vehicle. Both fuel fill locations require ample clearance for both "fast fill" and "slow fill" receptacles and hook-up. 3) The fuel filler line shall be plumbed to the CNG tank bank. 4) Two required: one fuel fill receptacle at the left front bumper and one fuel fill receptacle in the tank fill enclosure. c The tank fill enclosure shall have: 1) A high pressure line/tank pressure gauge 0-to-5,000 psi 2) A low pressure fuel to engine pressure gauge 0-to-250 psi 3) An OPW male NGV1 fuel fill receptacle with easy access and excellent clearance for both "fast fill" and "slow fill" receptacles. 4) An emergency ¼-turn shut off valve for shutting down the system in case of a fueling emergency. d The fuel fill access shall be easy to access and easy for the operator to see for fueling and to prevent drive-off with fuel hose attached. e The fill receptacle shall have an easy to remove/reinstall fuel fill cover to protect the fill port from contamination during truck operation. 9. CNG Filtration: a High pressure, on the fuel tank(s) fill line to clean the CNG before it enters the fuel tank storage system. b Low Pressure, on the downstream "low pressure" post regulator engine delivery side. The "low pressure" filter shall be a Fleetguard spin-on NG5900 with liquid drain or approved equal. 10. Fuel Gauge: a An electric fuel gauge shall be provided with easy to see vehicle dash gauge to show fuel tank volume. b The fuel sender shall be a sealed unit mounted to the high-pressure tank system c A sealed 3-pin Weatherpak connector with a 1-amp fast blow automotive fuse shall connect the sender to the gauge.	Make: _____ Model: _____ Fill Location: _____ Yes No Pressure Range: _____ to _____ psi Pressure Range: _____ to _____ psi Yes No Yes No Yes No Yes No Make: _____ Model: _____ Make: _____ Model: _____ Fuel Gauge Type: _____ Make: _____ Model: _____ Yes No Yes No Yes No Yes No	$ N/A $ _____ $ _____ $ _____ $ _____ $ _____ $ _____ $ _____

	d Pins are: 1) Red = power 2) Green = signal 3) Black = ground		
B	Cab Heater: Do NOT include 1. The cabin heater shall be a Webasto Air Top 2000ST. 2. Heat Value 3,100 to 7,000 Btu/hour 3. Air Flow 37 cfm 4. Size: 12 ¼' x 4 ¾" x 5" approximate 5. Electrical 12vDC @1.2 amps 6. Diesel Fuel Usage 0.03 to 0.06 gallons/hour	Make: _____ Model: _____ Btu's: _____/hr Air Flow: _____ cfm Size: _____ x _____ x _____ Fuel Usage: _____ gal/hr	$ N/A
C	Hydraulic Oil and Engine Coolant Heater: Do NOT include 1. Heater for hydraulic oil and engine coolant shall be a Wabasto Thermo 90ST 2. Heat Value 6,100 to 26,000 Btu/hour 3. Water Flow 7.3 gallons/minute @ 2.2 psi 4. Size: 15 ¾" x 7 ½"" x 14" approximate 5. Electrical 12vDC @ 3 amps 6. Diesel Fuel Usage 0.06 to 0.24gallons/hour 7. Hydraulic oil heater Arctic Fox H-4000 series maximum length for hydraulic tank. Baffle may need to have pass-thru opening	Make: _____ Model: _____ Btu's: _____/hr Water Flow: _____ gpm Size: _____ x _____ x _____ Fuel Usage: _____ gal/hr Make: _____ Model: _____ Length: _____	$ N/A
D	1.		
E	Spare Tire and Wheel: Do NOT include 1. Tire and wheel assembly: 1 per vehicle. 2. Tire: Michelin XZY-3, Steer Tire. 3. Aluminum	Make: Michelin Model: XZY3 Make: R. Alum Model: 22.5x9	$ 2266
F	Remote High-Quality Color Safety 2 Camera System: 1. Cameras (2 required) color, ECCO Gemineye K7000Q system with camera view selection on the TV monitor face (No Approved Equal: a. Rear of vehicle mounted camera wired into vehicle reverse circuit to automatically turn on when vehicle is shifted into reverse: b. Right side camera (cab mounted) to serve as an auxiliary right rear view mirror function (blind spot view) to augment the right rear view mirrors. 1) The camera shall be normally ON viewing the right side of the vehicle and blind spot. 2) It shall automatically switch to rear of vehicle view when the transmission reverse gear function is activated. 3) An over-ride to keep the right side camera on shall be	Make: _____ Model: _____ Yes No **Camera Price Required** Do NOT include ECCO Camera System-see Yes No **Camera Price Required** alternative below-	$ N/A

	provided for special situation use. 4) Camera shall be as small as possible and have a guard that will protect the camera and wiring from tree branch damage and road spray/splash. Camera shall be place in a housing right front corner of cab. 5) The exact location of the camera and approval of the camera protection shall be mutually agreed upon at installation	Do NOT include ECCO Camera System-see alternative below	
	2. Camera color ECCO model C2001 with automatic shutter (2) required:	Make: ECCO Model: C2001 Quantity: 2 * City Supplies Units, Kois will mount (Yes) No	N/A
	a. Camera shall be in water proof cast aluminum housing. Housing shall be able to be pressure washed when washing vehicle.	(Yes) No	$
	b. Camera shall have built in safety audio system that will pick up and broad cast normal conversation to monitor.		
	c. Camera shall be automatically heated for cold weather operation.	Resolution: 380 lines	
	d. Resolution 380 TV lines horizontal.		
	e. Signal to noise ratio 44dB minimum.	Make: ECCO Model: K7000Q	$
	3. Monitor LCD, 7" flat screen, ECCO model M7000Q with:	(Yes) No	
	a. Monitor shall be in a very easy to see location that requires as little as possible head movement and also with a little as possible front windshield obstruction. The monitor location shall be mutually agreed upon.		
	b. Camera view selection switches on the TV monitor.	(Yes) No	
	c. Day night sensor	(Yes) No	
	d. Resolution 270,000 pixels or better.	Pixels: 270,000	
	e. Picture control to include brightness, contrast and image.	(Yes) No	
	f. Speaker system to broadcast sound from camera.	(Yes) No	
	g. Picture shall be crisp and clear at all times.	(Yes) No	
	h. Anti-glare sun shield and hood.	Make: Model:	$
	i. Swivel mounting bracket.	(Yes) No	
	j. Dimmer switch to adjust for day and night viewing.	(Yes) No	
	k. Monitor capable of accommodating 3 cameras.	(Yes) No	
	4. All wiring shall be totally sealed with sealed locking connections to prevent corrosion.	(Yes) No	
	5. All wiring shall be routed to prevent damage to the wiring.	(Yes) No	$
	6. Warranty 3 years with repairs done by replacement of failed components notification shipped UPS "Next Day" upon notification of problem.	Warranty: years Yes (No)	

Remote High-Quality Color Safety 2 Camera System:Included in $82,936 above

1. Cameras (2 required) color Zone Defense system with camera view selection on the TV monitor face (No Approved Equal:

a. Rear of vehicle mounted camera wired into vehicle reverse circuit to automatically turn on when vehicle is shifted into reverse:

b. Right side camera to serve as an auxiliary right rear view mirror function to augment the right rear view mirrors. The camera shall be normally on viewing the right side of the vehicle. It shall automatically switch to rear of vehicle view when the transmission reverse gear function is activated. An over-ride to keep the right side camera on shall be provided for special situation use. Camera shall be as small as possible and protected from tree branch damage.

2. Camera (Rear) color Zone Defense model CAM.313SH.4P with automatic shutter (1) required:

1. Camera shall be in water proof cast aluminum housing. Housing shall be able to be pressure washed when washing vehicle.
2. Camera shall have built in safety audio system that will pick up and broad cast normal conversation to monitor.
3. Camera shall be automatically heated for cold weather operation.
4. Resolution 380 TV lines horizontal.
5. Signal to noise ratio 44dB minimum.

3. Camera (Right side) mini color Zone Defense model CAM.313MS
4. Monitor LCD, 7" flat color screen Zone Defense model M7000Q with:

a. Monitor shall be in a very easy to see location that requires as little as possible head movement and also with a little as possible front windshield obstruction. The monitor location shall be mutually agreed upon.

b. Camera view selection switches on the TV monitor and trigger wires via power cable.
c. Automatic day/night dimmer sensor
d. Resolution 291,000 pixels or better.
e. Picture control to include brightness, contrast and image.
f. Speaker system to broadcast sound from camera.
g. Picture shall be crisp and clear at all times.
h. Anti-glare sun shield and hood model A7000SS.
i. Swivel mounting bracket.
j. Automatic dimmer sensor to adjust for day and night viewing.
k. Monitor capable of accommodating 2 cameras.

5. All wiring shall be totally sealed with sealed locking connections to prevent corrosion.
6. All wiring shall be routed to prevent damage to the wiring.
7. Warranty 2 years with replacement of failed components with new components shipped UPS "Next Day" upon notification of problem.
8. Additional 5 year warranty

G	1.		
H	Inspection Trip: 1. The City and County of Denver reserves the right to inspect at the body fabricating plant the first (1st) article prior to paint and delivery. 2. Where the fabricating plant is located further than 200 road-miles from the City and County of Denver, the bidder shall include in the bid price all travel expenses to the fabrication plant for the inspection. 3. The City may select to send from 2 representatives to inspect the 1st article. The provided costs shall be based on one (1) person per day and the City will determine how many representatives the inspection will require and how many days the inspection will require. 4. Inspection Trip Costs to include: a. Air fare per person: b. Surface transportation costs: c. Lodging per person per day: d. Meals per person per day: 5. Total cost per person for 1st article inspection trip:	Provide information: Distance to fabrication plant: 1350 miles Plant Location: FT. Payne AL - Will be provided if Requested by Kois or McCandless Do NOT include ECCO Camera System-see alternative below Air Fare: $ ✓, Airline: TBA Surface Transportation: $ ✓, Mode: ✓ Lodging / day: $ ✓, Hotel: ✓ Meals / day: $ ✓	$ $ $ $ $

5.0 Manuals/Equipment Included at no additional charge

Item	Description of Equipment	Offered Equipment	Cost
Training Tape	One DVD or CD demonstrating and explaining the safe and proper use of the vehicle/equipment. 1. Cab and chassis. 2. Equipment and Body.	(Yes) No (Yes) No	$ $
Operators Manual	One per vehicle/equipment with "safe equipment operation" section for each component. 1. Cab and chassis. 2. Equipment and Body.	Yes	$
Service/ Maintenance Manual	Two complete sets per Contract (not per vehicle); binder required, Shall include complete and detailed information for maintenance of the equipment, including general information,	yes	$

	specifications, troubleshooting guide, lubrication and required adjustments.		
Service/ Maintenance Manual on CD rom or DVD	One complete set; per Contract (not per vehicle) 1. Manuals shall include complete and detailed information for maintenance of the equipment, including general information, specifications, troubleshooting guide, lubrication and required adjustments. 2. The hydraulic and electrical sections of the manuals shall be provided in a separate electrical/hydraulic binder. Both the hydraulic and electrical circuits shall have separate color coded schematics for each equipment function to show the flow of both electrical current and hydraulic oil.	yes yes	$
Parts Manual	Two complete sets, per Contract (not per vehicle) binders required, illustrated parts book shall be furnished containing data so that part numbers can be readily found for each system.	yes	$
Parts Manual on CD rom or DVD	One complete set, per Contract (not per vehicle) illustrated parts book shall be furnished containing data so that part numbers can be readily found for each system.	yes	$
New Equipment Check-in Form:	The successful vendor shall complete the City's "New Equipment Check-in Form" completely and accurately with all requested information.	yes	$

5.1 Operator and Mechanics Training

Item	Description of Equipment	Offered Equipment	Cost
On Site Equipment Manufacturers Training	On site the vendor shall insure that the equipment manufacturers training representative, after delivery of the equipment Contacts Fleet Maintenances training manager to coordinate equipment training.	Do NOT include Optional	$2,150
Fleet Maintenance Training Manager	Charlie Pletcher, Telephone: 720.865.3951 Contact time: 8:00 am to 3:00 pm M-F		
Training Requirements	Training shall consist of factory training materials, classroom and actual field training on the equipment for the equipment operators and	yes	$

	supervisors.		
On Site Mechanics Training	On site mechanics training shall be 2 classes, approximately 8 hours, 2 shifts total provided at City facilities. The training shall cover maintenance and service procedures, trouble shooting and use of manuals.	yes	$

6.0 Repair Parts Delivery

	Repair Parts Delivery	Complies (Y or N/A)
A.	Prime Vendor is to indicate current Master Purchase Order (MPO) agreement(s) in place with the City. (Example 06670108) If no agreement exists, is your company willing to enter into a long-term MPO in order to supply parts and components for the equipment and manufactures proposed herein? YES or NO	Yes
B.	Sub-Vendor is to indicate current Master Purchase Order(MPO) agreement(s) in the City. (Example 0298A0609) If no agreement exists, is your company willing to enter into a long-term MPO in order to supply parts and components for the equipment and manufactures proposed herein? YES or NO	Yes

6.1 Warranty Requirement

TABLE 1

	WARRANTY (CLASS 7 THROUGH CLASS 8 VEHICLES)	Complies (Y or N/A)
C.	Express warranty is to be a minimum of twelve (12) months on the vehicle/equipment. The standard factory warranty plan shall be provided as an attachment to your bid proposal	Y
D.	The Warranty is to include, at no cost to the City of Denver, all parts and labor, and no charge for work performed at the vendors facility	Y
E.	Warranty shall start when the City places the vehicle into service **NOT** on the delivery date. Taking an exception may make bid non compliant.	Y
F.	Warranty plans shall consist of the total unit and be broken out to a separate plan for each warranty item if applicable, such as engine warranty plan, transmission warranty plan, electrical, etc	Y
G.	Options listed shall be bid and provided as factory installed under the terms of the full factory-backed warranty. This includes, but is not limited to: air conditioning, radios, cruise control, bumpers, towing packages etc. Dealer-installed options will not be permitted unless pre-approved by the City in writing and, where applicable, indicated on bid sheet as a "dealer installed" non-factory item.	Y
H.	Bidder will be responsible for warranty repair of all installed options/auxiliary equipment included in the bid that has a standard warranty that is less than the standard warranty for the base vehicle/equipment	Y
I.	Bidder shall use a single, local factory authorized dealership that will accomplish or coordinate required warranty work. The	Y

	dealership must have a minimum of 1-year experience as a factory authorized vendor for like equipment being bid. Warranty parts shall be available and supplied within 24 hours	Y
J.	If applicable, bidder shall provide a plan for the City to be reimbursed if the work can be done by the City on site. The current shop rate is $79.00/hour, not to exceed $85.00/hour. (Enter a response of N/A if not available)	N/A
K.	The bidder shall respond to request for warranty assistance within twenty-four (24) hours.	Y
L.	Warranty work shall be accomplished within an appropriate length of time (generally less than 3 working days for everything other than major component repair such as a transmission rebuild) and shall be coordinated with an authorized City representative	N/A
M.	During the entire warranty period, if the unit requires transportation to a repair facility, the vendor/sub-vendors shall be responsible for all transportation at "NO COST" to the City and County of Denver. This includes transporting the unit back to the City's domicile location after repairs are complete. If an alternate is bid, charges to the City of Denver shall be listed (e.g. mileage, travel, labor, etc.). Even if an alternate is bid, in NO CIRCUMSTANCES will the City and County of Denver be responsible for transporting a unit greater than 25 miles from the center of Denver. For purposes of these warranty provisions, the center of Denver is defined as the City and County Building located on the corner of Colfax and Bannock Street.	Y
N.	The item(s) procured by the City pursuant to this Bid Proposal shall, in addition to being subject to the express warranties referenced above, be subject to all implied warranties arising by operation of law under State of Colorado and federal law, including but not limited to the implied warranty of merchantability and, to the extent applicable, the implied warranty of fitness for a particular purpose arising under the Colorado Uniform Commercial Code, Title 4, Colorado Revised Statutes. The bidder shall in no event attempt to limit or disclaim any of such implied warranties under this Bid Proposal, and any attempt to do so will render the bidder's bid non-responsive under this Bid Proposal.	Y
O.	This warranty in Table 1 and Table 2, is IN ADDITION to factory warranties on the vehicle and components	Y

6.2 Fleet Defects and Lemon Clause:

TABLE 2

WARRANTY - (Table 2) Fleet Defect Clause, Class 7 & 8 Vehicles	
A.	1. After 24 hours/3 days of consecutive "lost service" of the vehicle/unit due to warranty problems the warranty period shall be extended by the length of lost service time due to warranty problems.
B.	**Definition:** If during the warranty period, thirty percent (30%) of the total number of units delivered have the same part(s) and/or components failure requiring replacement and/or modifications, caused by defects in Design, Testing, Material, and/or Workmanship, then this "Fleet Defect Clause" goes into effect.
C.	**Remedy:** Following notification of a Fleet Defect, the vendor shall develop and implement a plan that either reengineers, modifies, or replaces the defective parts/ systems, such that the identified problem is cured and the operation of the vehicle/equipment is not altered. When alterations are required to cure the defect, those alterations that change or modify the original bid specifications must be approved by the City and County of Denver prior to execution. The vendor will pay for all necessary labor and materials to repair, modify, and/or "update" all vehicles/units in this group. The vendor shall also propose a work schedule that is mutually agreed upon by the City of Denver that corrects the fleet deficiency within 30 days or a mutual agreed upon schedule.

D.	**Exceptions:** Fleet defects will not apply to minor aftermarket accessories specified by the City of Denver and installed per instructions/specifications. Examples include: toolboxes, spotlights, bed-liners, etc.
E.	**Mitigation:** Should the vendor become non responsive to the City's notification of a Fleet Defect, the City may employ several options. (1) After notifying the vendor in writing of The City's intent to mitigate its circumstances, the City may chose to perform its own warranty work and seek reimbursement for both parts and labor. (2) On major components, such as engine, transmission, air conditioning, etc., the City may chose to have the repairs performed by an authorized dealer and vendor shall reimburse the City for any parts or labor not covered by other warranty.
F.	**Outside Metro-Denver:** Vendor will pay for all transportation costs if unit(s) must be sent out of the Denver area for repairs. The City and County of Denver reserves the right to inspect unit(s) before returning back to Denver. The City and County of Denver also reserves the right to send at least one employee, without cost to the City, to inspect the repair(s) before unit is released back to the City.
G.	**Expired Warranties:** Units that have mutually agreed upon warranty defects during the warranty period will continue to be repaired until completed. If an on-going remedy continues past the warranty date the repairs will continue under warranty until completed or cease at a time agreed upon by the vendor and City and County of Denver.

6.3 Warranty Options Not required

TABLE 3

WARRANTY Options		**(CLASS 7 THROUGH CLASS 8 VEHICLES)**		
Cost of Factory Extended Warranties		**Please indicate in the columns below the additional cost of an extended warranty for all applicable components listed in the left hand column.** **Inc** = Included **N/A** = Not available		
		Two Years	**Three Years**	**Five Years**
A.	Cab and Chassis	N/A	N/A	2,630
B.	Engine	STD	1300	2050
C.	Transmission	STD	STD	1500
D.	Drive Train	STD	200	1050
E.	Left Side Operator Controls	N/A	N/A	N/A
F.	Suspension	501	798	N/A
G.	Air Conditioning	N/A	N/A	N/A
H.	Hydraulics a. Pumps b. Cylinders c. Tanks d. Valves	N/A	N/A	3,950

	e. Controls	N/A	N/A	N/A
I.	Attached Body			
J.	Joystick			
K.	Electrical Components			
L.	Operator Controls			
M.	Other			
Notes:				

6.4 **Warranty Service Locations:** Warranty repair parts and service shall be available locally at an established factory authorized dealership meeting requirements of Table 1 Section 7.

Vehicle: Dealership Name: McCandless Truck Center Telephone #: 303-~~339~~-9900
Street Address: 6708 E. 32nd Ave City: Aurora

Trash Body: Dealership Name: Kois Bros Telephone #: 800-672-6010
Street Address: 5200 Colorado Blvd City: Commerce City

Sundries: Dealership Name: Kois Bros Telephone #: 800-672-6010
Street Address: 5200 Colo Blvd City: Commerce City

7.0 **Heavy Duty Vehicle Delivery Documentation:**

	Delivery Documentation (GVWR 26,001-Lbs and Above Heavy Duty)
A.	**Vehicles ordered under this specification** shall be complete and delivered to CITY AND COUNTY OF DENVER, Fleet Management Division. All prices quoted must be quoted at a firm price F.O.B. Denver, Colorado, 5440 Roslyn St. Building C.
B.	**Vendor shall supply at acceptance and delivery of vehicle.** 1. Bill of Sale (aka invoice, buyers order) 2. Original MSO (Manufacturers Statement of Origin) 3. Application for Title and/or Registration, Colorado Dept of Revenue form DR2395 (02-22-11) 4. Odometer Disclosure Statement, Colorado Dept of Revenue form DR2407 (09-07-05 5. Letter of Certification on Vendor Letterhead (Required for Incomplete Vehicles) with added bodies etc, describes the final configuration of

	the vehicle) 6. Air Brake inspection form required for any vehicle with air brakes or truck units capable of towing trailers greater than 10,000-Lbs 7. Standard Sales Tax Receipt. 8. DOT inspection form. 9. Temporary License Plate. 10. New Equipment Check-in Form/ Vendor Supplied Information on the Vehicle. Form provided by Fleet contact Dolores @ 720.865.3903 11. Copy of City Purchase Order. 12. All Keys ordered for the Vehicle and Sundries, i.e. toolboxes etc. 13. All Manuals repair, parts, owners and/or CD's/DVD's etc 14. Vehicle Warranty information and receipt for optional warranty. 15. Receipts and Warranty information for vendor Installed/supplied components (lift gates, snowplows, lighting equipment etc)
C.	**For an "Incomplete Vehicle" (cab & chassis) add the following:** **16. Verification of Vehicle Identification Number (VIN), Colorado Dept. of Revenue form DR2087.** **17. Statement of Fact for incomplete vehicles with added bodies etc, describes the final configuration of the vehicle.** **18. Original weight slip.**
D.	**Delivery:** **Monday through Friday between 8:00 am and 1:00 pm.** **Location: CITY AND COUNTY OF DENVER** **Fleet Management** **5440 Roslyn St. Building C** **Denver, CO 80216** **Contact person to coordinate delivery: Dolores Gallegos at (720) 865-3900 ext. 03 or direct line (720) 865-3903.**

8.0 Vehicle Delivery

8.1 Delivery of Cab and Chassis to Body Vendor

PROVIDE NUMBER OF DAYS REQUIRED FOR DELIVERY OF CAB AND CHASSIS AFTER PURCHASE ORDER IS ISSUED TO BODY VENDOR	120 DAYS

8.2 Delivery of Completed Truck with Body Installed to City and County of Denver

PROVIDE NUMBER OF DAYS REQUIRED FOR DELIVERY OF COMPLETE VEHICLE AFTER CAB AND CHASSIS IS DELIVERED	90 DAYS

9.0 Complete Vehicle Cost

Include:

- **Cab & Chassis Total Cost**
- **Rear Loader Body Total Cost**
- **Sundries Items Total Cost**

Do Not Include:

- **Optional Equipment**
- **Warranty Cost (s)**
- **Manual Cost (s)**

ONE COMPLETE VEHICLE TOTAL COST	$ 290,716

E:\12-080 to 082 Rear Loader SW.doc

Cab and Chassis: $189,900
Rear Loader Refuse Body: $82,936

Sundries:
Flashing warning light with brush guard-No Additional Charge
Driver height warning sign-No Additional Charge
Tool holders-No Additional Charge
Sign boards-No Additional Charge
Tailgate winch- $5,610
Tuck-away cart tippers-$12,270
Oil sample valve: $145
Grand Total Each Refuse Truck: $290,861