

DO NOT INVOICE THIS ADDRESS

City and County of Denver
 Purchasing Division
 201 W. Colfax Ave Dept. 304
 Denver, CO 80202
 United States of America
 Ph: 720-913-8100 Fax: 720-913-8101



Purchase Order Number	PO-00040609
Purchase Order Date	May 15, 2018
Contract ID	
Payment Terms	Net 10
Payment Type	ACH
Buyer	Scott Harris Scott.Harris@denvergov.org

Supplier
RUSH TRUCK CENTERS OF COLORADO INC RUSH ADMINISTRATIVE SERVICES RUSH ENTERPRISES INC, PO BOX 34630 SAN ANTONIO, TX 78265-4630 United States of America Ph: (303) 675-0111

Ship-To
5440 Roslyn Area 5440 Roslyn St Denver, CO 80216 United States of America Gary Bales

Bill To
Bill To Same As Ship To Denver, CO 80202 United States of America Gary Bales

Currency	Total Lines Amount	Tax Exempt	Total PO Amount
USD	527,774	98-09890-000	527,774
Shipping Terms	Shipping Method	Shipping Instructions	
FOB Destination	Common Carrier		

Goods Lines								
Line Number	Item Name	Supplier Item Identifier	Description	Due Date	Unit of Measure	Quantity	Unit Price	Line Amount
1			32 YARD AUTOMATED FRONT LOADER	10/01/2018	Each	2	263887	527774
32 YARD AUTOMATED FRONT LOADER REF # 18-748 & 18-749								

Vendor to fill in and submit attached Exhibit Vehicle Check-In.

Delivery will NOT be considered complete without the Vehicle Check-In form and payment will not be remitted.

Agency Contact: GARY BALES | 720-865-3905 | GARY.BALES@DENVERGOV.ORG

Vendor Contact: DAMON CUMMINGS | 303-880-9319 | CUMMINGSD1@RUSHENTERPRISES.COM

Delivery: Monday through Friday between 8:00 am and 1:00 pm

Location:

City and County of Denver
Fleet Management
5440 Roslyn Street, Building C
Denver, CO 80216
Coordinate Delivery: (720) 865-3900

Title to Read:

City and County of Denver
201 West Colfax Avenue Dept 304
Denver, CO 80202

Documents to be Provided Upon Delivery:

Application for Title, State of Colorado
Odometer/Hours Statement

Internal Reference # 18-748 & 18-749

REFER TO EXHIBITS "A" FOR SERVICE DESCRIPTION AND PRICING ONLY.

VENDOR: You must contact the agency contact listed above to confirm this order.

Purchase Order price listed herein includes all shipping and handling.

All invoicing must match the purchase order exactly and contain the purchase order number. All invoices must be sent directly to the bill to address listed on the purchase order, this address may be different than the ship to address. Changes to this purchase are not valid without prior approval from purchasing.

For additional questions regarding this purchase order and the terms herein contact: Scott Harris | 720-913-8154 | scott.harris@denvergov.org

ALL INVOICING AND CORRESPONDENCE MUST CONTAIN THE PURCHASE ORDER NUMBER IN FULL (PO-#####)

This purchase is pursuant to DRMC 20-64.5 - Cooperative Purchase Buy Board Contract 521-16



Authorized By

By accepting this Purchase Order you agree to the Terms and Conditions of the General Services Purchasing Division.
Follow the URL provided to the Purchase Order Terms and Conditions –
<http://www.denvergov.org/content/denvergov/en/purchasing-main-page/POterms.html>

Reference Numbers: Revised 01/2018

**CITY AND COUNTY OF DENVER
Technical Specifications and Bid Items
For a
Front Loader 32-Yard Refuse Truck**

1.0 General Description

A new current model year truck, cab over engine, cab forward cab design left hand drive. Powered by a turbo-charged diesel engine with charge air cooling, a 66,000 GVWR (plate certified) with 32-yard rectangular shaped front loader body. The front loader shall be capable of efficiently loading from 2 yd³ to 10 yd³ standard width side pocket City dumpsters. Collection operations shall be conducted only from the left side operator's position in tight and restricted access Denver Public School facilities with tight turns, narrow pick up areas, deep drainage transitions, steep angles at street transitions into parking lots etc. and overhead obstructions. The truck shall be suitable for a minimum of 8 years of service (400 pick ups/day, 5 days/week) by Solid Waste Management in automated dumpster loading of school waste materials, compacting and transporting the refuse to a landfill or transfer station and dispensing the load efficiently from the body. The truck's dumpster 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 hydraulic "full eject" in design – No tip to dump eject systems. 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 32 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)
- NFPA, National Fire Prevention Association

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.
- E. Failure to enter information into any column could result in the proposal being considered non-responsive.

1.6 Major Areas of Concern

	Description of Concern
A	Left Side Operator Cab Area to include: <ol style="list-style-type: none"> 1. Visibility from the driver's seats (Blind Spots Minimized) 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 dumpster body controls. 8. <u>Ease and speed of operation of collection and packing functions.</u>
B	Mirror width for use in obstructed areas to include: <ol style="list-style-type: none"> 1. Overall extended mirror width. 2. Minimum mirror width. 3. Ability for mirrors to be hit by obstructions (branches etc) and absorb the hit without damage. 4. Ability for mirrors to be reset or adjusted into position without operator leaving operator's station.
C	Warranty <ol style="list-style-type: none"> 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 front loader body, dumpster pick up arm assemblies, hydraulic pump, motors cylinders and controls. 3. Location of warranty providers.
D	Service Ability. <ol style="list-style-type: none"> 1. Ability to easily service cab and chassis items that require regular (yearly or less) servicing and maintenance 2. Ability to easily service front loader body components/items that require regular (yearly or less) adjusting, servicing and maintenance.
E	Maneuverability The ability of the truck to effectively, safely and efficiently maneuver in Denver's Public-School facilities, tight alleys, transverse alley-to-street drainage depressions and make tight turns either into or out of alleys from narrow high crowned streets with vehicles parked in the streets

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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 or Approved Equal

Description of Equipment	Offered Equipment	Cost
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	Description of Equipment	Offered Equipment	Cost
A.	Cab over engine, cab forward design 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 cab to axle approximate 181-inch, clean 5. After frame 96" 6. Front tire cut angle 50° 7. Wall-to-wall turning diameter 80 ft. 8. Vendor shall verify wheelbase is appropriate for specified body	Make: <u>Peterbilt</u> Model: <u>520</u> Left Side: <u>Yes</u> No Rating: <u>66,000</u> lbs Wheelbase: <u>210</u> " C to A: <u>181</u> " A F: <u>96</u> " Cut Angle: <u>48</u> ° Turn Dia. : <u>36.9</u> Left <u>39.7</u> Right Yes No	\$119,947
B.	The left side operator configuration is very important for operator 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 110,000-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: <u>66,000</u> -lbs Yield Strength: <u>120,000</u> psi Section Modulus/rail: <u>125</u> in ³ Frame RBM/rail: <u>2,136,000</u> lbf-in	\$ <u>513</u>
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 _____ _____ _____ _____	\$ <u>N/C</u>
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 Quick disconnect 3/8" _____ _____ _____ _____	\$ <u>370</u>

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	Description of Equipment	Offered Equipment	Cost
F.	Keys, keyed alike Ignition, Door, and Other, 5 sets. 1. Standard 2 sets: 2. Additional cost per 1 key set: \$ <u>N/C</u> 3. If the City has similar make and model trucks in fleet the trucks shall be keyed the same as existing trucks.	Cost for 3 sets of keys: \$ _____ Yes No <u>G258</u>	\$ <u>N/C</u>

3.2 Engine or "Approved Equal"

	Description of Equipment	Offered Equipment	Cost
A.	Cummins ISX 11.9-liter 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 meet EPA tier 4 (final) emission standards and use DEF 2. Engines shall be electronically controlled with following components: a. Engine warning/shutdown system with manual override to monitor. 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. DEF level 3. Computer controlled fast idle and PTO protection. 4. Thermos bottle stopper-type dipstick. 5. Magnetic drain plug. 6. Delco-Remy 22-SI, 160 amp alternator 7. Delco-Remy 39 MT, 12v starter with over crank protection. 8. Brass Oil Sample Valve. Titan Labs part #0D1014 (No approved Equal) Sample Valve must be easily accessible and located in a position that technicians can easily find. 9.	Make: <u>Cummins</u> Model: <u>ISX 12</u> HP: <u>320</u> @ <u>1800</u> rpm Torque: <u>1150</u> @ <u>1100</u> rpm Emissions Rating: <u>2013 Emissions</u> Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No <u>Push + Turn to lock</u> Make: <u>Paccar</u> Model: <u>160 AMP</u> Make: <u>Paccar</u> Model: <u>12V</u> Make: <u>Titan</u> Model: <u>OD1014</u>	\$ <u>16,975</u>
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. 2. PTO speed limiter shall be connected to the engine computer not	Make: <u>Chelsea</u> Model: <u>890</u> Yes No <u>Body Builder</u>	\$ <u>INC</u> \$ <u>INC</u>

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Description of Equipment		Offered Equipment	Cost
	to an external overspeed box (EOS). 3. 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. 4. Zerk fitting lubrication on PTO driveshaft shall be permanently lubricated type U-joints or orientated so that the U-joints can be easily lubricated from the front of the vehicle with out lifting cab or any other special operations/equipment. 5. PTO control electrically actuated from inside cab.	Yes No Type U-Joint: _____ Body Builder	\$ INC \$ INC
C.	<p>Fillration.</p> <p>1. Oil Fleetguard LF3000 full flow/bypass oil filter.</p> <p>2. Fuel: Racor 690RP12 fuel/water separator with thermostatically controlled fuel line heater.</p>	<p>Yes No</p> <p>Make: Fleet Guard Model: LF 3000 Make: Paccar Model: Paccar heated</p>	\$ INC \$ INC
D.	<p>Engine Air Intake:</p> <p>1. The air intake shall be on the far left side of the vehicle at cab height.</p> <p>2. The air intake shall be positioned so that it can not draw in exhaust gases.</p> <p>3. Air filter dual element dry type with air inlet restriction indicator located in cab</p>	<p>Yes No</p> <p>Yes No</p> <p>Make: Donaldson Model: 16' Eng</p>	\$ Std
E.	<p>Exhaust Meeting 2018 EPA Standards:</p> <p>1. Exhaust discharge shall be on the right side of the vehicle</p> <p>2. The exhaust after treatment device shall be horizontally mounted above the engine so as to not obstruct maintenance/repairs underneath the truck.</p> <p>3. Maximum exhaust system height shall not be higher than the highest point on the body or truck.</p> <p>4. Horizontal with a vertical chrome stack and stainless steel exhaust guard that will easily fit up to Denver's exhaust gas evacuation system.</p> <p>5. Exhaust discharge shall be above roofline and exhaust gases shall not discolor the body.</p> <p>6. Exhaust "90-degree chrome elbow" directed toward outside of body</p>	<p>Trap Make: Cummins Model: ISX 12 Exhaust Location: iBack of cab on top of Engine</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No Yes No</p>	\$ 381
F.	<p>Fuel tank.</p> <p>Fuel tank 80 gallons minimum with non-slip step in tank shall be mounted on right side of chassis to provide step and platform for accessing the body clean-out door.</p>	<p>Size: 80 gallons Location: RIGHT HAND BACK OF CAB</p>	
G	Coolant Hoses.		

Exhibit A CCD- PO-00040609

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	Description of Equipment	Offered Equipment	Cost
	1. Gates Blue Stripe hoses 2. With constant torque hose clamps.	Yes No Yes No	\$ Std
H	Fan 1. Horton Drive Master fan clutch with automatic fan control. 2. The fan shall operate off of engine coolant and transmission coolant temperature.	Make: <u>Horton</u> Model: <u>2 Speed</u> Yes No	\$ Std
I	Air compressor. 1. Bendix 18.7-cfm Tu-Flo minimum. 2. Air compressor Bendix 18 7-cfm Tu-Flo minimum 3. Air tanks mounted horizontal inside frame. 4. Air drain valves shall be ¼-turn brass with "Flag" style handle and air blast routed away from the person operating the valve. 5. The drain valves shall be installed under battery box, left side, in an easy to access and operate position. 6. 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 7. Air lines shall be color-coded nylon type	Make: <u>Bendix</u> Model: _____ Capacity: <u>18.7</u> cfm Yes _____ Yes _____ Yes _____ Yes _____ Yes _____	\$ Std
J	Cold weather starting aids on truck engine. "No Approved Equal" 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: <u>Phillips</u> Model: <u>Zero Start</u> On Temperature <u>40 degrees</u> Off Temperature <u>55 degrees</u> Yes No Yes No Location: <u>Below Driver door</u> Yes No Type: <u>Therme Recirculation Valve</u>	\$ <u>74</u> \$ <u>INC</u> \$ <u>INC</u> \$ <u>INC</u> \$ <u>INC</u>

Reference Nos Revised 1/2018

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Vendor/Sub Vendor: Rush Truck Center

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	Description of Equipment	Offered Equipment	Cost
K	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: <u>Left hand back of cab</u> DEF Tank Volume <u>11</u> gallons Yes No	\$ <u>INC</u>

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. 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. 4. Electric push-button transmission controls shall be located on the "dog house" not under the joystick armrest. Location to be mutually agreed upon. 5. TranSynd TES 295 automatic transmission fluid 6. Allison High-Capacity filters for extended drain interval 7. Transmission water-to-oil cooler. 8. Remote mounted transmission filter. 9. Magnetic drain plug.	Make: <u>Allison</u> Model: <u>4500 RDS</u> Speeds: <u>6</u> Yes No Yes No Yes No Yes No Yes No Yes No Yes No	\$ <u>16,708</u> \$ <u>INC</u>
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.	Make: <u>Dana Spicer</u> Model: <u>D46-170</u> Gear ratio: <u>5.25</u> Top Speed: <u>65</u> mph level	\$ <u>Std</u>

	Description of Equipment	Offered Equipment	Cost
	7. Magnetic drain plug.		
C.	Front Axle: 1. Eaton, capacity 20,000-lbs. minimum with oil seals and Union 76 Triton EP 75W-90 synthetic gear lubricant	Provide specs: Make: <u>Dana Spicer</u> Model: <u>D2000F</u> Capacity: <u>20,000</u>	\$ <u>INC</u>
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: <u>Peterbilt</u> Model: <u>23,000</u> Capacity: <u>20,000</u> - lbs Make: <u>Hendrickson</u> Model: <u>Haul Max</u> Capacity: <u>46,000</u> - lbs	\$ <u>Std</u> \$ <u>Std</u>
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 pads installed upon delivery 4. Brake chambers type 2824, size 24 chamber.	Front Make: <u>Bendix</u> Model: <u>ADB22X</u> Disc Size: <u>17</u> in Rear Make: <u>Bendix</u> Model: <u>ABD225</u> Front Chamber: <u>Type 20</u> Rear Chamber: <u>Type 18-24</u> Severe Service Rotor & Pads	\$ <u>Std</u> INC
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 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.	Make: <u>Eaton</u> Model: <u>65/6m</u> Yes No Yes No Yes No	\$ <u>INC</u> \$ <u>Std</u> \$ <u>Std</u> \$ <u>Std</u>
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: <u>Bendix</u> Model: <u>AD-IS EP</u> Yes No	\$ <u>INC</u> \$ <u>INC</u>
H.	Driveline: 2-piece, Eaton Permalube type U-joints.	Make: <u>Dana Spicer</u> Model: <u>1810 HD</u>	\$ <u>Std</u>

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	Description of Equipment	Offered Equipment	Cost
I	Power Steering: TRW with 2-qt. reservoir.	Make: <u>Shepard</u> Model: <u>SD110 Dual</u> 2 Qt	\$ <u>INC</u>

3.4 Electrical System or Approved Equal

	Description of Equipment	Offered Equipment	Cost
A.	Alternator: heavy duty, internally regulated, output 160-amp minimum.	Make: <u>Paccar</u> Model: <u>160</u> Rating: <u>160</u> amps	\$ <u>Std</u>
B	Batteries: A. Two or three Group 31 batteries with a total CCA of 1,950 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. Battery Parallel Charger (PulseTech XC)	Make: <u>Paccar</u> Model: <u>Premium</u> Quantity: <u>3</u> CCA's: <u>2100</u> Location: <u>LH BOC</u> Yes No Yes No Size: <u>00</u> Yes No	\$ <u>Std</u>
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.	Yes No Yes No Yes No	\$ <u>Std</u>
D	Wiring: 1. Wiring shall be color coded with hot stamped wire numbers. 2. All wiring shall be run in wiring looms	Yes No Stamped	\$ <u>Std</u>
E.	Body Builder's Junction Box 1. Body builder's junction box shall be provided. 2. Terminal shall be marked for easy identification.	Yes No	\$ <u>INC</u>
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.	Yes No	\$ <u>29</u>
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: <u>Paccar</u> Model: <u>LED Clearance</u>	\$ <u>Std</u>

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3.5 Cooling System

	Description of Equipment	Offered Equipment		Cost
		Yes	No	\$ Std
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.			\$ Std
B.	Coolant protection shall be -34° F.	Provide specs: <u>3F00-300-AAH Extended Life</u>		\$ Std
C.	Fleetguard coolant filter WF2071.	Provide specs: <u>Super Seds to WF 2127</u>		\$ Std

3.6 Tires and Wheels

	Description of Equipment	Offered Equipment		Cost
		Yes	No	\$
A.	Tires: 315/80R22.5, tubeless, 20-ply, load range L. 1. Front: Bridgestone M860A - 10,000 lb rated @ 120psig 2. Rear dual: Bridgestone M843 Snow/Aggressive grip 10,000 lb rated @ 120 psig	Make: <u>Bridgestone</u>	Model: <u>M860A</u>	\$ INC
B.	Wheels: Disc, 10-hole, Hub piloted type, Single nut, Meets ISO Standard 4107. White powder epoxy coated finish. 1. Front 22.5" x 9". 2. Rear 22.5" x 9" 3. Aluminum Wheels all axles	Make: <u>ALCOA</u>	Model: <u>896647</u>	\$ 501
C.	Wheel offset shall limit tire exposure beyond/outside the refuse body Tire exposure outside of body shall be no more than 2"	Yes	No	

2.7 Interior or Approved Equal

	Description of Equipment	Offered Equipment		Cost
		Yes	No	\$
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 automated collection body. 3. Since the vehicle will be used in automated front load trash collection with a "operate at idle" hydraulic system and a ergonomic multi-position joystick the transmission shifter location needs to be in a location the driver can easily access but not in the conventional location directly adjacent to the driver where it will be covered by the automated body's joystick control. With an "operate at idle" hydraulic system the driver will not be required to shift the vehicle	Provide Specs: <u>See Attached Specs</u> <u>Yes left hand station</u>		\$ Std
		<u>Yes on top of dog house at 45 degree angle</u>		\$ Std

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	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 hand-crank full roll up/down windows	 Power windows left & right	 \$ INC
B.	Seats: Drivers seats shall be: 1. Left seat shall be air suspension Bostrom, high back driver's seat, gray vinyl with cloth insert and armrests. 2. Right side seat shall be spring suspension Bostrom, mid-back seat, gray vinyl with cloth insert and armrests 3. Seat belts (all) will be orange in color	Make: <u>Peterbilt</u> Model: <u>Air Ride high back</u> Make: <u>Peterbilt</u> Model: <u>Mid back</u> <input checked="" type="radio"/> Yes No	 \$ INC
C.	Engine Cover Doghouse: The engine cover "doghouse" shall be recessed to accommodate the ergonomic positioning of the left side loader controls. The vehicle manufacture shall review specification section 3.6 N to assure vehicle interior configuration is suitable for left front loader operator control system. The vehicle supplier 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. The City has operators of varying statures and adjustable controls will minimize on-the-job related physical problems. The City, body vendor and the vehicle supplier shall mutually determine control locations after Contract award.	Provide specs: <u>See specs attached</u> 	 \$ INC
D.	Driver Viewing Environmental Area 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. 5 th % male height 1554 mm or 61.18" b. 50 th % male height 1668 mm or 65.67" c. 95 th % male height 1783 mm or 70.20" 4. Drawings shall be on 11" x 17" paper ("B" size drawing paper) for easier reading	Drawings: Yes No Paper Size:	

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5. Good operator exterior visibility is a major safety concern and increasing operator viewing area and eliminating "blind spots" is beneficial to the City.		
<p>E. Required Submittals with Bid:</p> <p>5. Requested information must be submitted with bid for evaluation. Failure to submit the requested information may make bid non-responsive.</p> <p>6. Vendor shall provide with bid, drawings with dimensions and photographs of the proposed cab interior for review.</p> <p>7. Interior left side dimensions measured:</p> <ul style="list-style-type: none"> 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: <p>8. Location of the transmission shifter: should not be obstructed by automated barrel loader's joystick.</p>	<p>Provide Materials: <u>See Attached</u></p> <hr/> <p>Seat full forward: <u>11</u>" Seat full back: <u>18</u>" Seat full forward: <u>6</u>" Seat full back: <u>12</u>" Seat full lowered: <u>43</u>" Seat full raised: <u>38</u>" Smallest measurement: <u>23</u>" Travel: <u>3</u>" Travel: <u>2</u>" Clearance: <u>6</u>" Height: <u>35</u>" 1st Step: <u>12.3</u>" 2nd Step: <u>11.3</u>" Tilt: <u>5</u>" Telescoping distance: <u>0</u>"</p> <hr/> <p>Yes</p>	
<p>F. Instrumentation: 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) and DEF Fluid level</p>	<p>Provide specs: _____</p> <hr/> <hr/> <hr/>	<p>\$ <u>INC</u></p>
<p>G. Steering tilt and telescoping easy to adjust, to accommodate operators with large variations in sizes.</p>	<p>Tilt: Yes No Telescoping: Yes No</p>	<p>\$ <u>Std</u></p>
<p>H. Upfitter's Switch Panel:</p> <ul style="list-style-type: none"> 1. The vehicle manufacturer shall provide for the automated front load dumpster 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. 	<p>Yes No Yes No Yes No</p>	<p>\$ <u>INC</u></p>

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	Description of Equipment	Offered Equipment	Cost
I.	Floor Covering: 1. Floor covering shall be heavy-duty black rubber/vinyl flooring.	Provide specs: _____	\$ <u>INC</u>
J.	Air Conditioning: 1. Factory installed cab R134A air conditioning 2. Cab shall be insulated to include floor, firewall, roof and walls.	Refrigerant Type: <u>R134A</u> Yes No	\$ <u>INC</u>
K.	Radio: AM/FM stereo with two speakers.	Make: <u>Panasonic</u> Model: <u>Concept Class</u>	\$ <u>INC</u>
L.	Grab handles: 1. One each side 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 provide easy access and clearance to prevent pinch or other hazards.	Yes No Yes No	\$ <u>INC</u>

2.8 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: <u>See Attached Drawings</u>	\$ <u>N/C</u>
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: <u>Aluminum</u> Body Material: <u>Aluminum</u> Yes No Step Height: <u>15</u> in	\$ <u>INC</u>
C.	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 6. Paint to be applied with all body members painted.	Make: <u>Axalta</u> Type: <u>2 stage</u> Color: <u>White</u> Yes No Yes No Yes No Yes No	\$ <u>INC</u>
D.	Engine Accessibility fully accessible and serviceable, cab shall tilt forward for access by easily operated momentary switch and 12v DC electric pump located	Provide specs: _____ Yes No	\$ <u>INC</u>

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	on right side of vehicle.		
E.	Mirrors: "No Approved Equal" Rear view mirrors to be Velvac, V Max, Dual Pane with Top Hat (Chrome). RS part # 717454, LS part # 717455, remote operated, heated, left and right mounted on the door. Overall cab width including mirrors 112" maximum.	Overall mirror full extended width: <u>110</u> inches Overall mirror width with left side mirror folded in: <u>109</u> inches Make: <u>Velvac</u> Model: <u>West Coast</u>	\$ <u>Std</u> \$ <u>INC</u>
F.	Front Bumper: 1. The front bumper shall 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: <u>Steel Channel Chrome</u> Reinforced on outside corners: <u>Yes</u> <u>No</u> Bumper Finish: <u>Chrome</u>	\$ <u>INC</u>
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: <u>Fleet Pride</u> P/N: <u>997-70144</u> Yes No	\$ <u>750</u>
H.	Undercoating: 1. A pliable and durable asphaltic base protective undercoat 2. Undercoating shall be applied to all exposed undercarriage parts and components, which are subject to corrosion.	Brand: _____ Type: _____ Yes No	\$ _____
I.	Fire extinguisher: 1. Extinguisher ABC, 5-lb. dry type rechargeable 2. Installed on driver's side of refuge body with splash guard to prevent mud and debris from collecting in this area. 3. Location labeled with 1" letters on outside of the cab	Type: <u>ABC</u> Yes No	\$ <u>INC</u>
VEHICLE SUB TOTAL COST			\$ 156,190

3.0 Dealer Provided Optional Equipment

3.1 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.

3.2 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.

3.3 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 1/4-turn on each side of filter.

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

3.5 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. Weld 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.
- E. Welds shall be full length to prevent "rust bleed" from non-welded seams.

3.6 Compactor Front Load Dumpster Body or (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. 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 automated side 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 Yes No Yes No Front End Loader Yes No Yes No City and County of Denver Yes No	
B.	A current year, new front loader dumpster refuse body meeting ANSI Z245.1 standards of at least 32 cubic yard capacity, capable of loading 2 yd ³ to 10 yd ³ standard width side pocket dumpsters, compacting and transporting the refuse to a landfill or transfer station and dispensing the load efficiently from the body or approved equal, installed with the following equipment	Make: <u>AMREP</u> Model: <u>AMHFLPO-21</u> Additional Info: <u>N/A</u>	\$ <u>INC</u>
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	Provide specs: <u>Same as current Denver Front Loaders</u>	

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	Description of Equipment	Offered Equipment	Cost
	dryer, air tanks, fuel tank, battery box, daily fluid checks/fills, hopper, hopper cover, loading arms, hydraulic tank, hydraulic valves, steps/ladders, electrical junction box, access doors, tool holders etc.		
D.	Body Capacities: 1. Capacity: a. Main Body: 32 yds ³ excluding loading hopper. b. Hopper Capacity: 12 yds ³ suitable for loading 2 yds ³ to 10 yds ³ containers. c. Hopper Sump with access doors on both left and right side for easy ground level clean out	Body Capacity: <u>28</u> yds ³ Hopper Capacity: <u>12</u> yds ³ Yes will load 2-10 yrd containers. Sump Volume: <u>12</u> gallons +30gal drip catch Door Sizes: <u>22"</u> x <u>8.5"</u> Easy Access: Yes No	
E.	Truck and Body Measurements: 1. Body Height above the ground maximum height): a. Loading arms down: 12'-7" b. Loading arms raised: 13' - 10" 2. Vehicle overall length maximum: a. Loading arms down: 37' - 1" b. Loading arms raised: 34'-2" 3. Vehicle maximum overall width: 102" 4. Width mirrors folded in: 102" 5. Width mirrors at full extension: 112"	Maximum Body Height: <u>12' 7"</u> to top of wind wing Height; Loading Arms Down: <u>12' 7"</u> Height; Loading Arms Raised: <u>13' 8"</u> Length; Loading Arms Down: <u>440"</u> Length; Loading Arms Raised: <u>374"</u> Width: <u>102"</u> Mirrors folded in: <u>102"</u> inches Mirrors at full extension: <u>112"</u> inches	
F.	Front Loader Body Performance: 1. Capable of efficiently and quickly loading front load side-pocket dumpsters from 2 yds ³ to 10 yds ³ 2. Lift Arm cycle time: 14 - 20 seconds with full dumpster 8,000-lbs. 3. Lift arm capacity: 8,000-lbs 4. Fork cycle time: 4 seconds 5. Packer cycle time: 20 - 26 seconds 6. Capable of packing 1000-lbs. per cubic yard based on average school type (food waste, paper general trash) refuse 7. Compaction Force: 105,000-lbs 8. Tailgate cycle time: 18 seconds up and 18 seconds down 9. Load ejection time: 45 seconds 10. Hopper Cover open/close time: 11 seconds	Yes No Cycle Time: <u>14-20</u> seconds Capacity: <u>8,000</u> lbs Yes No Force: <u>95,000</u> lbs Cycle Time: <u>10-18</u> seconds Cycle Time: <u>30-45</u> seconds Cycle Time: <u>11</u> seconds	
G.	Body Design: or Approved Equal 1. Rectangular shape mounted length wise on the truck chassis setup for front loading 2. All body corners/transitions shall be reinforced with bolsters/gussets/channels. 3. All welds shall be continuous	Body Type: <u>Rectangle with curved corners</u> Yes No Yes No	\$ <u>INC</u>

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Description of Equipment	Offered Equipment	Cost
4. Body standard profile with height of no more than 107" above chassis frame rail when lifting attachment is in the lowered position.	Overall Height of Body @ highest point: <u>107"</u> Overall Body Height From Ground, <u>mounted on a 44"</u>	\$ <u>INC</u>
5. Hopper Material: a. Sidewalls, 1/4" abrasion resistant steel 150,000 psi yield. b. Floor, 1/4" abrasion resistant steel 150,000 psi yield with reinforced cross members spaced entire length of body. All welds shall be continuous.	Sidewalls: <u>1/4"</u> thickness: Type: <u>Hardox AR450</u> Tensile yield: <u>150,000</u> psi Floor: <u>1/4"</u> thickness: Type: <u>Hardox AR450</u> Tensile yield: <u>150,000</u> psi Cross Member Spacing: <u>2'</u> Cross Member Size: <u>2x2"</u> Shape: <u>Tube Square</u>	\$ <u>INC</u>
6. Main Body Material: a. Sidewalls, 8-gauge abrasion resistant steel 80,000 psi yield.	Sidewalls: <u>3/16"</u> thickness: Type: <u>Hardox AR450</u> Tensile yield: <u>150,000</u> psi	\$ <u>INC</u>
b. Floor, 1/4" abrasion resistant steel 150,000 psi yield with reinforced cross members spaced entire length of body. All welds shall be continuous.	Floor: <u>3/16"</u> thickness: Type: <u>Hardox AR450</u> Tensile yield: <u>150,000</u> psi	\$ <u>INC</u>
c. Roof, 8-gauge high-strength steel 80,000 psi yield. All welds shall be continuous.	Cross Member Spacing: <u>5@2'</u> and <u>3@1'</u> Cross Member Size: <u>2x2"</u> Shape: <u>Square Tube</u> Roof: <u>1/8"</u> thickness: Type: <u>Hardox AR450</u> Tensile yield: <u>150,000</u> psi tensile	\$ <u>INC</u>
d. Longitudinal Members, 7-gauge single piece formed box section high-tensile strength steel 80,000 psi yield.	Long Member: <u>3/16"</u> thickness: Size: <u>6x2" S.T.</u> Tensile yield: <u>58,000</u> psi Structural Tubing	\$ <u>INC</u>
e. Cross Members, 7-gauge single piece formed high-tensile strength steel 80,000 psi yield. Spacing of cross members shall be: 1) Full width and capped. 2) High stress areas: Proper for application 3) Lower stress areas: Proper for application	Shape: <u>Rectangular Tubing</u> Cross Member: <u>3/16"</u> thickness: Size: <u>2x2"</u> Tensile yield: <u>58,000</u> psi Yes No Capped between longitudinal Spacing: <u>Yes 3@1'</u>	\$ <u>INC</u>
7. Body shall be designed/constructed to withstand repeated maximum packing pressures without distortion. The vertical channel bracing must interconnect with roof channels to form a wrap-around channel design. All welds shall be continuous.	Spacing: <u>Yes 5@2'</u> Yes No Note: Amrep design uses AR450 Hardox throughout Packer Body and so design does not use corner braces.	\$ <u>INC</u>
8. Access door,	Door Size: <u>29x35"</u> Corner Radius: <u>none -90 degrees</u>	
a. A left access door shall be 27" wide x 29" high with 3" radius rounded corners on left front side of body shall provide access to hopper area.	Door Location: <u>Front LH Side of Hopper</u>	
b. Open non-slip step tread steps shall be providing access to the hopper.	Interlock: Yes No Yes No	
c. Grab handles shall have durable deep knurled non-slip grip	Yes No Non-slip Painted yellow	\$ <u>INC</u>

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	Description of Equipment	Offered Equipment	Cost
	brake light shall also be provided 12. Whelen Model L360 Super LED 360° beacon with branch guard L360BGB, (1) required shall be mounted on top of tailgate. 13. Tailgate mounted safety lights shall be a. Whelen IONSMC – wide angle LED, color (Amber) safety light – (4 required) b. The lights shall be located 1/3 rd and 2/3 rd s up the tailgate just inside the outer edge of the tailgate on each side.	Yes No Make: <u>Whelen</u> Model: <u>IONSMC LED</u> Location: As requested on Tailgate	\$ <u>INC</u> \$ <u>INC</u>
I	Packing Mechanism: 1. Packer plate shall be actuated by horizontally opposed and crossed telescopic hydraulic cylinders. 2. Cylinders shall have multiple stages, provide packing force as follows: 1 st stage: Compaction and Ejection Provide packing force lbs. 2 nd stage: Ejection Only Provide ejection force lbs. 3 rd stage: Ejection Only Provide ejection force lbs. 3. Packing mechanism shall be designed so that no contact to the tailgate can occur during loading or ejecting of refuse. 4. The compaction panel: a. Face plate 1/4" abrasion resistant steel 150,000 psi yield with reinforced boxed cross members fully across the compaction plate to minimize panel distortion. b. All welds shall be continuous. c. The panel shall be reinforced with formed boxed cross members so no distortion occurs during operation. 5. Packer plate to be equipped with wear resistant pads full length of slide shoes. Shoes to ride in formed 4" heavy-duty structural channels located raised in the lower corner of the wall and body floor with corresponding replaceable wear pads traversing entire length of body 6. Dumpster Lift Interlock: to prevent materials being dumped behind packer plate when packer plate is not in the home position. 7. Lower C-channel shall be raised above the floor to prevent dirt/debris easily getting into the channel. 8. Lower C-channel lip (1 piece not welded to extend width) shall extend to same width as the shoe width to prevent a wear lip from forming on the lower side of the shoe and wearing a groove into body floor. 9. Shoe assemblies shall have debris deflector installed on front and	Yes No Yes No Force: <u>95,000</u> psi-lb force @ <u>2000</u> psi 6.5" Force: <u>78,500</u> psi-lb force @ <u>2000</u> psi 5.0" Force: <u>38,465</u> psi-lb force @ <u>2000</u> psi 3.5" Yes No Bottom Panel: <u>1/4"</u> thickness: Type: <u>Hardox AR450</u> Tensile <u>yield: 150,000</u> psi Yes No All Exterior welds continuous Yes No Yes No Amrep design uses structural channels located above longitudinal supports below floor. Yes No Yes No Channel welded to floor Yes No Amrep design will not allow wear strips to wear a groove in body floor. Yes No Angled packer blade track	\$ <u>INC</u> \$ <u>INC</u> \$ <u>INC</u> \$ <u>INC</u>

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	Description of Equipment	Offered Equipment	Cost
	rear sides to direct debris out from the C-channel/shoe interface. 10. The pack panel between the shoes shall have staggered shark's teeth to help keep dirt/clay from packing in the C-channel and jamming the pack panel. The location and size of the shark's teeth shall be mutual agreed upon.	Yes No	\$ <u> </u> <u> INC </u>
J.	Wind Screen and Hopper Cover: 1. Hopper opening shall be protected by a three sided windscreen and shall also have a retractable air operated hopper cover. 2. The cover control shall be controlled by a 2-position rocker switch (lighted "open") located in an easy to access and convenient location. 3. The cover and lift arms shall be interlocked to prevent dumping into a covered hopper or operating cover with truck in motion. 4. The cover circuit shall allow the cover to be opened when the engine is "off" and PTO is "off" for winter operation to prevent snow/ice build up on the cover.	Wind Screen Design: <u>Sheet metal wind wings are standard on all front loaders</u> Yes No Yes No Yes No Hopper cover is operated via hydraulic cylinder and as such requires engine on and PTO on to operate	\$ <u> </u> <u> INC </u> \$ <u> </u> <u> INC </u>
K.	Cab Protector and Access Ladder: 1. Cab protector 1/8" steel full length and full width load bearing. 2. Cab protector shall be trash shedding design (smooth no lips etc) to prevent trash build up and to fully protect the cab body. 3. The cab protector shall not obstruct the opening/tilting of the body cab. The cab protector shall be easy and fast to move out-of-the-way if required 4. Cab protector shall be notched (if required) to provide 6" minimum clearance to the exhaust pipe. 5. A cab protector access, ladder with open non-slip step treads extending up from the front bumper to the cab protector shall be provided. 6. The ladder shall minimally obstruct driver's vision thru the windshield	Material Type/Thickness: <u>12 gauge mild steel</u> Yes No Yes No Amrep design allows lifting of body and and canopy for tilting of cab via our standard service hoist. Yes No Amrep design allows canopy to cover exhaust. screen in top allows exhaust out. Yes No Recommend against climbing on canopy, purchase a pool broom to clean from ground. Yes No	\$ <u> </u> <u> INC </u>
L.	Container loading system: 1. Orientation, front side of body. 2. Performance: a. Cycle time 18 - 20 seconds, from pick-up through raise, dump, lower, and release. b. Maximum height of dumpster/arm at highest point of tip cycle shall not exceed 19'-4" for an 8 yd ³ container. 3. Capacity, 8,000-lbs constant lift. 4. Loader shall pick up, dump, and return to ground 2 yds ³ to 10 yds ³	Location: <u>Fixed Front Side Pocket Forks</u> Cycle time: <u>18-20</u> seconds <u>Depends on skill of the driver</u> <u>19</u> ft <u>4</u> in Maximum Height Lift Capacity: <u>8000</u> lbs. Yes No	\$ <u> </u> <u> INC </u>

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	Description of Equipment	Offered Equipment	Cost
	<p>side pocket front load dumpster containers. Operation shall be preformed with out modification to equipment or without operator leaving the cab.</p> <p>5. Dumpster lift arms:</p> <p>a. The dumpster lift arms shall be actuated by two hydraulic cylinders and shall raise the arms/dumpsters to dump position and return to disengage position.</p> <p>b. The lift arms shall be boxed rigid construction horseshoe shaped (open bottom) design.</p> <p>c. All welds shall be continuous.</p> <p>6. The dumpster lift arms shall not ever obstruct/interfere with the truck cab doors, rear view mirrors or other truck equipment.</p> <p>7. Container fork arms:</p> <p>a. Fork arms 1 1/2" x 51" high tensile strength steel 50,000 psi yield minimum.</p> <p>b. The fork arms shall store vertically and be actuated by two hydraulic cylinders and shall lower for dumpster loading and retract vertically for transportation</p> <p>c. The fork arm design shall positively hold the dumpster container through all phases of the loading, raise-to-dump, dump and return-to-ground cycle.</p>	<p>Yes No</p> <p>Construction Type: <u>Reinforced rectangular tube</u></p> <p>Yes No Wherever possible</p> <p>Yes No</p> <p>Fork Size: <u>1.5 x 59"</u></p> <p>Steel Type: <u>50,000 PSI Tensile Yield</u></p> <p>How Stowed: <u>Arm Down - vertical, arms stowed up - horizontal.</u></p> <p>Yes No</p> <p>How: <u>Operator tilts forks to allow weight of container to reset on rubber stops.</u></p>	<p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p>
M.	<p>Service Hoist System:</p> <p>1. The service hoist lift system shall provide excellent access to the components located under the trash body</p> <p>2. The service hoist system shall lift the front of the body up above the truck frame rail approximately 36" minimum for access</p> <p>3. The hoist system shall be powered by a 12vDC hydraulic pump with sufficient power to raise a fully loaded trash body</p> <p>4. The system shall use hydraulic oil from the main hydraulic tank.</p> <p>5. Refuse body anti-lowering safety pins shall be provided:</p> <p>a. The pins/legs shall lock the refuse body from lowering</p> <p>b. The pins/legs shall be sufficient to support 3x the weight of a fully loaded refuse body</p> <p>c. Sleeve for storage pin shall be provided. Sleeve design disables pin from falling out.</p> <p>d. Pin shall be attached to refuse body/chassis with chain /cable</p> <p>e. safety legs will rest in a saddle</p>	<p>Yes No</p> <p>Lift Height: <u>36 inches</u></p> <p>Yes No</p> <p>Yes No</p> <p>Yes</p> <p>Yes</p> <p>Safety Factor: <u>Easily supports fully loaded body</u></p> <p>Safety legs are secured with hooks that do not require a pin, do not get lost and do not bounce around</p>	<p>\$ <u>INC</u></p>

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	Description of Equipment	Offered Equipment	Cost
N	<p>Hydraulic system Operate at Standard Low Idle.</p> <ol style="list-style-type: none"> 1. Hydraulic pump "hot shift" driven through a Chelsea 890 series direct drive off the transmission. The pump shall have an automatic pump oil bypass system in normal bypass mode when the hydraulic system is not energized. 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. Operating pressure, 2,500 psig maximum. 5. Hydraulic valves shall have LED lights on valve coils to aid in troubleshooting the system. 6. The hydraulic valve bank and manual system over-ride controls shall be located in a safe area for mechanics lowering dumpsters that are stuck in the air. Location shall be mutual agreed upon. 7. The hydraulic pump suction line shall be steel tubing with hydraulic hose sections at both the pump and tank end for vibration isolation. <ol style="list-style-type: none"> a. The suction line shall be routed for maximum ground clearance and damage protection. b. Hose swivel ends shall be used on all connections. 8. Hydraulic cylinders shall. <ol style="list-style-type: none"> a. Properly sized to efficiently and continuously perform their function without any cylinder degradation. b. Cylinders shall have industrial Nitrated piston rods. c. Main ram cylinder at the rod end shall have a 4" wide mounting. d. Fork container arm cylinders shall have guards/shields installed over the hoses to prevent damage from trash sticking out of the dumpsters and catching the hoses. The hoses shall also use 90° steel elbow type fittings to reduce damage from trash. e. Cylinders shall be fast and easy to remove and replace. 9. 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. 	<p>Provide specs</p> <p>Pump Make: <u>Chelsea</u> Model: <u>890</u></p> <p>Mounting Location: <u>Left side 8 o'clock position</u></p> <p>Yes No <u>Parker/Oasis/Dennison Pump with local warranty through Amrep Dealer.</u></p> <p>Pump Operating Speed: <u>850</u> rpm</p> <p>Pump Output: <u>60</u> gpm @ <u>850</u> rpm</p> <p>2 Section vane pump 25-60 gpm depending upon the load. With front loader RPMs will always increase performance.</p> <p>Yes No <u>LED lights with Amrep are on air solenoid computer board not coil</u></p> <p>Operating Pressure: <u>1800-2100</u> psi</p> <p>Yes No</p> <p>Suction line Material: <u>2" Parker Hyd. Hose</u></p> <p>Yes No</p> <p>Yes No <u>Chromed for Max Durability</u></p> <p>Yes No <u>Amrep design uses 3-3/8" Spherical bearing on rod end.</u></p> <p>Finish: <u>Chrome Plated</u></p> <p>Yes No</p> <p>Time: <u>12-25 Seconds everything Works</u></p> <p><u>Very Slowly at engine idle on front loaders.</u></p>	<p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p>

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Description of Equipment	Offered Equipment	Cost
<p>10. Hydraulic reservoir: 1) The hydraulic reservoir shall be located on the outside of the frame rails in front of the front dual tires in best location and pressurized to 5psig. 2) located with the bottom of the hydraulic tank no lower than the truck frame rails to provide adequate head pressure.</p> <p>11. Capacity 50-gallons minimum</p> <p>12. Oil level and temperature gauge.</p> <p>13. Shut-off valves</p> <p>14. Magnetic drain plug.</p> <p>15. Bung for Future Hydraulic Oil Pre-heater System</p> <ul style="list-style-type: none"> a. Possible future installation bung for an Arctic Fox Hydra Liner H-4000 hydraulic fluid warmer. b. Tank bung shall be schedule 80 2" NPT female thread coupling. c. Bung shall be welded to 0.250" thick 8" dia steel tank reinforcing ring d. The bottom edge of the tread section of the bung and hydraulic oil pre-heater shall be 1 1/2" off the bottom of the tank. e. The baffles shall be suitable to accept a 24" long heater element and provide a 1" clearance all the way around the element. <p>16. Hydraulic oil shall be ISO Grade 32 multi-viscosity with a -40°F pour point.</p> <p>17. Hydraulic filtration:</p> <ul style="list-style-type: none"> a. Pressure line Parker model: WPF 7,000 psig rated with 7-micron absolute tandem type (2 required, 1 per pump) b. Return line replaceable Parker 7-micron absolute with bypass mode indicator light, easy to access for replacement. c. Suction strainer 100-micron. <p>18. Hydraulic system shall maintain oil temperature at no more than 90°F above ambient temperature.</p> <p>19. Hydraulic system test ports shall be provided for each circuit. Test port connections shall be compatible with the Parker Hannifin PD type connector</p> <p>20. All hydraulic hoses and tubing shall be neatly routed, shielded and</p>	<p>Yes No If there is room Time: _____ seconds</p> <p>Reservoir Location: <u>Best Available</u></p> <p>Hydraulic Reservoir Size: <u>60</u> gallons</p> <p>Yes No Yes No Yes No Yes No</p> <p>We can prep tank for Arctic Fox Hydraulic fluid warmer.</p> <p>Yes we can do this</p> <p>Yes No</p> <p>Oil Type: <u>ISO Grade 32</u> Brand: <u>Chevron</u></p> <p>Return Line Filter Rating: <u>7,000 psig.</u> Suction Strainer Size: <u>100 Micron</u></p> <p>Yes No</p> <p>Make: <u>Parker</u> Model: <u>KLS/KLT</u></p> <p>Yes No</p> <p>Make: <u>Parker</u> Type: <u>6602-4-4</u></p>	<p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p> <p>\$ <u>INC</u></p>

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	Description of Equipment	Offered Equipment	Cost
	secured/supported to prevent chaffing under truck. 21. All hydraulic hoses shall be Parker series ST 451 extra-high-abrasion resistant hoses to reduce hose failure from hose cover damage. Hydraulic hoses shall have swivel ends on each end. 22 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 on the tank top side on each tank end (cross flow) approximately 4" inside the end caps and extending within ¼" off the tank bottom at the lowest point. b. The hydraulic connection shall be 1" Parker FF male (flat face) fittings and oriented so that they face to the inside. c. The suction and return line shall be 1" ID with a 60 degree cut on the bottom to assure adequate hydraulic oil flow. d. The suction and return lines shall be interchangeable either can be used to perform a hydraulic oil dialysis 23. Suction Line The hydraulic pump suction line shall be steel tubing with hydraulic hose sections at both the pump and tank end for vibration isolation. The suction line shall be routed for maximum ground clearance and damage protection. Hose swivel ends shall be used on all connections.	Yes No Yes No Yes No	\$ <u>INC</u> \$ <u>INC</u> \$ <u>INC</u>
O	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 (Wherever there is room) Yes No	\$ <u>INC</u> \$ <u>INC</u> \$ <u>INC</u> \$ <u>INC</u>
P	Control System: 1. Control system shall be the manufacturer's standard controls. Preferred control system; air over hydraulic. 2. Console control shall be mounted into an easy to see and access location with out turning the head more than 30° to side. Console	Control System Type: <u>Air over Hydraulic arm and fork controls</u> Yes No Yes for Arm and Fork controls only.	\$ <u>INC</u>

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	Description of Equipment	Offered Equipment	Cost
	controls to include. a. Transmission shifter control easy to access due to required number of forward/reverse operations required for efficiently loading front load type dumpsters. b. Tailgate open/close. c. Ejector blade extend/retract. d. Master power. e. Work lights. f. Strobe lights. g. Indicator lights: Retract "amber", Compact "green", Tailgate Open "orange", Overspeed "blue" and Work Brake Hold "red". 3. Cab Mounted Controls: a. Cab mounted controls on left side shall all be in ergonomic and natural, easy to reach locations. b. Controls shall be designed to comfortably and efficiently accommodate an operator making 600 dumping operations per day, 6 days per week. c. Controls shall have a life cycle of 5,000,000 cycles minimum. d. Controls shall utilize light touch and short throw devices. e. Controls shall utilize a "Deadman" feature that stops all body operations if the "Deadman" is released. f. Control placement shall accommodate operators from 5'-2" to 6'-4" tall and from slender to large physics. 4. Rocker switches shall be back lighted type for easy identification at night. 5. Controls shall be permanently labeled and lighted for easy night viewing. 6. Vendor shall provide: a. The vendor shall provide within 30 days of the Contract award preliminary drawings of the control layout and how the controls are positioned inside the truck cab.	Yes No Yes No Yes No Yes No Yes No Yes No Yes No All lights red or green only, tailgate, packed out, body up, hopper open and over height. Yes No No controls to left of driver Yes No Yes No Yes No PTO power off stops all operations. Yes No Yes No Dome light or auxiliary light to see console at night. Yes No Yes permanently labeled Yes No	
Q.	Vehicle Rear Lights: (No Approved Equals) 1. All lights shall be Truck-Lite "Lifetime Warranty" 12vDC, LED type, flush mount, sealed lexan body, grommet insulated with Fit 'N Forget multi-pin plugs where possible. 2. Integral Stop/Turn/Tail/ lights mounted in the rear corner post of the body model Super 44 P/N 44302R or model 60 P/N 60250R. 3. Third Brake Light use the same used light used for Stop/Turn/Tail light and disable the Turn and Tail light sections.	Make: <u>Truck Lite</u> Yes No Yes No	\$ <u>INC</u> \$ <u>INC</u> \$ <u>INC</u> \$ <u>INC</u>

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	Description of Equipment	Offered Equipment	Cost
	4. Back up lights Truck-Lite LED, flush mount, sealed lexan body, grommet insulated, multi-pin units model 44 P/N 44206C. 5. Marker lights Truck-Lite LED 3 per side model 10 P/N 10250R or 10250Y or model 30 P/N 30250R or 30250Y. 6. Rear ID bar Truck-Lite LED model 35 P/N 35741R or 35740R. 7. License plate light, Truck-Lite model 15 P/N 15040 8. Wiring shall be sealed Fit' N Forget modular plug-in type where possible. 9. Dielectric grease shall be applied to all plug connections and terminals to prevent corrosion. 10. Wiring shall be sealed Fit' N Forget modular plug-in type where possible.	Yes No Yes No Yes No Yes No Yes No Yes No	\$ INC \$ INC \$ INC \$ INC \$ INC
R	Grease and Lubrication of Body and Components: 1. The trash body and all components requiring regular lubrication (1 time every ten days) shall use a central easy to access grease manifold for lubricating all the required lubrication points to include: a. Arm pivot points b. Tailgate hinge points c. Compaction/push-out system d. Cylinder pins e. Rotational bushings, bearings, shafts etc. f. Other areas that require lubrication 2. The grease system shall use steel braided hoses with heavy-duty swivel ends or approved equal lines between the manifold and grease fitting. The system shall assure that all fittings receive the proper amount of lubrication for maximum longevity. 3. The damage susceptible grease zerk fittings shall be protected from damage with a guard.	Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No	Lubecore Lube system not included in this bid. Option price only.
S	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: <u>Sikens</u> Type: <u>Polyurethane</u> Color: <u>Bright white to match cab</u> Yes No Yes No Yes No Yes No	\$ INC

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	Description of Equipment	Offered Equipment	Cost
T.	Special Tailgate Paint: 1. Polyurethane paint equal to DuPont Imron 5000, Color: a. Top 1/2 of tailgate "Bright White", b. Lower 1/2 of tailgate "Safety Yellow" with: 1) Alternating "Safety Yellow" paint 8" wide and 2" wide "White" tape 2) Tape 2" wide 3M Scotchlite "White" DOT reflective conspicuity tape applied from center out in a "Chevron Pattern" with a top horizontal tape strip separating the tailgate's White and Safety Yellow paint. 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: <u>"Bright White" to match cab</u> Color: <u>"Safety Yellow"</u> We can add the White Reflective Conspicuity Tape. Yes No Yes No Yes No Yes No	\$ <u>INC</u>

Refuse Body Equipment SUB TOTAL COST | \$ 107,822

3.7 **Sundries Equipment**

	Description of Equipment	Offered Equipment	Cost
A.	Rotating Beacon Warning Light with brush guard: 1. Meeting SAE Class-1 requirements. 2. Whelen Model L360 Super LED 360° beacon with branch guard L360BGB, amber (1 required) mounted just below top rear side of tailgate door. 3. A dash-mounted switch with light to indicate the beacon is on shall be provided. The 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 operation or while entering and exiting the vehicle.	Provide Specs: <u>Whelen model L360</u> Yes No	\$ <u>INC</u>
B.	Driver Height Warning Sign 1. Installed on truck dash providing the: a. Travel height of the vehicle. b. Maximum height of a dumpster during loading cycle 2. Sign shall be in 1" "white" block letters.	Provide Specs: <u>Sticker on Dash</u> a) yes b) yes Yes	\$ <u>INC</u>
C.	Work Lights 1. Two (2) front facing loading area.	Yes	\$ <u>INC</u>

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	2. Signal-Stat 623W work lights with lighted on dash mounted control switch. 3. The lights shall provide dumpster/arm lighting for night loading.	Make: <u>Truck-Lite</u> Model: <u>Work light</u> Signal Stat 81360	
D	Conspicuity Tape. 1. DOT-C2 Standard No 108 reflective conspicuity tape. 2. Tape shall be on both lower sides and rear of the body. 3. Tape shall be applied in symmetrical pattern from middle of panel outward	Provide specs: Yes No Yes No Yes No	\$ <u>INC</u>
E	Mud Flaps. 1. Mud flaps must be heavy duty anti sail type 2. Installed front and rear on rear wheels	Provide specs: Hardline Equipment mud flaps with antisail - Protector	\$ <u>INC</u>
F	Toolbox: 1. The toolbox shall be easily accessible for storage of the flairs, triangles, tire chains and other small tools. 2. Mounted underneath and attached to the right side of the body. The exact location shall be mutually agreed upon at installation. 3. Size 36" long x 18" high x 18" deep heavy-duty steel with powder coat "black" finish. 4. The door shall be side-mounted bottom hinged. 5. The box shall have a flush mount latch/lock assemble.	Make: <u>Fleming</u> Model: <u>Steel</u> Location: <u>RH Frame Mounted</u> Size: <u>18" H x 18" Deep x 36" long</u> or as space allows. Yes No Yes No	\$ <u>INC</u>
G	Tool Holders: 1. Three shovel/broom holders mounted on curb side of body. 2. Location to be mutually agreed upon at installation	Provide Specs: <u>Manufactured by Amrep</u> 1.) Yes 2.) Yes	\$ <u>INC</u>
H	Spill Kit: 1. A Brady (Sorbert Products Co.) 20-gallon lab pack oil only spill kit PN SKO-20 shall be provided. 2. The 20-gallon "Safety Yellow" polyethylene spill container shall be UN approved for both water and chemical resistance with a screw type top cover. 3. The oil spill kit shall contain the following minimum: a. 15" x 19" absorbent pads, 12 required b. 3" x 12" SOCs, 3 required c. 18" x 18" pillows, 2 required d. Nitrile gloves, 1 pair required e. Disposal bags, 3 required f. Goggles, 1 pair required g. Emergency response handbook, 1 book required 4. The spill kit shall be installed on the truck frame's right/curb side in a mutually agreed upon location at installation. 5. The spill kit mount shall secure the spill kit to the mounting frame so	Make: <u>Brady</u> Model: <u>SKO-20</u> Yes Yes No Yes No Yes No Yes No Yes No Yes No Yes No	\$ <u>INC</u>

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	that the kit cannot dislodge during operation and shall have a provision for securing the kit with a standard padlock.	Yes	No	
	6. The mount system shall not have any sharp corners/areas that could rub thru the spill container during operation	Yes	No	
I.	Tire Chain Holders:			
	1. Special brackets for storing drive wheel tire chains during winter season shall be provided	Yes	Tire chain brackets design and location to be mutually agreed upon.	\$ INC
	2. The chain holders shall be close to the drive wheels and easy to lift tire chains onto/off the brackets	Yes		
	3. Exact location shall be mutually agreed upon at installation	Yes	No	

Sundries Equipment SUB TOTAL COST | \$ INC

3.8 Complete Vehicle Sub Total Cost:

COMPLETE VEHICLE SUB TOTAL COST | \$263,877.00

3.9 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

Description of Equipment	Offered Equipment	Cost
A. Zonar System (No Approved Equals) The Zonar system shall be the model EVIR-GPS-GSM (Electronic vehicle information reports- global position system- global systems mobile communications) and provide the following functions minimum:	Make: <u>Zonar</u> Model: <u>V3R</u>	\$ 637.00
1. The system shall be fully compatible with and fully interface with:	Open API on Zonar side Relies on faster's willingness and cost for integration.	
a. CCG Faster fleet maintenance software	Yes No	\$ INC
b. Kronos time keeping system for reporting employee data	Yes No Through ground traffic control integration	\$ INC
2. Webb based reporting.	Yes No	\$ INC
3. The system shall provide the following functions:		
a. Ties the operator to the vehicle.	Yes No Depends on attached device such as	\$ INC
b. Pre and Post trip vehicle inspection information and compliance.	Yes No 2010 tablet	\$ INC
c. Send inspection information to Fleet Maintenance for an automatic "work order" generation.	Yes No Dependant on integration with data from ground traffic control	\$ INC
d. Track vehicle time out of the yard, time on route, and return to yard time.	Yes No	\$ INC
e. Tracks engine idle time.	Yes No	\$ INC
f. Monitors route pick-ups/work stops. show the vehicles route	Yes No	\$ INC

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	<p>and work stops on a real time basis.</p> <p>g. Uses the City's own maps of Denver area.</p> <p>h. Captures meter readings (odometer, engine hours) reports for PM scheduling.</p> <p>i. Has five (5) additional electronic inputs 8 to 30 vDC for monitoring and reporting vehicle functions and information.</p> <p>4. The system shall be fully contained in an injection molded, impact resistant plastic case that is water-tite and insulated.</p> <p>5. The system shall have passed SAE J-1455 vibration test</p>	<p>Yes No This would require integration with ground control Based on available Zonar resources.</p> <p>Yes No Through discreet IO cable with 12 pin connector to GPS unit</p> <p>Yes No</p> <p>Yes No</p>	<p>\$ INC</p> <p>\$ INC</p> <p>\$ INC</p> <p>\$ INC</p> <p>\$ INC</p>
B	<p>Retarder System:</p> <p>1. The retarder system shall provide effective vehicle slowing/retardation to a speed of 3 mph or below. The retarder system shall provide at minimum a 50% increase in vehicle foundation brake life. Provide the information for the type of retardation system being offered.</p> <p>2. Transmission output shaft retarder.</p> <p>3. Electric driveline retarder</p> <p>4. Engine and exhaust/turbo brake combination that does not raise exhaust noise (no Jacobs brakes).</p> <p>5. Retardation shall be activated into 1st stage when the driver removes their foot from the throttle pedal. Stages 2, 3 and 4 shall be progressively activated by the brake pedal before the foundations brakes are engaged</p> <p>6. Retarded control switches dash mounted with easy access for the driver.</p> <p>a On/Off switch.</p> <p>b High/Low retardation range</p>	<p>Make: <u>Alison W/No Engine Brake</u> Model: <u>4500 RDS</u></p> <p>Provide Brake Horsepower: _____</p> <p>Provide lowest speed retarder is effective: _____</p> <p>Make: <u>Telma</u> Model: <u>AD72-45</u></p> <p>Provide Brake Horsepower: <u>110% of Engine HP</u></p> <p>Provide lowest speed retarder is effective: _____</p> <p>Entire vehicle operating speed _____</p> <p>Make: _____ Model: _____</p> <p>Provide Brake Horsepower: _____</p> <p>Provide lowest speed retarder is effective: _____</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p>	<p>\$ <u>9,961.00</u></p> <p>\$ <u>11,750.00</u></p> <p>\$ <u>N/A</u></p> <p>\$ _____</p>
C	<p>CNG Fuel System: Engine Option:</p> <p>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</p>	<p>Make: _____ Model: _____</p> <p>HP: _____ @ _____ rpm</p> <p>Torque: _____ @ _____ rpm</p>	<p>\$ <u>N/A</u></p>

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2. The CNG engine shall meet all required EPA on-highway emissions standards	Yes No	\$ N/A
3. Fuel Tank:		
a Fuel tank shall meet or exceed 1) NFPA 52 standards 2) US-DOT/FMVSS304 3) ISO 11439	Yes No Yes No Yes No	
b Tank Manufacturer	Make: <u>Agility Fuel Solutions</u> Model: <u>20414000</u>	\$ N/A
c Tank Information	Material: <u>Carbon Fiber & Resin</u>	\$ N/A
1) Tank Construction Type: composite 2) Service Life Years: 20 years 3) Recertification Period: 8 years 4) Type of Recertification Inspection Required 5) Tank Service Pressure Full: 3,600 psig @ 70°F (21°C) 6) Each CNG fuel tank shall have a ¼-turn ball stainless steel shutoff valve mounted at the tank inlet	Service Life: <u>20</u> yrs Recertification: <u>8</u> yrs Inspection Type: <u>Certified Inspection</u> Service Pressure: <u>3600</u> psig Yes No	\$ N/A \$ N/A
d Tank Installation Locations:		
1) Top of Body a) Total vehicle height shall not exceed 12'-6" b) Tank Size: provide diameter x length c) Tank Weight each: Empty d) Quantity of Tanks for 75 gallon DGE e) Weight All Tanks: Empty f) Weight All Tanks: Full CNG g) Tank Enclosure Width, Length, Height h) Tank enclosure shall be 12 gauge steel minimum i) Decrease in body volume	Height of Body/Tank System: <u>See body MFG</u> Size: <u>16</u> dia x <u>100</u> long DEG Net <u>75</u> gal Tank Weight: <u>132</u> lbs each # of Tanks: <u>4</u> DEG Net <u> </u> gal Weight all tanks and brackets etc.: <u>1200</u> lbs Weight All Tanks Full CNG: <u>1650</u> lbs Enclosure Size: <u>70.3" x 110.13" x 17.13"</u> Material: <u>Aluminum</u> Gauge: <u>188"</u> Volume Decrease: <u>N/A</u> yds ³	\$ 28,000.00
2) Behind Cab Location: a) Increase in Truck wheel base required b) Tank Size: provide diameter x length c) Tank Weight each: Empty d) Quantity of Tanks for 75 gallon DGE e) Weight All Tanks: Empty f) Weight All Tanks: Full CNG g) Tank Enclosure Width, Length, Height; 2" clearance all sides h) Tank enclosure shall be 16 gauge steel minimum	Wheel Base Increase: <u>0</u> ins Size: <u>16"</u> dia x <u>81"</u> long DEG Net <u>15</u> gal Size: <u>16"</u> dia x <u>81"</u> long # of Tanks: <u>5</u> DEG Net <u>75</u> gal Weight all tanks and brackets etc.: <u>1405</u> lbs Weight All Tanks Full CNG: <u>1805</u> lbs Enclosure Size <u>22" x 89.44" x 64.64"</u>	\$ 25,552.00
3) Alternate Location:	Material: <u>Aluminum</u> Gauge: <u>188"</u>	\$ N/A
a) Location of Tankage	Location: <u>N/A</u>	

<p>b) Tank Size: provide diameter x length c) Tank Weight each, Empty d) Quantity of Tanks for 75 gallon DGE e) Weight All Tanks: Empty i) Weight All Tanks: Full CNG f) Tank Enclosure Width, Length, Height g) Tank Enclosure Material: Steel/Gauge</p> <p>e Tank Mounting</p> <p>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 1/2" x 3/16" tubing. The frame shall be powder coat finished for durability.</p> <p>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.</p> <p>f 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 1/2" diameter minimum.</p> <p>4. CNG Pressure Reducing Regulator System:</p> <p>a The pressure reducing regulator system shall be mounted inside a protective steel enclosure no more than 6 ft from the CNG fuel tank.</p> <p>b From the CNG fuel tank to the regulator the tubing shall be 1/2" od x 0.049" wall 300 series stainless steel minimum.</p> <p>c The pressure reducing regulator system shall have 2 pressure gauges installed in the system.</p> <p>1) High Pressure gauge 0-to-5,000 psi installed on tank side to show tank system pressure.</p> <p>2) Low pressure gauge 0-to-250 psi to show engine downstream fuel delivery pressure to the engine.</p> <p>3) Gauges shall be stainless steel glycerin filled.</p> <p>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.</p>	<p>Size: _____ dia x _____ long DEG Net _____ gal Tank Weight: _____ lbs # of Tanks: _____ DEG Net _____ gal Weight all tanks and brackets etc: _____ lbs Weight All Tanks Full CNG: _____ lbs Enclosure Size: _____ x _____ x _____ Material: _____ Gauge: _____</p> <p>Yes No \$ N/A</p> <p>Frame Size: 3" x 1 1/2" x 3/16"</p> <p>Yes No \$ N/A</p> <p>PRD Pressure Release 210-230 deg F psig Thermal Release Yes No \$ N/A</p> <p>Tubing Size: 1/2"</p> <p>Yes No Further on Roof Mounts \$ N/A</p> <p>Tubing Size: 1/2" x 0.19" Type: SS</p> <p>Pressure Range: 0 to 5,000 psi \$ N/A</p> <p>Pressure Range: 0 to 5,000 psi \$ N/A</p> <p>Yes No \$ N/A Yes No \$ N/A</p>	<p>\$ N/A</p> <p>\$ N/A</p> <p>\$ N/A</p> <p>\$ N/A</p> <p>\$ N/A</p> <p>\$ N/A</p> <p>\$ N/A</p> <p>\$ N/A</p> <p>\$ N/A</p>
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<p>e Engine coolant flow and CNG fuel supply shall enter the regulator on the same side of the regulator.</p>	<p>Yes No</p>	<p>\$ <u>N/A</u></p>
<p>f Coolant ports shall be oriented vertical (up) in horizontal regulators to prevent air from becoming trapped in the regulator.</p>	<p>Yes No</p>	<p>\$ <u>N/A</u></p>
<p>g The pressure reducing regulator shall not under any circumstance be installed in series with the truck cab heater system.</p>	<p>Yes No</p>	
<p>5 Automatic Fuel Shut Off:</p>		<p>\$ <u>N/A</u></p>
<p>a The automatic fuel shut off valve shall be plumbed directly to the exit/warm side of the engine coolant heated pressure reducing regulator.</p>	<p>Yes No</p>	
<p>b The automatic fuel shut off valve shall have its weight supported by a mounting bracket.</p>	<p>Yes No</p>	<p>\$ <u>N/A</u></p>
<p>c The automatic fuel valve shall have a Cv of 2.0 minimum to assure adequate fuel flow.</p>	<p>Valve Cv: <u>2.0</u></p>	<p>\$ <u>N/A</u></p>
<p>d The automatic fuel shut off shall be a NC (normally closed) valve when the ignition is in "Off" position.</p>	<p>Yes No</p>	<p>\$ <u>N/A</u></p>
<p>6. Fuel Lines:</p>		
<p>a All high pressure shall be ½" od x 0.049" wall stainless steel 316L tubing appropriate for the application.</p>	<p>Make: <u>Swagelok</u> Type: <u>SS</u></p>	<p>\$ <u>N/A</u></p>
<p>b Stainless steel lines shall have thermal expansion/contraction loops for smaller diameter lines and S-bend expansion joints for larger diameter lines.</p>	<p>Yes No</p>	
<p>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".</p>	<p>Yes No</p>	<p>\$ <u>N/A</u></p>
<p>d Fitting for the CNG fuel system shall be:</p>		
<p>1) Stainless steel tube fittings shall be Swagelok or Parker A-lok with thread sealant.</p>	<p>Make <u>Swagelok</u> Type: <u>SS</u></p>	<p>\$ <u>N/A</u></p>
<p>2) Special NPTF pipe fittings shall be stainless steel with thread sealant.</p>	<p>Yes No</p>	
<p>e All NPT fitting shall be installed on male pipe threads using proper thread sealants.</p>	<p>Yes No</p>	
<p>1) Thread sealant and anti-seize shall be a nickel impregnated or nickel coated Teflon tape.</p>	<p>Sealant Type: <u>Teflon Tape</u></p>	
<p>2) Teflon tape shall start at 2nd thread.</p>		
<p>3) On ½" and under use 2 wraps of tape</p>		
<p>4) On 5/8" to 1" use 3 wraps of tape.</p>		
<p>5) Assure last section of tape is pulled down tight against the</p>		

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<p>threads.</p> <p>6) Do not use sealant on compression threads</p> <p>f Post heat exchanger hoses and lines may be Parker 929 heavy-wall PTFE hose exceeding SAE100R14A or stainless steel tubing.</p> <p>7. Fuel Fill System:</p> <p>a The fuel receptacle and fuel fill system shall be rated for both "fast fill" and "slow fill" with a minimum 1/2" od x 0.049" wall 300 series stainless steel.</p> <p>b The fuel fill nozzle:</p> <p>1) Shall be a male NGV1 OPW with rubber protective cover boot</p> <p>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</p> <p>3) The fuel filler line shall be plumbed to the CNG tank bank.</p> <p>c The tank fill enclosure shall have:</p> <p>1) A high pressure line/tank pressure gauge 0-to-5,000 psi</p> <p>2) A low pressure fuel to engine pressure gauge 0-to-250 psi</p> <p>3) An OPW male NGV1 fuel fill receptacle with easy access and excellent clearance for both "fast fill" and "slow fill" receptacles.</p> <p>4) An emergency 1/4-turn shut off valve for shutting down the system in case of a fueling emergency.</p> <p>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.</p> <p>e The fill receptacle shall have an easy to remove/reinstall fuel fill cover to protect the fill port from contamination during truck operation.</p> <p>8 CNG Filtration:</p> <p>a High pressure, on the fuel tank(s) fill line to clean the CNG before it enters the fuel tank storage system.</p> <p>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.</p> <p>9. Fuel Gauge:</p> <p>a An electric fuel gauge shall be provided with easy to see</p>	<p>Make: <u>Parker</u> Type: <u>Stainless Steel</u></p> <p>Yes No Tubing Size: <u>1/2"</u></p> <p>Make: <u>DPW</u> Model: <u>NGV-1</u></p> <p>Fill Location: <u>Streetside on curbside</u> Yes No</p> <p>Pressure Range: <u>0</u> to <u>5,000</u> psi Pressure Range: <u>0</u> to <u>250</u> psi Yes No</p> <p>Yes No Yes No Yes No</p> <p>Make: <u>Agility</u> Model: <u>Behind door on fuel mgmt module</u></p> <p>Make: <u>Agility</u> Model: <u>High Pressure Filter</u> <u>Meets NSPA52</u></p> <p>Fuel Gauge Type <u>Analog</u> Make: <u>Pacific Insight</u> Model: <u>Analog</u></p>	<p>\$ <u>N/A</u></p> <p>\$ <u>N/A</u></p> <p>\$ <u>N/A</u></p> <p>\$ <u>N/A</u></p> <p>\$ <u>N/A</u></p> <p>\$ <u>N/A</u></p> <p>\$ <u>N/A</u></p> <p>\$ <u>N/A</u></p> <p>\$ <u>N/A</u></p> <p>\$ <u>N/A</u></p>
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	<p>vehicle dash gauge to show fuel tank volume.</p> <p>b The fuel sender shall be a sealed unit mounted to the high-pressure tank system</p> <p>c A sealed 3-pin Weatherpak connector with a 1-amp fast blow automotive fuse shall connect the sender to the gauge.</p> <p>d Pins are: 1) Red = power 2) Green = signal 3) Black = ground</p>	<p>Yes No</p> <p>Yes No</p> <p>Yes No</p>	
D	<p>Sign Boards, Two body mounted Roadway Displays Inc. (909 587.0207) mobile display systems shall be provided to include</p> <p>1 Frame model SS315955 95-1/2" long x 31-1/2" high x 2-1/4" frame width with .025" aluminum backing</p> <p>2. Frame material, 6463-T6 aluminum extrusions with satin anodize.</p> <p>3. Sign panel size 93-3/16" x 29-3/16" x .060" high impact styrene View size 91" x 27"</p> <p>4. Sign frame shall be securely mounted to body yet be easy to remove and replace. The flat sign face shall have a steel sub frame to attach it to the body and branch deflectors shall fill the void between the sub frame and the body</p>	<p>Provide Specs <u>Same as Previous Truck</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>\$ <u>INC</u></p>
E	<p>Spare Tire and Wheel:</p> <p>1. Tire and wheel assembly: 1 per vehicle.</p> <p>2. Tire: Michelin M860A, Steer Tire 10,000-lb rated @ 130 psi</p> <p>3. Wheel: Size 22.5" x 9", disc, 10-hole, hub piloted type, single nut, meeting ISO Standard 4107 "White" powder epoxy coated finish.</p>	<p>Make: _____ Model: _____</p> <p>Make: _____ Model: _____</p>	<p>\$ <u>N/A</u></p>
F.	<p>Remote High-Quality Color Safety 5 Camera System: The front loader refuse truck will be used in and around schools so excellent visibility in all directions is vitally important.</p> <p>1 Cameras (5 required) color Brigade - Part # BN360-100C, 360 degree camera kit system system with camera view selection on the TV monitor face (No Approved Equal).</p> <p>a. Rear of vehicle mounted camera wired into vehicle reverse circuit to automatically turn on when vehicle is shifted into reverse OR when vehicle ignition is on OR in a forward gear.</p> <p>b Front, rear, left and right side ultra-wide viewing camera system to serve as an auxiliary rear view mirror function (blind spot view) to augment the rear-view mirrors. The cameras shall be normally ON viewing all sides of the vehicle including blind spot. It shall automatically switch to rear of vehicle view when the transmission reverse gear function is activated. An over-</p>	<p>Make: <u>Brigade</u> Model: <u>SE-770-1004804C</u></p> <p>Yes No Camera Price Required</p> <p>Yes No Camera Price Required</p>	<p>\$ <u>1,995.84</u></p> <p>\$ <u>N/A</u></p> <p>\$ <u>N/A</u></p>

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<p>ride to keep the left side camera on shall be provided for special situation use. Camera shall be as small as possible and protected from tree branch damage.</p>	<p>Yes</p>	<p>No</p>	
<p>c. Hopper camera to provide viewing of trash in the hopper and packing operation. Hopper camera shall be fully protected from physical damage and dirt build up on the lens. The camera shall be positioned for easy lens cleaning and will automatically switch on when the barrel pick-up arm is activated.</p>	<p>Yes</p>	<p>No</p>	
<p>d. 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.</p> <p>(1) The camera shall be normally on viewing the right side of the vehicle and blind spot.</p> <p>(2) Camera system shall automatically switch the rear of vehicle view when the transmission is shifted to reverse</p> <p>(3) Right side camera shall have an override feature to be used during special events/situations</p> <p>(4) Camera shall be as small as possible and have a guard will protect the camera and wiring from tree branch damage and road spray/splash.</p> <p>(5) The exact location of the camera and camera protection system shall be mutually agreed upon installation</p>			
<p>2. Camera color model Brigade 360 system with automatic shutter (5) required</p> <p>a. Camera shall be in water proof cast aluminum housing. Housing shall be able to be pressure washed when washing vehicle</p> <p>b. Camera shall have built in safety audio system that will pick up and broadcast normal conversation to monitor.</p> <p>c. Camera shall be automatically heated for cold weather operation</p> <p>d. Resolution 380 TV lines horizontal</p> <p>e. Signal to noise ratio 44dB minimum</p>	<p>Make <u>Brigade</u></p>	<p>Model <u>VBV-701C-2575</u></p>	<p>\$ <u>143.27</u></p>
<p>3. Monitor LCD, 7" flat screen model Brigade VBV-77FM with:</p> <p>a. Monitor shall be in a very easy to see location on the dash next to the "A" pillar 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</p> <p>b. Camera view selection switches on the TV monitor.</p>	<p>Make <u>Brigade</u></p>	<p>Model <u>VBV-770FM</u></p>	<p>\$ <u>513.46</u></p>

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	<ul style="list-style-type: none"> c Day night 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. i Swivel mounting bracket j Dimmer switch to adjust for day and night viewing. k. Monitor capable of accommodating 360 degree 5 cameras system. <p>4. All wiring shall be totally sealed with sealed locking connections to prevent corrosion.</p> <p>5. All wiring shall be routed to prevent damage to the wiring</p> <p>6. Warranty 3 years with repairs done by replacement of failed components notification shipped UPS "Next Day" upon notification of problem.</p>	<p>Yes No</p> <p>Yes No</p> <p>Yes No</p>	
G	<p>Automatic Lubrication System to include Lube Core or approved equal</p> <ul style="list-style-type: none"> 1. The system shall automatically lubricate the slide-out carriage system and plastic barrel pick up system and other high wear areas. 2. The automatic lubrication system shall be designed for the particular application and to maximum durability of the lubrication lines and installed by the trash body manufacturer. Poorly thought out or routed lubrication lines will not be accepted. 3. Grease pump/reservoirs, control unit, distribution manifolds and grease hoses/lines shall be located/routed for maximum durability ease of access and protection from damage. The automatic lubrication system shall be well thought out and the system shall be designed into the trash system 4. Grease pump/reservoir shall be a 3-liter grease capacity minimum. 	<p>Make: <u>Lubecore</u> Model: <u>EP2 Pneumatic</u></p> <p>Items that will be automatically lubricated: <u>Complete body, minus 1 - Esect cylinder pt. and 4 carriage rollers</u></p> <p>Number of Automatic Lubrication Points: <u>26</u></p> <p>Yes No</p> <p>Yes No</p> <p>System Pressure: <u>500-3,000</u> psi</p> <p>Grease Line Material: <u>Konilla Line</u></p> <p>Grease Reservoir Size <u>GKG</u></p>	<p>\$ <u>9,155.80</u></p>
H.	<p>Cab Heater:</p> <ul style="list-style-type: none"> 1. The cabin heater shall be a Webasto Air Top 2000ST. 2. Heat Value 3,100 to 7,000 Btu/hou 3. Air Flow 37 cfm 4. Size: 12 1/4" x 4 3/4" x 5" approximate 5. Electrical 12vDC @1.2 amps 6. Diesel Fuel Usage 0.03 to 0.06 gallons/hour 	<p>Make: <u>Wabasco</u> Model: <u>air top 2000</u></p> <p>Btu's: <u>7,000</u> /hr</p> <p>Air Flow <u>37</u> cfm</p> <p>Size: <u>12 1/4" x 4 3/4" x 5"</u></p> <p>Fuel Usage: <u>.03</u> gal/hr</p>	<p>\$ <u>not included</u></p>
I	<p>Hydraulic Oil and Engine Coolant Heater:</p> <ul style="list-style-type: none"> 1. Heater for hydraulic oil and engine coolant shall be a Wabasto 	<p>Make: <u>Wabasco</u> Model: <u>Thermo 90ST</u></p>	

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b. Surface transportation costs.	Surface Transportation \$ <u>129</u> , Mode: <u>Car</u>	\$ _____
c. Lodging per person per day.	Lodging / day: \$ <u>200</u>	\$ _____
d. Meals per person per day:	Hotel: <u>Holiday Inn</u>	\$ _____
5. Total cost per person for 1st article inspection trip:	Meals / day: \$ <u>50</u>	\$ _____
		\$ _____

4.0 Manuals/Equipment

Item	Description of Equipment	Offered Equipment	Cost
Training Tape	One VHS tape demonstrating and explaining the safe and proper use of the vehicle/equipment.	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 No	\$ <u>N/C</u>
Service/Maintenance Manual Hard Copy	Two complete sets per Contract (not per vehicle); binder required. Shall include complete and detailed information for maintenance of the equipment, including general information, specifications, troubleshooting guide, lubrication and required adjustments.	Yes No	\$ <u>INC</u>
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 No Yes No	\$ <u>INC</u>
Internet Service Maintenance Manuals or other electronic media	One complete set, per Contract (not per vehicle) 1. Vendor shall provide access to the site for the length of time that the City owns the vehicle/equipment at a one time up front cost	Yes No	\$ <u>INC</u>

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	<p>to the City</p> <p>2. Internet information shall include complete and detailed information for maintenance of the equipment, including general information, specifications, troubleshooting guide, lubrication and required adjustments.</p> <p>3. 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.</p>	<p>Yes No</p> <p>If other Specify: _____</p> <hr/> <p>Yes No</p> <p>Amrep can provide all available manuals on paper and on CD, but not online</p>	
Parts Manual	<p>Two complete sets, per Contract (not per vehicle) binders required,</p> <p>1. Manuals shall be provided for:</p> <p>A. Cab and chassis</p> <p>B. Equipment and body</p> <p>2. Illustrated parts book shall be furnished containing data so that part numbers can be readily found for each system</p>	<p>Yes No</p>	\$ <u>INC</u>
Parts Manual on CD rom or DVD	<p>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.</p> <p>1. Information shall be provided for:</p> <p>A. Cab and chassis</p> <p>B. Equipment and body</p> <p>2. Parts manuals shall include complete and detailed information for replacement parts for the equipment, including general information, specifications ordering guide lines and superseded parts information.</p> <p>3. New CD roms or DVDs shall be provided when information is updated, superseded or changed.</p>	<p>Yes No</p>	\$ <u>INC</u>
Internet Parts manual or other electronic media	<p>One complete subscription; per Contract (not per vehicle)</p> <p>1. Internet information shall allow the City 24 hour 7 days/week including holidays access from its</p>	<p>Access Information:</p> <p>7 days/week including holidays Yes No</p>	

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	<p>main maintenance facility and all its satellite maintenance facilities.</p> <p>2. Internet information shall include complete and detailed information for parts for the: A. Cab and Chassis B. Equipment and Body</p> <p>3. Internet information shall cover vehicle/equipment, shall include general parts information, parts specifications, ordering guide lines and superseded parts information.</p> <p>4. Vendor shall provide access to the site for the length of time that the City owns the vehicle/equipment at a one time up front cost to the City.</p> <p>5. Parts manuals shall include complete and detailed information for replacement parts for the equipment, including general information, specifications ordering guide lines and superseded parts information.</p>	<p>Amrep can provide all available manuals on paper and on CD, but no online.</p> <p>Yes No Yes No Yes No None on Body</p> <p>Yes No If other Specify: <u>Body</u></p> <p>Yes No</p>	
<p>New Equipment Check-in Form:</p>	<p>The successful vendor shall complete the City's "New Equipment Check-in Form" completely and accurately with all requested information.</p>	<p>Yes _____</p>	<p>\$ <u>INC</u></p>

4.1

Operator and Mechanics Training

Item	Description of Equipment	Offered Equipment	Cost
<p>On Site Equipment Manufacturers Training</p>	<p>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.</p>	<p><u>Amrep Factory personnel to be present to work with City to start working with trucks.</u></p> <p><u>Rush Enterprises as requested</u></p>	<p>\$ <u>N/C</u></p>
<p>Fleet Maintenance Training Manager</p>	<p>Mr. Charlie Pletcher, Telephone: 720.865.3951 Contact time: 8:00 am to 3:00 pm M-F</p>		<p>N/C</p>
<p>Training Requirements</p>	<p>Training shall consist of factory training materials, classroom and actual field training on the equipment for the equipment operators and supervisors.</p>	<p><u>Amrep to provide training on Body.</u></p> <p><u>Rush Enterprises as requested</u></p>	<p>\$ <u>N/C</u></p>
<p>On Site Mechanics Training</p>	<p>On site mechanics training shall be 2 classes, approximately 8 hours, 2 shifts total provided at</p>	<p><u>Amrep to provide training on Body.</u></p> <p><u>Rush Enterprises as requested</u></p>	<p>\$ <u>N/C</u></p>

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	City facilities. The training shall cover maintenance and service procedures, trouble shooting and use of manuals		
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4.2 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	Y
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 Hardline Equipment	Y

5.0 Warranty

5.1 Warranty Requirement

TABLE 1

WARRANTY (CLASS 7 THROUGH CLASS 8 VEHICLES)		Complies (Y or N/A)
A.	Express warranty is to be a minimum of twelve (12) months on the class 8 vehicle/equipment. The warranty on the refuse body is to be a minimum of two years. The standard factory warranty plan for both the chassis and refuse body, to include the hydraulic components, shall be provided as an attachment to your bid proposal.	Yes
B.	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	Yes
C.	Warranty shall start when the City places the vehicle into service NOT on the delivery date. Taking an exception may make bid non compliant.	Yes
D.	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	TRK. DLR.
E.	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.	TRK. DLR
F.	Bidder will be responsible for warranty repair of all installed options/auxiliary equipment included in the bid that has a standard	Yes

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	warranty that is less than the standard warranty for the base vehicle/equipment	
G.	Bidder shall use a single, local factory authorized dealership that will accomplish or coordinate required warranty work. The 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	Yes
H.	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 \$65.00/hour, not to exceed \$85.00/hour (Enter a response of N/A if not available)	N/A
I.	The bidder shall respond to request for warranty assistance within twenty-four (24) hours	Yes
J.	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	Yes
K.	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.	N/A
L.	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.	Yes
M.	This warranty in Table 1 and Table 2, is IN ADDITION to factory warranties on the vehicle and components	N/A

5.2 Fleet Defects

TABLE 2

WARRANTY - (Table 2) Fleet Defect Clause, Class 7 & 8 Vehicles	
A.	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
B.	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.
C.	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.
D	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.
E.	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.
F.	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.

5.3 Warranty Options

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 Not available		N/A =
		Two Years	Three Years	Five Years
A	Cab and Chassis	1265	2915	5445
B	Engine	INC	935	1185
C	Transmission	INC	INC	1100
D	Drive Train			
E	Left Side Operator Controls			
F	Suspension	471	708	N/A
G	Air Conditioning			
H	Hydraulics			
	a. Pumps	a.) Parts Only	a.) N/A	a.) N/A
	b. Cylinders	b.) N/A	b.) N/A	b.) N/A
	c. Tanks	c.) Parts Only	c.) N/A	c.) N/A
	d. Valves			
	e. Controls	Labor 1 Year		
I	Attached Body	N/A	N/A	N/A
J	Joystick	N/A	N/A	N/A
K	Electrical Components	N/A	N/A	N/A

02/13/18

L.	Operator Controls	N/A	N/A	N/A
M.	Other	N/A	N/A	N/A
Notes:		All body components 1 Year on Parts & Labor.		
		2 Year on Parts only for pumps & tanks.		

5.4 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: <u>Rush Truck Center</u> Street Address: <u>6955 E. 50th Ave</u>	Telephone #: <u>303-291-6300</u> City: <u>Commerce City, CO 80022</u>
Trash Body:	Dealership Name: <u>Hardline Equipment</u> Street Address: <u>7550 Dahlia St</u>	Telephone #: <u>303-288-8989</u> City: <u>Commerce City, CO 80022</u>
Sundries	Dealership Name: <u>Hardline Equipment</u> Street Address: <u>7550 Dahlia St</u>	Telephone #: <u>303-288-8989</u> City: <u>Commerce City, CO 80022</u>
Sundries	Dealership Name: _____ Street Address: _____	Telephone #: _____ City: _____

6.0 Vehicle Delivery
6.1 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	<u>90</u> DAYS
--	----------------

6.2 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	<u>210</u> DAYS
--	-----------------

6.3 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.	<p>Vendor shall supply at acceptance and delivery of vehicle.</p> <ol style="list-style-type: none"> 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) 16. All fluid levels top off (full) including fuel and DEF
C.	<p>For an "Incomplete Vehicle" (cab & chassis) add the following:</p> <ol style="list-style-type: none"> 17. Verification of Vehicle Identification Number (VIN), Colorado Dept. of Revenue form DR2087 18. Statement of Fact for incomplete vehicles with added bodies etc, describes the final configuration of the vehicle. 19. Original weight slip.
D.	<p>Delivery: Monday through Friday between 8:00am and 1:00pm Location: CITY AND COUNTY OF DENVER Fleet Management 5440 Roslyn St. Building C Denver, CO 80216 Contact person to coordinate delivery: Fleet Maintenance Division at (720) 865-3900 ext. 03 or direct line (720) 865-3903</p>

7.0 Complete Vehicle Cost

\$ 263,887.00

02/13/18

ONE COMPLETE VEHICLE TOTAL COST

H:\Files\Vehicle Specs\Heavy Duty\Trash Trucks\09-185 Front Loader Trash Truck SW.doc

Reference Nos: Revised 1/2018

50

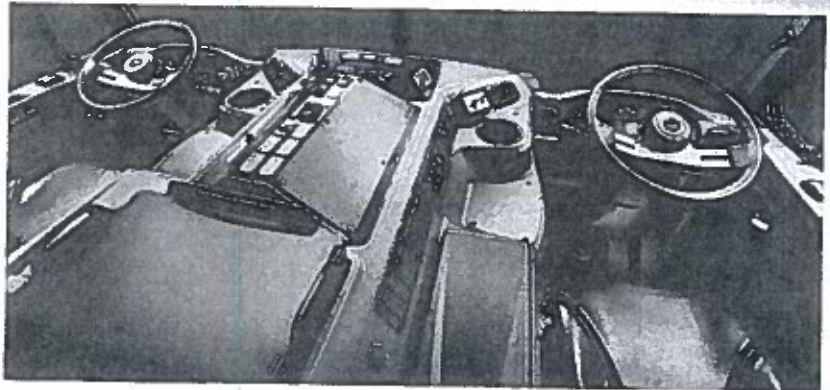
Vendor/Sub Vendor: Rush Truck Center



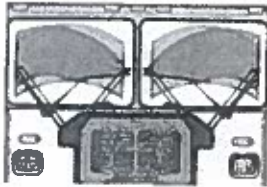
Peterbilt

SUPERIOR INTERIORS.

The Model 520 features a newly re-designed cab that delivers visibility, comfort and ergonomics and is available in left-hand drive, right-hand drive, dual-drive and right-hand stand-up configurations. Center console sides are now angled, providing operators easy visibility and access to controls from either side. An enhanced HVAC system improves airflow and climate control in the cab.

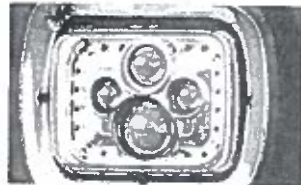


The 520 interior features an ergonomic dash design with LED task lighting, a steering wheel with integrated controls, and a center console with controls and storage.



VISIBILITY

With 200-degree visibility, you'll get the most out of your job. The Model 520 has a wide view of the road and a clear view of the hood.



HEADLAMP TECHNOLOGY

The Model 520 features 200-watt LED headlamps and 40-watt LED fog lamps. The Model 520 also features 200-watt LED fog lamps and 40-watt LED fog lamps.



RELIABILITY

The Model 520 features a 200-hp engine and a 200-hp engine. The Model 520 also features a 200-hp engine and a 200-hp engine.



SmartLNO™

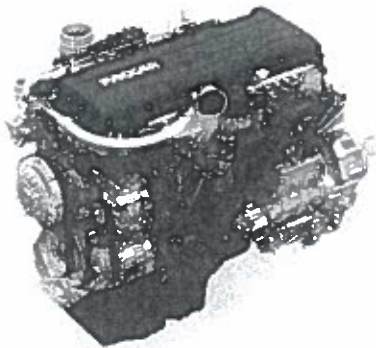
SmartLNO™ is a new engine control system that provides better fuel economy and better engine protection. SmartLNO™ is a new engine control system that provides better fuel economy and better engine protection.

For more information on the new Model 520, contact your local Peterbilt dealer or visit www.peterbilt.com.

Peterbilt

520

STREET TOUGH MEETS STREET SMARTS.



PACCAR MX-11

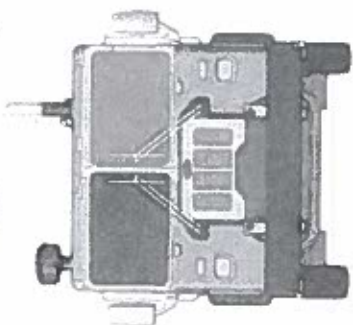
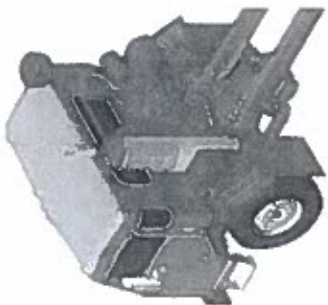
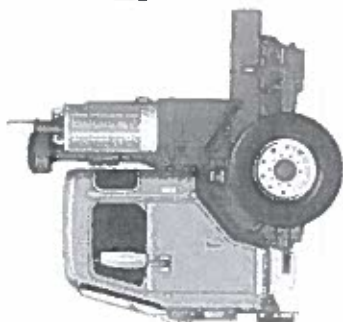
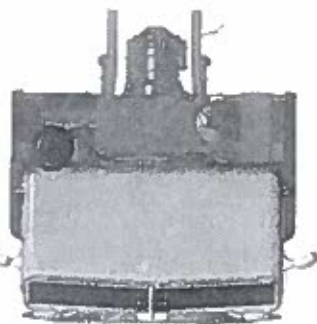
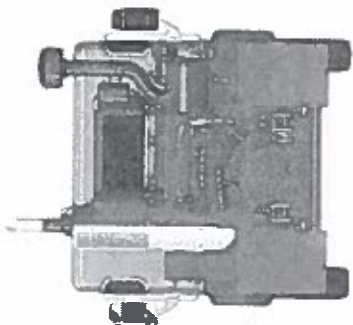
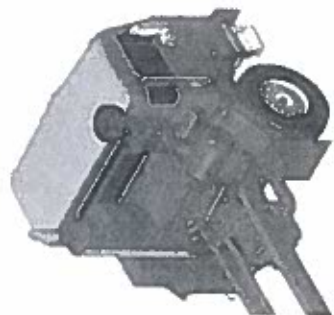
POWER AND PERFORMANCE

A PACCAR MX-11 engine provides outstanding power in a lightweight and fuel-efficient design and is available with up to 430 horsepower and 1,650 lb.-ft. of torque.

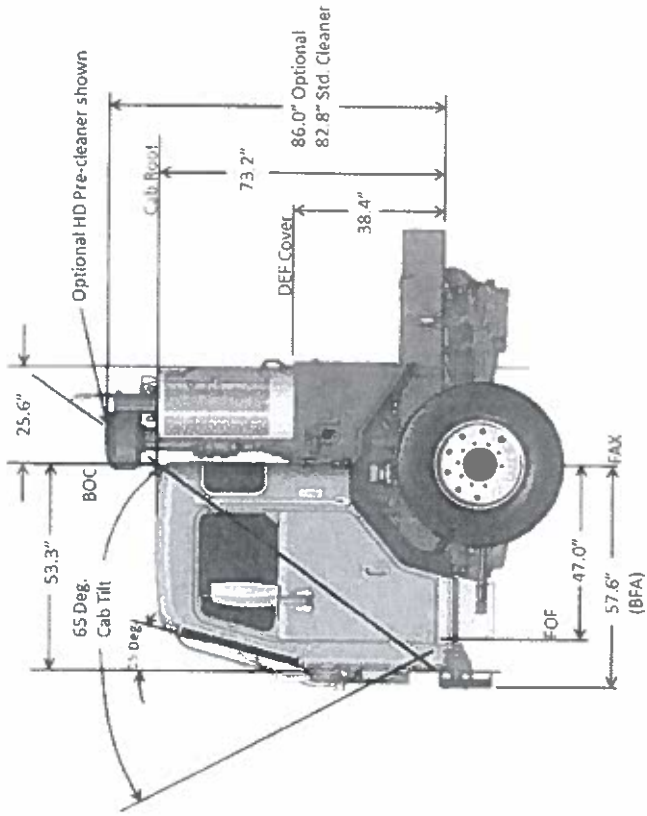


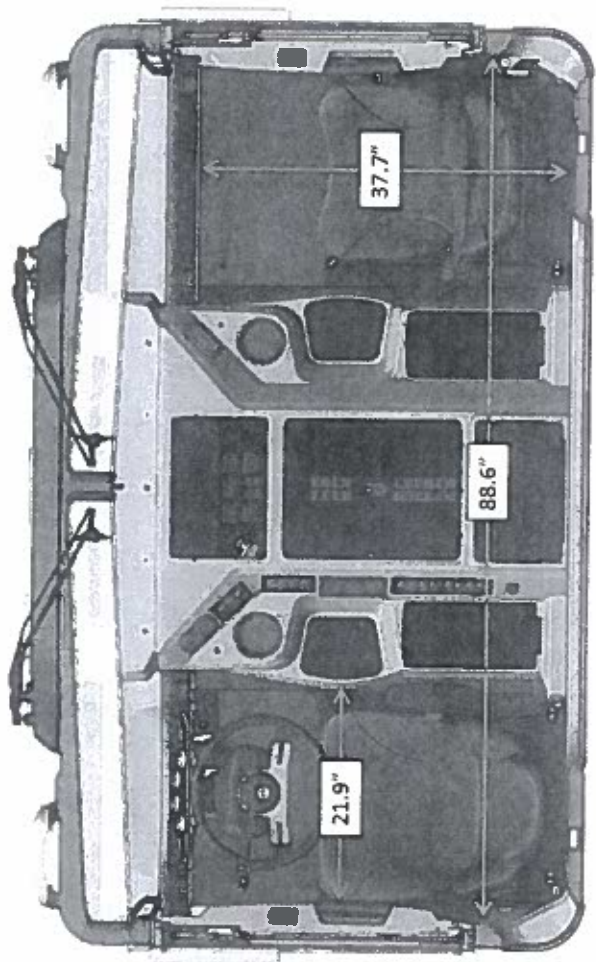
PACCAR Model 520 is built to withstand the harshest demands of the refuse industry. The rugged aluminum cab delivers best-in-class durability, an increased uptime and bulkhead-style doors for maximum durability and corrosion resistance. Powered by the fuel-efficient PACCAR MX-11 engine, the Model 520 provides endless performance. Optional gas configurations include both P- and L-plate engine options. New headlamps with standard halogen bulbs and optional LEDs, provide additional brightness and coverage with less power consumption. The distinguished new grille accommodates additional markers, providing significantly more coverage for improved visibility. An impressive 14-degree wheel cut allows drivers to easily maneuver in congested urban environments and tight city streets. Whether commercial or residential, the new Model 520 provides the new level of driver freedom to get the job done, any day, any time.

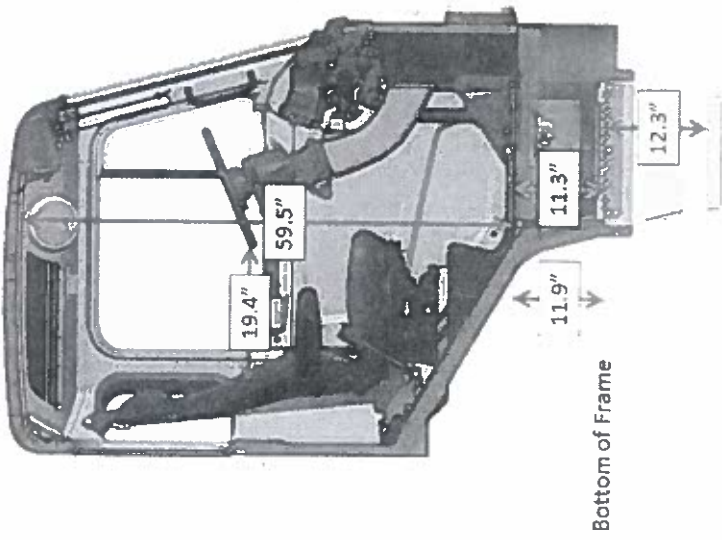
Model 520 EPA 2017



Model 520 Dimensions







Rush Truck Center, Denver CO
 6955 E 50th Ave
 Commerce City, CO 80022
 303-292-3170



Customer Proposal Letter

CITY AND COUNTY OF DENVER
 201 W. COLFAX AVE., DEPT 304
 DENVER, CO 80202
 (720) 865-3900

Thank you for the opportunity to earn your business. We look forward to working with you on your business needs. Please accept the following proposal.

VEHICLE

Make Peterbilt Model 520 Year 2019 Stock Number To Be Determined
 Additional Vehicle and Accessories Description To be delivered on or about 6/29/2018

Quantity	1	
Truck Price per Unit	\$263,887.00	\$263,887.00
F.E.T. (Factory & Dealer Paid)	\$0.00	\$0.00
Net Sales Price	\$263,887.00	\$263,887.00
Optional Extended Warranty(ies)		
State Sales Tax		
Documentary Fee		
Administration Fee		
Vehicle Inventory Tax		
Additional Taxes		
Tire Recycling Program		
Battery Disposal Fee		
Out of State Vehicle Fee		
Rebate(s)		
Total Sales Price (Including Rebate(s))	\$263,887.00	\$263,887.00
Trade Allowance (see DISCLAIMER Below)		\$0.00

Sales Representative
 Purchaser

[Signature]
 printed name
Damon Cummings

signature
 date
 printed name

Accepted by Sales Manager or
 General Manager

Quote good until **5/31/2018**

Note: The above Customer Proposal is a quotation only. Sale terms subject to approval of Sales Manager of Dealer.
 DISCLAIMER: Any order based on this Proposal subject to Dealer's standard form Retail Purchase Order incorporating above terms. Any documentary fees, state (s.a.), title, registration and license fees, subject to equipment and change. Actual F.E.T. to be paid by Dealer, subject to adjustment. Any F.E.T. variance will be responsibility of Dealer. Manufacturer has reserved the right to change the price to Dealer of any vehicle not currently in Dealer's stock, without notice to Dealer. Dealer's stock of Quoted Vehicle(s) not currently in Dealer's stock. Dealer reserves right to change Quotation Total to reflect any price increases from Manufacturer. This Proposal is based upon Dealer's current and expected inventory, which is subject to change. Dealer not obligated to retain any specific vehicles in stock, nor maintain any specific inventory level. Dealer shall not be obligated to fulfill Proposal in event quoted vehicle(s) not in stock or available within requested delivery schedule at time Proposal accepted. Dealer shall not be liable for any delay in providing or inability to provide Quoted Vehicle(s) where such liability or delay is due in whole or in part to any cause beyond the responsible control of Dealer or its without the gross negligence or intended misconduct of Dealer. Above listed Trade Value based upon current appraisal of Trade Vehicle(s). Dealer may adjust Trade Value of Trade Vehicle(s) to reflect changes in condition and/or mileage of Trade Vehicle(s) between date of current appraisal and acceptance of this Proposal by Customer.



Warranty Quick Reference Guide (On-Highway)

This is a Quick Reference Guide "ONLY", for "On-Highway" Class 8 vehicles. It is an itemized general listing of the components and/or items used in the assembly of a Peterbilt Vehicle and their respective level of warranty coverage. This list is NOT to be construed as all-inclusive. Refer to the complete text of the Peterbilt Warranty Agreement, Cat. No. 5201/5278 for specific details on the terms, conditions and limitations of said agreement

BASIC VEHICLE WARRANTY

12 Month or 100,000 Miles/160,000 Kilometers whichever shall occur first. 100% Parts and Labor

- | | | | |
|---|--|--|---|
| <ul style="list-style-type: none"> Air Cleaner System (Excluding Filter Element) Air Compressor (Bendix, Midland) Air Conditioner System Air Dryer Air Governor Air Tanks Alternator Antenna Batteries (GNB Only) Brake Chambers Brake Drums (Except When Scored or Heat Checked) Bumper (Including Aerodynamic Type) Cab Heater and Ducts Cab Side Extenders Cab Skirts Cab Water Leaks Cab Tilt Mechanism (Including Pump) Clutch, Clutch Brake, Clutch Linkage Control Cables Cruise Control Components Deck Plate Door Latches, Locks and Hinges Door Pads and Soft Trim Driveshafts, U Joints and Center Bearing Electrical Power Distribution Box Electrical Printed Circuits & Harnesses (Excluding Fuses) Engine Brake (Pacbrake Only) Engine Dipstick and Tube (COE Only) Engine Ether Starting System (Excluding Bottle) Engine Fan | <ul style="list-style-type: none"> Engine Fan Clutch and Serding Unit Engine Fan Shroud Engine Heater Engine Mounts Engine Shutdown System Exhaust Stanchion Exhaust System Fairings Fuel Tanks Fuel Tank Straps, Cap and Vent Fuel Water Separator and/or Heater Gauges and Sending Units Heat Shields Hood Assist Springs and Hooks Horn - Air or Electric Hoses and Fittings Hub Assemblies (Including Bearings) Hub Caps Hubometer Instruments Lamp Fixtures (Excluding Bulbs) Mirrors Mud Flap Brackets (Excluding Mud Flaps) Plating (Including Chrome) Power Steering Pump Power Steering Reservoir Power Take Off Quarter Fenders Radiator (Including Header Gaskets) Radio/CB (Unlimited Mileage) | <ul style="list-style-type: none"> Refrigerators Seat Belts Seat Structure Shift Controls Shock Absorber Sleeper Bool Sleeper Extenders Speakers Starter and Series/Parallel Switch Steering Arm Steering Column Steering, Shaft and U-Joints Steering Drag Link Box Steering Gear Box Assembly - Manual Steering Gear Mounting Brackets Steering Pitman Arm Steering Wheel Steps Suspension - Axle Suspension - Cab Suspension - Sleeper Switches Tachograph Throttle Linkage and Cable Transfer Case Transmission Shift Controls & Oil Coolers Upholstery Valves, All Varashield Vents - Fresh Air | <ul style="list-style-type: none"> Visor (Outside and Inside) Weather Stripping Wheel Bearings (Except Seats & Gaskets) Window Defroster Fan Window Lift (Including Power Lift) Windshield Washer Wiper Arms (Excluding Blades) Wiper Motor and Control Valve Wiring and Connectors Mounting Brackets & Bolts for above items |
|---|--|--|---|

PAINT

- | | | |
|--|-----------|------------------------------------|
| - Cab, Hood, Sleeper Paint | 12 Months | 100,000 Miles / 160,000 Kilometers |
| - Frame Paint - Black Only | 12 Months | 100,000 Miles / 160,000 Kilometers |
| - Frame Paint - All colors other than black | 6 Months | 50,000 Miles / 80,000 Kilometers |
| - Frame Paint - Logger, Mixer, Dump, Refuse, Oil Field & Construction applications | 3 Months | 25,000 Miles / 40,000 Kilometers |

MAJOR COMPONENTS

36 Months or 300,000 Miles/480,000 Kilometers whichever shall occur first. 100% Parts and Labor
 Eaton, Mentor and Dana Spicer Axles, Non-Driving and Driving, Single Speed, On-Highway with a Capacity of 46,000 Lbs. or Less (Including Axle Input and Output Seals)
 (Except Axle Shaft Flange Gaskets, Brake Drums, Brake Shoes, Filters, Hub Assemblies, Hub Caps and Gaskets, Wheel Bearings and Wheel Seals)
 Brakes - Eaton and Mentor
 Applies to Brackets, Cam Shafts, Slack Adjusters and Spiders
 Cab, Hood and Sleeper Structure
 Cab Fasteners - (Except Add-On Aerodynamic Devices)
 Sheppard and TRW Steering Gears
 Manual Transmissions (Except Oil Coolers and Shift Controls)
 Hood Half-Fenders

EXTENDED FRAME, STRUCTURE AND CAB CORROSION

60 Months or 500,000 Miles/800,000 Kilometers whichever shall occur first. 100% Parts and Labor
 Frame Side Rails, Crossmembers, Gussets, A-Braces and Cab Corrosion
 Cab corrosion warranty applies to perforation - an actual hole in a cab panel due to corrosion. Warranty does not apply to corrosion caused by damage to a cab panel or finish paint.

OTHER COVERAGES

12 Months or 50,000 Miles/80,000 Kilometers whichever shall occur first. 100% Parts and Labor
 Axle Shaft Flange Gaskets
 Hub Cap Gaskets
 Wheel Seals (Except Eaton Outrunner)
 All Gaskets and Seals not specified above

Warranty Exclusions

- The following components are warranted directly to you by their respective manufacturer, and are not warranted by Peterbilt Motors Company: Engine and Engine Manufacturer's Accessories, Automatic Transmissions, Tires, Tubes, Fifth Wheel, Pintle Hooks, Hitch, Wheels and Batteries not listed.
- Peterbilt does not warrant antifreeze, lubricants, bulbs, fuses, filters, mud flaps, reflectors, winter fronts, wiper nozzles or wiper blades. Trade accessories such as fire extinguishers, chains, emergency kits and tools are not warranted.
- Peterbilt is not responsible for storage deterioration, wear, and changes in adjustment resulting from normal service. This includes brake and clutch linings, drive belts, wheel balance and axle alignments or upholstery.
- Peterbilt is not responsible for paint chipping or fading, peeling from frame bolts relating to maintenance, or paint peeling from road chemical damage.
- Damage due to accident, misuse, negligence, improper or inadequate maintenance, or unauthorized modification is not warranted. Failure of replacement parts used to repair above conditions are not warrantable.
- Vibrations, squeaks, fitting and hose leaks, unusual noises, rattles, loose nuts/bolts and hose and electrical connections can develop during the early shakedown trips of the vehicle. Up to 20,000 miles, but not later than 90 days after date of delivery, the necessary adjustments will be made without charge. Such developments after this period are usually the result of use and are not warrantable items.
- Peterbilt is not responsible for damage resulting from engine horsepower/torque upgrades.

NON - WARRANTABLE COMPONENTS/ITEMS

- | | |
|---|-----------------------------|
| Engines | Fuses |
| Engine Accessories | Headlights and Light Bulbs |
| Air Compressor (Engine Manufacturer) | Lubricants |
| Blower | Mudflaps |
| Engine Brakes (Except Pacbrake) | Pintle Hooks |
| Filters for Fuel, Oil and Water | Non-Original Equipment |
| Pumps for Fuel, Primer and Water | Power Converter |
| Turbocharger | Reflectors |
| Turboconvoyor | Rims |
| Add-on Aerodynamic Devices (Dealer Installed) | Speedograph |
| Antifreeze Solutions | Television Set |
| Automatic Transmission (Allison) | Tires |
| Brake Linings | Tools |
| Bulbs | Tow Pins |
| Cellular Telephone | Trade Accessories |
| Chains | Tubes |
| Fifth Wheel | Wheels (Except Alcoa) |
| Filter Elements | Winter Front and Bug Screen |
| Fire Extinguisher | Wiper Blades |
| Flag and Flare Kit | Wiper Nozzles |
| Fuel | |

NON - WARRANTABLE: WEAR, DETERIORATION and/or ADJUSTMENTS

Peterbilt assumes no responsibility for wear and/or Deterioration of parts or Changes in Adjustment as a result of Normal Service. Examples:

- Belts
- Brake Adjustment
- Brake Drums
- Brake Linings
- Clutch Facings
- Fuses
- Mattresses
- Paint Chip and/or Fade
- Soft Trim and Upholstery
- Stainless Steel Discoloration
- Tightening Bolts and/or Fittings
- Wheel and/or Axle Alignment
- Window and Windshield Glass

This list is NOT to be construed as all-inclusive.

NON - WARRANTABLE FUNCTIONS OR ACTS

- Any Vehicle on Which the Odometer has been Altered
- Any Vehicle that has been Altered or Modified in a Manner Unauthorized by Peterbilt
- Damage Due to Accidents
- Dyno Testing (without Prior Regional Authorization)
- Improper or Insufficient Maintenance Service
- Misuse
- Negligence
- Overtime Labor
- Storage (Including Deterioration)
- Towing and Road Cuts
- Transport
- Troubleshooting and Road Testing



Warranty Quick Reference Guide (Severe Service)

This is a Quick Reference Guide "ONLY", for Severe Service (Off-Highway) vehicles. It is an itemized general listing of the components and/or items used in the assembly of a Peterbilt Vehicle and their respective level of warranty coverage. This list is NOT to be construed as all-inclusive. Refer to the complete text of the Peterbilt Warranty Agreement, Cat. No. 7970/7971 for specific details on the terms, conditions and limitations of said agreement.

SEVERE SERVICE (Off-Highway) Trucks which are defined as chassis having any of the following components: ♦Planetary or double-reduction rear axles; ♦Tandem rear axles rated 52,000 lbs. GAWR or greater; ♦Single rear drive axles rated 26,000 lbs. GAWR or greater; ♦Front steer axles rated 21,000 lbs. GAWR or greater; ♦Tandem steer axles; ♦Tri-drive rear axles; or chassis having: ♦All-wheel drive; ♦Unlicensed off-road registration; or ♦10% or more usage on class C or D roads.

Basic Vehicle	12 Months	50,000 Miles / 80,000 Kilometers
Major Components	12 Months	50,000 Miles / 80,000 Kilometers
Extended Frame, Structure & Cab Corrosion	36 Months	300,000 Miles / 480,000 Kilometers
Other Coverages	12 Months	50,000 Miles / 80,000 Kilometers
Paint - Hood, Cab, Sleeper & Frame	3 Months	25,000 Miles / 40,000 Kilometers

Warranty Exclusions
NON - WARRANTABLE COMPONENTS/ITEMS

NON - WARRANTABLE: Wear, Deterioration and/or adjustments

NON WARRANTABLE FUNCTIONS OR ACTS:
(NOTE: Please see On-Highway verbiage on reverse side for details)

CITY PO EXHIBIT
City and County of Denver
Fleet Management
Vendor Supplied Information Data

City Unit(s) # _____

(City Use Only)

ENTER CITY PURCHASE ORDER NUMBER: PO- _____
Example: PO-00003584

The following underlined forms and information are REQUIRED for new vehicle deliveries:

- Copy of entire Purchase Order (all pages)
- Original MSO (Manufacturers Statement of Origin) – is required for all vehicles except off-road and construction equipment. May receive one for some off road equipment if manufacturer issues one.
Name of purchaser: **City and County of Denver**
Address: **201 W. Colfax Ave. Dept. 304**
Denver, CO 80202
- Secured Dealer Bill of Sale (DR2407) – IN STATE ONLY – Required for on the road vehicles Such as cars, pickup[s], vans and any vehicle under 16,000 GVWR. Not needed if odometer Section is filled out and signed on MSO. Not required on vehicles over 16,000GVWR LBS.
- Application for Title and Registration (DR2395) – Required for all on-road vehicles and trailers.
- Verification of Vehicle Identification Number (DR2698) – Required for all Vehicles coming from an out of state dealer, incomplete vehicle. I.E. Cab and Chassis.
- Statement of Fact (DR2444) - Required on all vehicles with modifications to the cab and chassis. Such as a body crane, auxiliary engine, etc. The statement of fact must include the modifications made and include VIN numbers of chassis and equipment.
- Special Mobile Machinery Form (DR2689) - Required on all off road and Construction equipment. I.E. Front end loaders, tractors, skid steer loaders, Mowers, air compressors, motor graders, etc.
- Weight slip required - (on all incomplete vehicles that are made into a complete vehicle) – and all off-road equipment and construction type equipment. (Front end loaders, sweepers, graders, air compressors, rollers, etc.).
- Temporary License Plate – Required for all on-road vehicles. Not required for off road Equipment.
- Original Dealer Invoice – Required for all vehicles on and off the Road.
- Receipt or Contract for Optional Warranty – Only if spec or called out on P.O.
- Shop and Parts manuals (as required) (CD or electronic form preferred) – Only if spec or show as a line item of P.O.

Dealer Signature: _____ Date: _____