

ORDINANCE/RESOLUTION REQUEST

Please email requests to the Mayor’s Legislative Team

at MileHighOrdinance@DenverGov.org by **3:00pm on Monday**. Contact the Mayor’s Legislative team with questions

Date of Request: 04-08-2019

Please mark one: Bill Request or Resolution Request

1. Type of Request

- Contract/Grant Agreement Intergovernmental Agreement (IGA) Rezoning/Text Amendment
- Dedication/Vacation Appropriation/Supplemental DRMC Change
- Other:

2. Title: (Start with *approves, amends, dedicates*, etc., include name of company or contractor and indicate the type of request: grant acceptance, contract execution, contract amendment, municipal code change, supplemental request, etc.)

Resolution request per City Council 3.26(e) to purchase 6 Recycle/ Trash Trucks on PO-00062560: 6 new 30 Yard ASL with ISL (G) Eng Powerplant- Recycle/Trash Barrel Loader Trucks REF# 19-087-19-092

3. Requesting Agency:
Public Works Solid Waste

4. Contact Person:

Contact person with knowledge of proposed ordinance/resolution	Contact person to present item at Mayor-Council and Council
Name: Gary Bales	Name: Jason Gallardo
Email: Gary.Bales@denvergov.org	Email: Jason.Gallardo@denvergov.org

5. General description or background of proposed request. Attach executive summary if more space needed:

Six new units will be purchased using the Planned Fleet Replacement Fund 11804.

6. City Attorney assigned to this request (if applicable):

7. City Council District:

8. **For all contracts, fill out and submit accompanying Key Contract Terms worksheet**

Key Contract Terms

Type of Contract: (e.g. Professional Services > \$500K; IGA/Grant Agreement, Sale or Lease of Real Property):
Contract > \$500k

Vendor/Contractor Name: Rush Truck Centers of Colorado INC

To be completed by Mayor’s Legislative Team:

Resolution/Bill Number: _____

Date Entered: _____

Contract control number: PURCHASE # PO-00062560

Location: Public Works Solid Waste

Is this a new contract? Yes No Is this an Amendment? Yes No If yes, how many? ___

Contract Term/Duration (for amended contracts, include existing term dates and amended dates):
Until the units are properly received, documented, placed in service and payment completed.

Contract Amount (indicate existing amount, amended amount and new contract total):

<i>Current Contract Amount</i> <i>(A)</i>	<i>Additional Funds</i> <i>(B)</i>	<i>Total Contract Amount</i> <i>(A+B)</i>
\$1,820,550.00	\$0.00	\$1,820,550.00

<i>Current Contract Term</i>	<i>Added Time</i>	<i>New Ending Date</i>
Undetermined		

Scope of work:
Purchase of 6 Recycle/Trash trucks

Was this contractor selected by competitive process? If not, why not?
Yes

Has this contractor provided these services to the City before? Yes No

Source of funds: PLANNED FLEET REPLACEMENT FUND: 11804

Is this contract subject to: W/MBE DBE SBE XO101 ACDBE N/A

WBE/MBE/DBE commitments (construction, design, Airport concession contracts):

Who are the subcontractors to this contract?

To be completed by Mayor's Legislative Team:

Resolution/Bill Number: _____

Date Entered: _____



RQ-00032817
2/15/2019
Resolution needed after PO submitted

2019 VEHICLE AND EQUIPMENT REQUEST FOR REQUISITION WORKSHEET

Only one requisition can be submitted per vendor. If more than one vendor is being utilized, complete separate requisition request worksheets for each vendor.

Date: *2/5/2019*

City Requestor Name: *GARY BALES* Requestor Phone #: *720-337-1197*

Vendor: *Rush Peribell* Vendor Contact: *DAMON CUMMINGS*

State Award #: *✓* Vendor Contact Phone #: *719-660-8744*

Estimated delivery date: *180 DAYS* Vendor Contact Email: *CUMMINGS DL @ Rush*
AFTER PO IS ISSUED *ENTERPRISES.COM*

Equipment description: *30 YARD ASL WITH ISL(G) ENG Powerplant*

	Ref #	Reason for replacement	Unit being replaced	Fund	Cost center	Cost (\$)	Includes all upfit parts?*
1	<i>19-087</i>	<i>Planned Fleet</i>	<i>BB66</i>	<i>11804</i>	<i>5053400</i>	<i>303,925</i>	<i>NO</i>
2	↓	↓	<i>BB67</i>	↓	↓	↓	↓
3	↓	↓	<i>68</i>	↓	↓	↓	↓
4			<i>69</i>	↓	↓	↓	↓
5	<i>19-091</i>		<i>70</i>	↓	↓	↓	↓

Use back page for additional units

Total cost (should tie to quote)..... *SEE BACK PAGE*

* If you answered "No" for any ref # above, do upfit parts still need to be purchased?
If yes, how much additional will be spent on upfit parts?

Special instructions or notes: *SEE ATTACHED SPEC, REQUISITION, ETC.*

**INCLUDE/ATTACH VENDOR QUOTE WITH THIS REQUISITION WORKSHEET
QUOTE MUST BE CURRENT AND VALID AT TIME OF SUBMISSION OF THIS WORKSHEET**

SEND THIS WORKSHEET AND QUOTE TO: PWPURCHASING@DENVERGOV.ORG

Save

Print



Additional lines

	Ref #	Reason for replacement	Unit being replaced	Fund	Cost center	Cost (\$)	Includes all upfit parts?*
6	19-092	Planned Maint	BB71	11804	5053400	\$303,125.00	NO
7							
8							
9							
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20							

Total cost (should tie to quote) \$1,820,550.00

Reference Numbers: Original/Revised/2019z

CITY AND COUNTY OF DENVER
 Technical Specifications and Bid Items
 For a
CNG
CNG Recycle/Trash Barrel Loader
 Truck

1.0 General Description

A new current model year heavy-duty automated recycle/trash barrel loader truck. The truck shall be a cab over engine with as low of entry as possible right seated right-hand drive to accommodate as primary use the automated barrel loading of either residential recycle materials or residential trash. The truck shall be powered by a turbo-charged CNG diesel engine, a 66,000 GVWR (plate certified) with 30-yard automated barrel loader body. The truck shall be single right-hand drive with left side passenger seat. Collection operations shall be conducted from the right side seated position. The truck shall be suitable for a minimum of 6 years' service (1,000 pick-ups/day, 5 days/week) by Solid Waste Management in mixed material (paper, cardboard, mixed containers including glass, aluminum and steel containers) automated barrel recycle operations and also in automated barrel loading of residential trash. The trucks recycle/ trash 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 pick up or compaction speed /efficiency. The truck shall be a hydraulic push-out trash eject type, no tip to dump ejection systems. The truck shall be fully equipped and road ready, easily capable of transporting a fully packed minimum 30-yard load over the road into automated recycling systems in recycling stations and, into trash transfer facilities or into landfills.

1.1 Standard Factory Equipment

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

1.2 Government Requirements (where applicable)

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

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

1.3 Workmanship and Durability

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

Reference Nos.:

1

Vendor/Sub Vendor: Rush Truck Center

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/equipment's 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.

1.5 **Major Areas of Concern**

	Description of Concern
A.	Right Side Operator Cab Area to include: <ol style="list-style-type: none"> 1. Steering wheel belly room. 2. Shoulder leg and hip room. 3. Head room' 4. Operator's vision. 5. Floor height and step distances. 6. Ergonomic layout of vehicle and recycle body controls. 7. Ease and speed of operation of collection and packing functions.
B.	Maneuverability: The ability of the truck to effectively, safely and efficiently maneuver in Denver's 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
C.	Ability to efficiently load <ol style="list-style-type: none"> 1. Plastic barrels/carts 2. Loading width for tight alleys 3. Loading height and barre/cart travel to avoid overhead utility lines/wires and private property.
D.	Mirror width for use in narrow and 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.
E.	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 barrel loader body, barrel pick up arm, hydraulic pump, hydraulic motors, hydraulic cylinders and controls. 3. Location of warranty providers.
F.	Service Ability:

	Description of Concern
1	Ability to easily service cab and chassis items that require regular (yearly or less) servicing and maintenance
2	Ability to easily service barrel loader body components/items that require regular (yearly or less) adjusting, servicing and maintenance.

2.0 Build Status of Vehicles:

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

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

1. 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.
2. Placement date of initial order with the cab and chassis manufacture.
3. Cab and chassis manufacturer's date of order acceptance. Written order confirmation is required.
4. Placement date of initial order with the body manufacture.
5. Body manufacturer's date of order acceptance. Written order confirmation is required.
6. Build date for cab and chassis to include start date and completion date.
7. Build date for body to include start date and completion date.
8. Delivery date of the cab and chassis to the sub vendor's body manufacturer.
9. Beginning and completion dates for installation of the body on the cab and chassis.
10. Ship date for the completed vehicle (cab and chassis with body) from sub vendor's body manufacturer to Denver and which location shipped to.
11. Contractor and sub vendors local vehicle preparation time.
12. 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 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
A.	Low floor height cab over engine with, front hinged doors with electric roll up/down windows,	Make: Peterbilt Model: 520	\$ 160,353.00*

*Does not included the Amrep body, Agility tanks or the tank brackets

Reference Nos.:

3

Vendor/Sub Vendor: Rush Truck Center

11/26/18/201

	Description of Equipment	Offered Equipment	Cost
	<ol style="list-style-type: none"> Tandem axle 66,000 lb. GVWR (plate certified), Wheelbase approximate 21523 inches, to accommodate the new exhaust after treatment devices. Effective (clean) cab to axle approximate 215240-inches, After frame 60" and Front tire cut angle 50° Walk-to-Wall turning diameter 81 ft. Both the cab and chassis and body vendors shall verify wheelbase is appropriate for truck and specified body and as short as possible. The right-side 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 ergonomic layout that promotes minimal operator movement, operator comfort and operating efficiency. 	Rating: 66,000 lbs Wheelbase: 215 " C to A: 215 " A F: 65 " Cut Angle: Left _____ ° Right _____ ° Turn Dia. : Left 73.8 ft Right 79.4 ft	
B.	Frame: <ol style="list-style-type: none"> Rating 66,000-lbs. GVWR minimum, 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: 66,000 -lbs Yield Strength: 120,000 psi Section Modulus/rail: 128 in ³ Frame RBM/rail: 2,136,000 lbf-in	\$ inc
C.	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.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ inc
D.	Towing Provisions: <ol style="list-style-type: none"> Tow hooks, two front and two rear, frame mounted. Air brake 3/8" female quick-connect hook up system on right front of the vehicle for wrecker air brake connection. Quick-connectors shall be easily accessible and protected behind the bumper and angled rearward away from the bumper so that hose connection is not difficult. A check valve shall be provided at the vehicles air tank to prevent air loss. 	<input checked="" type="radio"/> Yes <input type="radio"/> No Make: quick-connect Model: 3/8" <input checked="" type="radio"/> Yes <input type="radio"/> No	\$ inc
E.	Keying: <ol style="list-style-type: none"> Keys keyed alike Ignition, Door, (same) and Toolboxes (same). 2 standard sets per vehicle. 		\$ NC

Reference Nos.:

Vendor/Sub Vendor: Rush Truck Center

Description of Equipment	Offered Equipment	Cost
2. Additional 5 key sets	Cost for 5 additional set of keys: \$ <u>n/c</u>	\$ <u>inc</u>
3. If the City has similar make and model trucks in fleet the trucks shall be keyed the same as existing trucks.	Yes No	\$ _____

3.2 Engine or Approved Equal

Description of Equipment	Offered Equipment	Cost
<p>A. Engine:</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>2. The CNG engine shall meet all required EPA on-highway emissions standards Engine: Cummins ISX-11.9 liter, VGT turbocharged diesel engine, rated at 330 hp @ 2,100 rpm, torque 1,360 lb/ft @ 1,200 rpm, 2,100 rpm governed includes:</p> <p>1. Engine shall utilize DEF (diesel exhaust fluid) to meet current EPA regulations and reduce NOx</p> <p>2. Engines shall be electronically controlled with following components:</p> <ul style="list-style-type: none"> a. Engine protection system to monitor low oil pressure, high coolant temperature and low coolant level that will prevent component damage with manual over-ride on truck engine: b. Low oil pressure. c. High oil temperature. d. High coolant temperature. e. Low coolant level. f. High transmission oil temperature. g. Idle shutdown timer. h. Speed limiter top gear and cruise. i. DEF Level <p>3. Computer controlled fast idle and PTO protection.</p> <p>4. Thermos bottle stopper-type dipstick.</p> <p>6. Magnetic drain plug.</p> <p>5. Delco-Remy 22-SI, 16Q-amp alternator.</p> <p>6. Delco-Remy 42 MT, 12v starter with over-crank protection.</p> <p>7. Brass Oil Sample Valve. Titan Labs part #OD1014 (No approved Equal)</p>	<p>Make: Cummins Model: L9N</p> <p>HP: 320 @ 2000 rpm</p> <p>Torque: 1000 @ 1300 rpm</p> <p>Yes No</p> <p>Make: _____ Model: _____</p> <p>HP: _____ @ _____ rpm</p> <p>Torque: _____ @ _____ rpm</p> <p>Yes No Emissions Rating: _____</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Make: PACCAR Model: 160 amp, brushed</p> <p>Make: PACCAR Model: 12 volt</p> <p>Make: Titan Model: OD1014</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Make: _____ Model: _____</p> <p>Make: _____ Model: _____</p>	<p>\$ 23,180</p> <p>inc</p> <p>inc</p> <p>inc</p> <p>\$ _____</p> <p>\$ _____</p>

Reference Nos.:

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11/26/18/201

		Make: _____ Model: _____	\$ _____
B.	Power Take Off (PTO)	Make: Chelsea Model: 890	\$ inc _____
	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.	Location: body builder decision	
	2. PTO control electrically actuated from inside cab.	Yes No Yes No	\$ inc _____ \$ _____

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Reference Nos.:

5

Vendor/Sub Vendor: Rush Truck Center

	Description of Equipment	Offered Equipment	Cost
	3. PTO speed limiter shall be connected to the engine computer not to an external overspeed box (EOS). 4. PTO shall efficiently operate all hydraulic systems at engine "low idle" 750 rpm or less. Increasing engine speed above 800 rpm shall not improve hydraulic operations except when ejecting the trash load.	<input checked="" type="radio"/> Yes <input type="radio"/> No PTO idle rpm: <u>750</u>	\$ <u>inc</u>
C.	Filtration: 1. Oil: Fleetguard LF90093000 full flow/bypass oil filter. 2. Fuel: <u>Fleetguard CNG Spin On: NG5900 and Agility CNG High Pressure: 20103412 Racor-690RP12-fuel/water-separator-with-thermostatically-controlled-fuel-line-heater.</u>	Make: <u>Fleet Guard</u> Model: <u>LF14009</u> Make: <u>DAVCO</u> Model: <u>382</u>	\$ <u>inc</u> \$ <u>inc</u>
D.	Engine Air Intake: 1. The air intake shall be on the far left side of the vehicle at cab height. 2. The air intake shall be positioned so that it cannot draw in exhaust gases. 3. Air filter dual element dry type with air inlet restriction indicator located in cab	<input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No Make: <u>Fleet Guard</u> Model: <u>FLO160619</u>	\$ <u>inc</u>
E.	Exhaust Meeting 2018 EPA Standards: 1. Exhaust discharge shall be on the right side of the vehicle The exhaust after-treatment device shall be horizontally mounted above the engine so as to not obstruct maintenance/repairs underneath the truck. 2. Maximum exhaust system height shall not be higher than the highest point on the body. 3. Horizontal with a vertical chrome stack and stainless-steel exhaust guard that will easily fit up to Denver's exhaust gas evacuation system. 4. Exhaust discharge shall be above roofline and exhaust gases shall not discolor the body or be drawn into the operator's cab. 5. Exhaust "90-degree chrome elbow" directed toward outside of body.	Trap Make: _____ Model: _____ Location: _____ <u>No DEF filter system with the CNG engine</u> <input checked="" type="radio"/> Yes <input type="radio"/> No Exhaust single left hand vertical <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>N/A</u>
F.	CNG Fuel Tank: 1. Fuel Tank: a. Fuel tank shall meet or exceed 1) <u>NGV2 Standards</u> 2) <u>NFPA 52, Title 13CHP and SAE J2343 standards</u> 3) <u>US-DOT/FMVSS304</u>	Size: <u>60 DEG</u> gallons <input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>inc</u>

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<p>the vent line. The vent line shall be ½" diameter minimum.</p>	<p>PRD Pressure Release: _____ psig <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>N/C</p>
<p>2. CNG Pressure Reducing Regulator System:</p>	<p>Tubing Size: _____</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. On the street side forward of the rear axle</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>b. From the CNG fuel tank to the regulator the tubing shall be ½" od x 0.049" wall 300 series stainless steel minimum</p>	<p>Tubing Size: 1/2" x 0.19 Type: SS</p>	
<p>c. The pressure reducing regulator system shall have 2 pressure gauges installed in the system.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>1) High Pressure gauge 0-to-5,000 psi installed on tank side to show tank system pressure.</p>	<p>Pressure Range: 0 to 5,000 psi</p>	
<p>2) Low pressure gauge 0-to-300 psi to show engine down-stream fuel delivery pressure to the engine.</p>	<p>Pressure Range: 0 to 300 psi</p>	
<p>3) Gauges shall be stainless steel glycerin filled</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</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><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>e. Engine coolant flow and CNG fuel supply shall enter the regulator on the same side of the regulator.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>f. Coolant ports shall be oriented vertical (up) in horizontal regulators to prevent air from becoming trapped in the regulator.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>g. The pressure reducing regulator shall not under any circumstance be installed in series with the truck cab heater system.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>5. Automatic Fuel Shut Off:</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</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><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>b. The automatic fuel shut off valve shall have its weight supported by a mounting bracket.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>c. The automatic fuel valve shall have a Cv of 2.0 minimum to assure adequate fuel flow.</p>	<p>Valve Cv: 2.0</p>	
<p>d. The automatic fuel shut off shall be a NC (normally closed) valve when the ignition is in "Off" position.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>6. Fuel Lines:</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>a. All high pressure shall be ½" od x 0.049" wall seamless stainless steel 316L tubing appropriate for the application.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>b. Stainless steel lines shall have thermal expansion/contraction</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	

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<p>loops for smaller diameter lines and S-bend expansion joints for larger diameter lines.</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>d Fitting for the CNG fuel system shall be:</p> <ol style="list-style-type: none"> 1) Stainless steel tube fittings shall be Swagelok or Parker A-lok with thread sealant. 2) Special NPTF pipe fittings shall be stainless steel with thread sealant. <p>e All NPT fitting shall be installed on male pipe threads using proper thread sealants.</p> <ol style="list-style-type: none"> 1) Thread sealant and anti-soize shall be a nickel impregnated or nickel coated Teflon tape. 2) Teflon tape shall start at 2nd thread. 3) On 1/2" and under use 2 wraps of tape 4) On 5/8" to 1" use 3 wraps of tape. 5) Assure last section of tape is pulled down tight against the threads. 6) Do not use sealant on compression threads <p>f Post heat exchanger hoses and lines may be Parker 929 heavy-wall PTFE hose exceeding SAE100R14A or stainless steel tubing.</p>	<p>Make: <u>Swagelok</u> Type: <u>SS</u></p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Make: <u>swagelok</u> Type: <u>SS</u></p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Sealant Type: <u>teflon tape</u></p>	<p>N/C</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> <ol style="list-style-type: none"> 1) Shall be a male NGV1 OPW with rubber protective cover boot 2) Fuel Fill locations (2/vehicle). One at front bumper driver's side and one at tank fill enclosure street side of the vehicle. Both Fuel fill locations require ample clearance for both "Fast Fill" and "Slow Fill" receptacles and hook-up. 3) The fuel filler line shall be plumbed to the CNG tank bank. c The tank fill enclosure shall have: <ol style="list-style-type: none"> 1) A high pressure line/tank pressure gauge 0-to-5,000 psi 2) A low pressure fuel to engine pressure gauge 0-to-300 psi 3) An OPW male NGV1 fuel fill receptacle with easy access and excellent clearance for both "fast fill" and 	<p>Make: <u>Parker</u> Type: _____</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Tubing Size: <u>1/2"</u></p> <p>Make: <u>DPW</u> Model: <u>NGV-1</u></p> <p>Fill Location: <u>SS on curb side</u></p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Pressure Range: 0 to 5,000 psi</p> <p>Pressure Range: 0 to <u>250</u> psi</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	

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10

Vendor/Sub Vendor: Rush Truck Center

<p>"slow fill" receptacles.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>4) An emergency 1/4-turn shut off valve for shutting down the system in case of a fueling emergency.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</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><input checked="" type="radio"/> Yes <input type="radio"/> No</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><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>8. CNG Filtration:</p>	<p>Make: _____ Model: _____</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>Make: _____ Model: _____</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>Fuel Filter Type: _____ Make: _____ Model: _____</p>	
<p>9. Fuel Gauge:</p>	<p>Fuel Filter Type: _____ Make: _____ Model: _____</p>	
<p>a An electric fuel gauge shall be provided with easy to see vehicle dash gauge to show fuel tank volume.</p>	<p>Fuel Gauge Type: <u>analog</u> Make: <u>Pacific insight</u> Model: _____</p>	
<p>b The fuel sender shall be a sealed unit mounted to the high-pressure tank system</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</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><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>d Pins are:</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>1) Red = power</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>2) Green = signal</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>3) Black = ground</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>10. Fuel Management Module</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>a. A fuel management module may be used. It would be mounted on the street side frame rail forward of the drive axle and may be integrated with the LHS fuel system. It will include the following components:</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>1) 0-5000 psi gauge glycerin filled</p>	<p>Make _____ Model _____</p>	
<p>2) 0-300psi gauge glycerin filled</p>	<p>Location: _____</p>	
<p>3) 1/4 turn shut-off valve with permanent label</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>4) Lock off solenoid</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>5) High pressure regulator</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>6) High pressure coalescing filter</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>7) Fuel gauge pressure transducer</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>8) High pressure fuel line bleed tee (for system service vent)</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>9) OD style defueling receptacle</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	

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		<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No	
	1. Fuel tank 80 gallons minimum; 2. The tank shall frame mounted; 3. Fuel tank may be combined with body supplier's hydraulic tank.		
G.	Diesel Enhancement Fluid Tank: 1. Location behind fuel tank 2. Size 6 gallons minimum	Location: _____ DEF Tank Volume: _____ gallons <input type="radio"/> Yes <input type="radio"/> No	\$ _____

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Reference Nos.:

17

Vendor/Sub Vendor: Rush Truck Center

	Description of Equipment	Offered Equipment	Cost
	<p>3. Tank fill opening shall be easily identified as "DEF Fluid Only" and shall not accept the entrance of a standard diesel fuel nozzle.</p>		
H.	<p>Coolant Hoses: 1. Gates Blue Stripe hoses 2. With constant torque hose clamps.</p>	<p>Make: <u>Gates</u> Model: <u>black oil resistant</u> <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ <u>inc</u></p>
I.	<p>Fan: 1. Fan clutch heavy-service-duty with automatic fan control. 2. The fan shall operate off of engine coolant and transmission coolant temperature.</p>	<p>Make: <u>Horton</u> Model: <u>2 speed</u> <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ <u>inc</u></p>
J.	<p>Air System: 1. Air compressor Bendix 18.7-cfm Tu-Flo minimum 2. Air tanks mounted horizontal inside frame. 3. Air drain valves shall be ¼-turn brass with "Flag" style handle and air blast routed away from the person operating the valve. 4. The drain valves shall be installed under battery box, right side <u>left side</u>, in an easy to access and operate position. 5. The valve bracket shall be permanently labeled (engraved): "Drain Air Tanks Daily" ½" font size "Air Valve 1" "Air Valve 2" "Air Valve 3" ¼" font size 6. Air lines shall be color-coded nylon type.</p>	<p>Make: <u>Bendix</u> Model: _____ Capacity: <u>18.7</u> cfm Location: <u>left side engine block</u> <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ <u>inc</u> \$ <u>inc</u></p>
K.	<p>Cold weather starting aids on truck engine. 1. Block heater, Phillips "Zero-Start" 120vAC, 1500 Watt, engine coolant temperature controlled to: a. Turn "on" at 32°F engine coolant temperature. b. Turn "off" at 40°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 next to the driver's door, protected from mechanical and weather damage. Heater plug shall be a male standard grounded 15 amp rated plug. Location to be mutually agreed to at installation. 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).</p>	<p>Make: <u>Phillips</u> Model: <u>zero start</u> On Temperature: <u>40</u> Off Temperature: <u>55</u> <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No Location: <u>under driver door</u> <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No Type: <u>n/a</u></p>	<p>\$ <u>inc</u> \$ <u>inc</u> \$ <u>inc</u> \$ <u>n/a</u></p>

3.3 Transmission and Drivetrain or Approved Equal

	Description of Equipment	Offered Equipment	Cost
A.	<p>Transmission:</p> <p>Transmission shall be an Allison New World HD4560-RDS-P, wide ratio, set up for 6-speeds with the following components:</p> <ol style="list-style-type: none"> Transmission and rear differential gearing shall be optimized for "Best" fuel economy. 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. Transmission interface wiring for Allison MD/HD transmission. Electric push-button transmission controls shall be located on the "dog house" not under the joystick armrest. Location to be mutually agreed upon. TranSynd TES 295 automatic transmission fluid. Allison High-Capacity filters for extended drain interval of 75,000 miles or 36 months. Transmission water-to-oil cooler. Remote mounted transmission filter. Magnetic drain plug. 	<p>Make: <u>Allison</u> Model: <u>4500 RDS-P</u></p> <p>Speeds: <u>6</u></p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ <u>17,813.00</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>
B.	<p>Automatic Work Brake Hold Activated with:</p> <ol style="list-style-type: none"> Service brake automatically applies when the lift arm is activated. Manually very easy to access button or switch. 	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ <u>inc</u></p>
C.	<p>Rear Axles:</p> <ol style="list-style-type: none"> Eaton single reduction, capacity 46,000-lbs. Driver controlled main power divider locking differential. Oil pump. Axle temperature sensor. Axle ratio for approximate 60-mph top speed. Oil seals, Union 76 Triton EP 75W-90 synthetic gear lubricant. Magnetic drain plug. 	<p>Make: <u>DANA-spicer</u> Model: <u>D46-170</u></p> <p>Gear ratio: <u>4.56</u></p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Top Speed: <u>60</u> mph level</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ <u>std</u></p>
D.	<p>Front Axle:</p> <ol style="list-style-type: none"> Eaton, capacity 20,000-lbs. minimum with oil seals and Union 76 Triton EP 75W-90 synthetic gear lubricant. 	<p>Make: <u>DANA-spicer</u> Model: <u>D2000F</u></p> <p>Capacity: <u>20,000</u></p>	<p>\$ <u>std</u></p>
E.	<p>Springs:</p>	<p>Make: <u>Peterbilt</u> Model: <u>tapered leaf</u></p>	<p>\$ <u>std</u></p>

Reference Nos.:

	Description of Equipment	Offered Equipment	Cost
	1. Front leaf with graphite impregnated spring pin bushings. Front: capacity 20,000-lbs. minimum. 2. Rear Hendrickson HMX-460 Haulmax vanate spring system. Rear: capacity 46,000-lbs. minimum.	Capacity: <u>20,000</u> - lbs Make: <u>Hendrickson</u> Model: <u>Haulmax</u> Capacity: <u>46,000</u> - lbs	\$ <u>560</u>
F.	Brakes: 1. Bendix, 17" disc front, model ADB22x extended servicebrakes with non-asbestos brake pads. 2. Bendix, 17" disc rear, model ADB225 extended servicebrakes 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>ADB225</u> Front Chamber: _____ Rear Chamber: _____	\$ <u>std</u>
G.	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>6S/6M</u> <input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No	\$ <u>n/c</u> \$ <u>std</u> \$ <u>std</u> \$ <u>std</u>
H.	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>ADIS EP</u> <input checked="" type="radio"/> Yes No	\$ <u>std</u> \$ <u>std</u>
I.	Driveline: 1. Eaton Permalube type U-joints.	Make: <u>DANA spicer</u> Model: <u>1810</u>	\$ <u>std</u>
J.	Power Steering: 1. TRW with 2-qt. reservoir.	Make: <u>Shepard</u> Model: <u>SD110</u> Reservoir Size: <u>2 quart</u>	\$ <u>inc</u>

3.4 Electrical System or Approved Equal

Reference Nos.:

15

Vendor/Sub Vendor: Rush Truck Center

	Description of Equipment	Offered Equipment	Cost
A.	Alternator: 1. Alternator shall be a heavy duty, internally regulated, output 160-amp minimum.	Make: <u>PACCAR</u> Model: <u>160 AMP</u>	\$ <u>inc</u>
B.	Batteries: 1. Three Group 31 "maintenance free" batteries with a total CCA of 1950 minimum. 2. Battery location frame mounted <u>right/left</u> hand side. 3. Battery shut-off switch easy to see and access 4. Jump start provision easy to access. 5. Battery cables (00) stranded copper minimum. 6. Battery Parallel Charger (PulseTech XC)	Make: <u>PACCAR</u> Model: <u>Premium</u> Quantity: <u>3</u> CCA's: <u>2190</u> Location: <u>left hand back of cab</u> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cable Size: <u>00</u>	\$ <u>inc</u> \$ <u>inc</u> \$ <u>inc</u> \$ <u>inc</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.	Type Protection: <u>circuit breakers</u> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	\$ <u>inc</u>
D.	Wiring: 1. Wiring shall be color coded with hot stamped wire numbers. 2. All wiring shall be run in sealed wiring looms to reduce corrosion from magnesium chloride products	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	\$ <u>inc</u>
E.	Body Builders Junction Box: 1. Body builder's junction box shall be mounted behind the cab 2. Terminal shall be marked for easy identification.	Location: <u>back of cab</u> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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 wheelsplash area.	dBa rating: <u>107</u> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	\$ <u>inc</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.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Type: <u>LED</u>	\$ <u>inc</u>

3.5 **Cooling System or Approved Equal**

	Description of Equipment	Offered Equipment	Cost
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Reference Nos.:

Vendor/Sub Vendor: Rush TruckCenter

11/26/18/201

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.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>std</u>
B.	Coolant protection shall be -34° F.	Protection Level: <u>-39</u> °	\$ <u>std</u>
C.	Fleetguard coolant filter WF2071.	Make: <u>Fleet guard</u> Model: <u>WF2071</u>	\$ <u>std</u>

3.6 Tires and Wheels or Approved Equal

	Description of Equipment	Offered Equipment	Cost
A.	Tires: 1. Tires 315/80R22.5, tubeless, 20-ply, load range L. 2. Front: Bridgestone M860A, Steer Tires. 3. Rear dual: Bridgestone M843 Snow/Aggressive Grip	Make: <u>Bridgestone</u> Model: <u>M860A</u> Make: <u>Bridgestone</u> Model: <u>M843</u>	\$ <u>253</u> \$ <u>602</u>
B.	Wheels: A. Disc, 10-hole, Hub piloted type, Single nut, Meets ISO Standard 4107. B. Aluminum Wheels all Axles C. Front 22.5" x 9". D. Rear 22.5" x 9"	Make: <u>Alcoa</u> Model: <u>22.5x9</u> <input checked="" type="radio"/> Yes <input type="radio"/> No Size: <u>22.5</u> x <u>9</u> Size: <u>22.5</u> x <u>9</u>	\$ <u>inc</u>

3.7 Interior or Approved Equal

	Description of Equipment	Offered Equipment	Cost
A.	Right Side Operating Controls: 1. Vehicle operation shall be only from right side of vehicle. 2. Right side driver's controls shall be ergonomically laid out for maximum driver efficiency in operating the automated collection body in either recycle material of residential trash pick up. 3. Since the vehicle will be used in automated recycle and residential trash collection with a "operate at idle" hydraulic system and an 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 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.	Location: <u>Right hand drive</u> <input checked="" type="radio"/> Yes <input type="radio"/> No Shifter Obstructed: <u>Yes</u> <u>No</u> Shifter Location: <u>left hand dog house</u> Joystick Location: <u>body manufacture</u> <input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>715</u> \$ <u>inc</u> \$ <u>inc</u>

	Description of Equipment	Offered Equipment Yes No _____	Cost inc
B.	<p>b. Left and right doors shall have electric full roll up/down windows.</p> <p>Driver Viewing Environment/Area:</p> <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> a. 5th % male height 1554 mm or 61.18" b. 50th % male height 1668 mm or 65.67" c. 95th % male height 1783 mm or 70.20" 4. Drawings shall be on 11" x 17" paper ("B" size drawing paper) for easier reading. 5. Good operator exterior visibility is a major safety concern and increasing operator viewing area and eliminating "blind spots" is beneficial to the City 	<p>Drawings Provided: Yes No</p> <p>Paper Size: _____ " X _____ "</p>	<p>\$ inc</p>
C.	<p>Required Submittals with Bid:</p> <ol style="list-style-type: none"> 1. Requested information must be submitted with bid for evaluation. Failure to submit the requested information may make bid non-responsive. 2. Vendor shall provide with bid, drawings with dimensions and photographs of the proposed cab interior for review. 3. Interior dimensions measured: <ol 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: 4. Location of transmission shifter: should not be obstructed by automated barrel loader's joystick. 	<p>Provide Materials: _____</p> <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>15</u>" 2nd Step: <u>26 1/2</u>" Tilt: <u>5</u>° Telescoping distance: <u>0</u>" Yes No</p>	

Reference Nos.:

Vendor/Sub Vendor: Rush Truck Center

	Description of Equipment	Offered Equipment	Cost
D.	Engine Cover "Doghouse" 1. The engine cover "doghouse" shall be recessed to accommodate the ergonomic positioning of the automated barrel loader controls. 2. The vehicle manufacturer shall work with the body supplier to assure that the controls are the most ergonomic possible to assure operator comfort and reduce repetitive motion injuries. 3. The transmission shifter shall not be obstructed by the automated barrel loader joystick. The transmission shifter should be located in a location convenient to the operator but not directly adjacent to the driver's side. Since the vehicle has "operate at idle" hydraulic system the transmission does not require shifting into and out of "neutral" at each stop. 4. The City has operators of varying statures and adjustable controls will minimize on-the-job related physical problems. 5. The City, body vendor and the vehicle supplier shall mutually determine control locations after Contract award.	<input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No	\$ <u>std</u>
E.	Upfitter's Switch Panel: 1. The vehicle manufacturer shall provide for the automated 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.	<input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No	\$ <u>inc</u>
F.	Seats: 1. Driver's right seat shall be air suspension Bostrom, high back driver's seat, gray vinyl with cloth insert and armrests. 2. Left side 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>high back</u> Make: <u>Peterbilt</u> Model: <u>low back</u>	\$ <u>128</u> \$ <u>inc</u>
G.	Instrumentation: 1. Instrumentation shall include speedometer, engine hour meter, tachometer, voltmeter, coolant temperature, oil temperature, oil pressure, fuel level and air pressure with low-pressure alarms (light, audible).	<input checked="" type="radio"/> Yes No	\$ <u>inc</u>
H.	Floor Covering: 1. Floor covering shall be heavy-duty black rubber/vinyl flooring.	<input checked="" type="radio"/> Yes No	\$ <u>inc</u>

	Description of Equipment	Offered Equipment	Cost
I.	Steering: 1. Steering tilt and telescoping easy to adjust, to accommodate operators with large variations in sizes. 2. Steering tilt easy to adjust 3. Telescoping easy to adjust	Tilt: <input checked="" type="radio"/> Yes <input type="radio"/> No Telescoping: <input checked="" type="radio"/> Yes <input type="radio"/> No Steering: <input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>inc</u> \$ <u>inc</u> \$ <u>n/a</u>
J.	Air Conditioning: 1. Factory installed cab R134A air conditioning 2. Cab shall be insulated to include floor, firewall, roof and walls.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>inc</u>
K.	Radio: 1. Radio AM/FM stereo with two speakers.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>inc</u>
L.	Fire Extinguisher: 1. Extinguisher ABC, 5-lb. dry type rechargeable 2. Heavy Duty Mount installed on the refuse body (front), driver's side 3. Location labeled with 1" letters on outside of the cab.	Type: <u>ABC powder</u> Location: <u>right rear fender</u>	\$ <u>inc</u>
M.	Grab Handles: 1. One each on exterior of cab for operator and passenger assist and one interior for passenger. 2. Grab handles shall provide adequate clearance to other objects to provide easy access and clearance to prevent pinch or other hazards.	<input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>inc</u>

3.8 Exterior or Approved Equal:

	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>inc</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> <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No Step Height: <u>15</u> in	\$ <u>std</u>
C.	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</u> Reinforced on outside corners: <input checked="" type="radio"/> Yes <input type="radio"/> No Bumper Finish: <u>chrome</u>	\$ <u>295</u> \$ <u>n/a</u>
D.	Engine Accessibility:		

11/26/18/201

	<ol style="list-style-type: none"> 1. Engine fully accessible and serviceable. 2. Cab shall tilt forward for access 3. Tilt shall be by easily operated momentary switch and 12v DC electric pump located on right side of vehicle. 	<p>Yes No</p>	\$ 950
E.	<p>Splash/Spray Suppression:</p> <ol style="list-style-type: none"> 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. 	<p>Brand: <u>Fleet Pride</u> P/N: <u>997-70144</u></p> <p>Yes No</p>	\$ <u>std</u>
F.	<p>Paint:</p> <ol style="list-style-type: none"> 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. 	<p>Make: <u>Axalta</u> Type: <u>2 stage</u></p> <p>Color: <u>white</u></p> <p>Yes No Yes No Yes No Yes No</p>	\$ <u>std</u>
G.	<p>Mirrors: "No Approved Equal"</p> <ol style="list-style-type: none"> 1. Rear view mirrors to be <u>Moto Mirror model 7-5400 "Flat Black Tradijional" 7x16 motor head, remote, heated, stainless steel left and right mounted on the cab. Velvac, V-Max, Dual Pane with Top Hat (Chrome), RS part # 7-17464, LS part # 7-17465, remote operated, heated, left and right mounted on the door.</u> 2. Overall cab width including mirrors 112" maximum. 	<p>Overall mirror full extended width: <u>102</u> inches</p> <p>Overall mirror width with left side mirror folded in: <u>96</u> inches</p> <p>includes 8" heated spot mirrors L&R</p> <p>Make: <u>Moto Mirror</u> Model: <u>dual plane mirrors</u></p>	<p>\$ <u>inc</u></p> <p>\$ <u>inc</u></p>

VEHICLE SUB TOTAL COST \$ _____

4.0 Dealer Provided Optional Equipment

4.1 Electrical Systems:

A. All non-factory wire connections (splices, connectors, etc.) shall be soldered and shrink tube insulated with adhesive/meltable sealant, thick wall polyolefin shrink tubing (3M EPS-300 or equal). No non-factory crimp connections allowed. No cutting or splicing into the factory wiring harnesses allowed.

Reference Nos.:

Vendor/Sub Vendor: Rush Truck Center

- 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 terminats and connections to reduce corrosion.

4.2 Fasteners:

- A. Grade 5 (SAE or USS) or 8.8 (metric) minimum, bolts, nuts, washers minimum. Vendor shall use Grade 8 or 10.9 for all critical areas or where good engineering practice suggests.
- B. All fasteners shall be zinc plated to prevent corrosion.
- C. Anti-Seize: all fasteners shall have Fel Pro C5A Anti-Seize compound applied before assembly to prevent corrosion, rusting, galling and aid in equipment servicing and repair.
- D. All fasteners shall be of appropriate length, diameter and strength (grade) for the application.
- E. Bolts and screws shall extend a minimum of 1-1/2 threads beyond the nut and maximum of 6 threads past the nut.
- F. Flat washers shall be used under bolt heads and nuts.
- G. Lock nuts (nylon insert, metal, slotted, castle nuts) shall be used lock-washers are not acceptable.

4.3 Hydraulic Systems:

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

	Description of Equipment	Offered Equipment	Cost
	many side and overhead obstructions or approved equal, installed with the following equipment:	Trash expulsion Method: <u>full push out</u> <u>No kick out can lift</u>	inc
C.	Vendors shall within 45 days of contract award submit drawings to the City showing that the truck will have no interference problems associated with the placement of all major components to include but not be limited to: System, body lift cylinders, front/rear bumpers, air filter, exhaust system, air dryer, air tanks, fuel tank, battery box, daily fluid checks/fills, hopper, hopper cover, tailgate drip pan, elevator, carriage, hydraulic tank, hydraulic valves, steps/ladders, electrical junction box, access doors, tool holders etc.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
D.	<p>The compactor body shall be:</p> <ol style="list-style-type: none"> 1. Capacity, 27.5 cu yds excluding loading hopper, approximate 2. Body design, rounded rectangular shape curved sides mounted length wise on the truck chassis setup for right side barrel loading. 3. Hopper floor shall be level with the main body floor to allow full ejection of all materials. 4. Material: <ol style="list-style-type: none"> a. Body Dimensions, <ol style="list-style-type: none"> 1) Hopper capacity, 5 cubic yards, approximate 2) Maximum width of the body and pick up arm in down pick up position shall not exceed 102" width. No portion of the arm in down pick up position shall stick out past the truck or trash body. The pick up arm shall be "zero grab" capable, pick up barrels at the side of the truck without extending the pick up arm. 3) Length of body, hopper and arm, 267", approximate 4) Body height above ground, 12' 6" maximum 5) Height lift arm dump 30-90-gal. above ground, shall not exceed 14'-0" or 168". 6) Lift arm reach, 0" to 109" (9'-1") full extension to center of barrel. 7) The grabber shall grip containers at a height of 24" from bottom of the barrel b. Body Materials (minimum requirements) <ol style="list-style-type: none"> 1) Hopper Floor: 1/4" Hardox 450 steel 145,000 psi yield. 2) Hopper Sidewall: 4 mm Hardox 450 steel 145,000 psi yield. 	<p>Accurate Data Must Be Provided</p> <p>Body Capacity: <u>29.5</u> yds³ Body Shape: <u>rounded rectangular</u></p> <hr/> <p>Level Floor: <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Hopper Capacity: <u>5.5</u> yds³ Body Width: <u>102</u> in Total Width in Down Pick Up Position: <u>102</u>"</p> <p>Body Length: <u>276</u> in Body Height: <u>146</u> in Max 90 gallon barrel dump height: <u>168</u> in</p> <p>Maximum arm reach: <u>109</u> in</p> <p>Grab Height: <u>12-21</u> in</p> <p>Steel Specs: Steel Type: <u>Hardox AR450</u> Thickness: <u>1/4"</u> Yield: <u>145,000</u> psi Steel Type: <u>Hardox AR450</u> Thickness: <u>4mm</u> Yield: <u></u> psi</p>	

11/26/18/201

Description of Equipment	Offered Equipment	Cost
<p>3) Body Floor: 3/16" Hardox 450 steel 145,000 psi yield.</p> <p>4) Body Sidewalls: 1/8" Hardox 450 steel 145,000 psi yield.</p> <p>5) Body Roof: 1/8" Hardox 450 steel 145,000 psi yield.</p> <p>6) Tailgate: 1/8" Hardox 450 steel 145,000 psi yield...</p> <p>7) Body Posts: 2" x 2" x 1/4" formed steel, 2 required, 1 at front of the body/hopper and 1 at rear of body/door</p> <p>8) Longitudinal Member: 8" x 2" x 0.180" wall structural steel tube, 2 required, 1 each on lower side of body extending from front to rear body posts</p> <p>9) Cross Members: 5 required minimum a. 2 members: 6" x 2" x 3/16", b. 1 member: 8" x 2" x 3/16" c. 2 members: 2" x 2" x 3/16" d. Cross members shall be on lower side of body extending from front to rear body posts and full body width e. Cross members shall be fully and continuously welded to the hopper and body floors</p> <p>10) The body design and construction shall ensure that "No" body or component distortion occurs when the body is repeatedly packed at full rated capacity.</p>	<p>Steel Type: <u>Hardox AR450</u> Thickness: <u>3/16"</u> Steel Type: <u>Hardox AR450</u> Thickness: <u>1/8"</u> Yield: <u>145,000</u> psi Steel Type: <u>Hardox AR450</u> Thickness: <u>1/8"</u> Yield: <u>145,000</u> psi Steel Type: <u>Hardox AR450</u> Thickness: <u>1/8"</u> Yield: <u>145,000</u> psi Steel Type: <u>formed</u> Thickness: <u>1/4"</u> Yield: <u>80,000</u> psi</p> <p>Steel Type: <u>structural tubing</u> Thickness: <u>1/4"</u> Yield: <u>58,000</u> psi</p> <p>Steel Type: <u>structural tubing A500 grade B</u> Size: <u>6"</u> x <u>2"</u> x <u>3/16"</u> Size: <u>8"</u> x <u>2"</u> x <u>3/16"</u> Size: <u>2"</u> x <u>2"</u> x <u>3/16"</u> <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>E. Hopper:</p> <p>1. The hopper capacity shall be approximately 5 yds³</p> <p>2. Hopper floor shall be flat</p> <p>3. The hopper floor rear section (entrance into body) shall extend out into the main body approximately 18" past the vertical front wall to provide additional wear resistance.</p> <p>4. Hopper Sump:</p> <p>a. The hopper on its front side shall have a transverse sump to allow cleaning out of debris that accumulates behind the packer blade and collect liquids.</p> <p>b. Clean-out doors on both sides of the body</p> <p>c. Hopper sump doors shall be approximately 14" x 13"</p>	<p>Hopper Capacity: <u>5.5</u> yds³ <input checked="" type="radio"/> Yes <input type="radio"/> No Floor Distance into Body: <u>24</u> in trash does not hit the floor-packer blade top extending 24" into packer</p> <p>Sump Size: <u>10"</u> x <u>36"</u> Sump Volume: <u>16</u> gallons <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ <u>inc</u></p>

Reference Nos.:

25

Vendor/Sub Vendor: Rush Truck Center

11/26/18/201

	Description of Equipment	Offered Equipment	Cost
	d. Hopper sump door hinges shall be hinged and corrosion resistant e. Doors shall be sealed to prevent liquids from leaking. f. The door latches shall be easy and quick to operate. g. A clean out tool with easy to use and access storage brackets shall be provided. Exact location shall be mutually determined at installation	Clean Out Door Size: <u>10"</u> x <u>36"</u> <input checked="" type="radio"/> Yes <input type="radio"/> No Material: <u>12GA-mild steel</u> <input checked="" type="radio"/> Yes <input type="radio"/> No Latch Type: <u>over center 2 rubber tension straps</u> <input checked="" type="radio"/> Yes <input type="radio"/> No	
F.	Hopper Cover: 1. A hopper cover shall be provided that seals the hopper/body area and prevents loose material from being sucked out of the hopper/body when the trash truck is traveling along roads at City or highway speeds. 2. The hopper shall hydraulically fold out of the hopper-front wall to seal the hopper area. 3. The hopper cover shall be metal and the cover needs to be easy to change out/repair in case of damage 4. When the hopper cover is in the down/hopper covered position the loading functions shall be disabled to prevent dumping on top of the hopper cover.	<input checked="" type="radio"/> Yes <input type="radio"/> No Describe Function: <u>folds out of hopper front wall</u> Material: <u>12.GA steel skin over steel frame</u> <input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u> </u> inc <u> </u>
G.	Packing and Ejection Mechanism: 1. Packer plate shall be actuated by horizontally opposed and crossed telescopic hydraulic cylinders. 2. Pack panel shall have an auto-pack that is actuated with a completed cycle of the pick up arm. 3. The auto-pack shall be able to be easily set on the main control panel for: a. Pack every pick up cycle b. Pack every 3rd pick up cycle 4. A container dump lock out shall prevent dumping behind the packer plate. 5. The pack panel shall: a. The packer panel face and top surface shall be ¼" AR400 minimum for wear resistance. b. The packing panel shall exert 70,000-lb force minimum across its entire face to highly compact the load. c. For packing the panel shall travel into the main body a sufficient distance for proper packing and to prevent trash fall-back into the hopper. 6. Packer panel follower plate shall be:	<input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No Switch Location: <u>main control panel</u> <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes follower panel with rubber scraper Material: <u>Hardox AR400</u> Thickness: <u>1/4"</u> Packing Force: <u>70,000</u> lbs/in ² Pack Distance into the Hopper: <u>24</u> in	

Reference Nos.:

Vendor/Sub Vendor: Rush Truck Center

	Description of Equipment	Offered Equipment	Cost
	<p>a. Multi-piece folding design that retracts/stores inside the hopper on the front wall of the hopper.</p> <p>b. The follower plate shall utilize heavy-duty greaseless piano type hinges between the follower plates</p> <p>c. Constructed with a steel frame, 10-gauge steel, 50,000 psi yield minimum.</p> <p>d. The cover sheet shall be 10-gauge steel, 50,000 psi yield minimum and easy to replace when damaged.</p> <p>e. The follower panel plates shall run inside wall mounted tracks and a center support using permanently lubricated rollers for reduced maintenance.</p> <p>f. The packer follower plate shall have a protective shield that will keep trash from bypassing between the packer panel and the follower plate, get in front of the pack panel where the compaction cylinders are housed.</p> <p>7. Hydraulic cylinders that are in a location where they can be in contact with the trash or are subject to mechanical damage shall have nitrated piston rods with a positive-contact M2 tool steel scraper blade to shave off burrs, trash and other materials that could damage the cylinder seals, packing or other cylinder components, or "approved equal design"</p> <p>8. Cylinders shall be single stage, with packing force as follows: 1st stage: 70,000 lbs minimum.</p> <p>9. Packing mechanism shall be designed so that no contact to the tailgate can occur during loading or ejecting of refuse.</p> <p>10. The packing panel shall be reinforced with formed cross members so no distortion occurs during operation.</p> <p>11. Packer Panel Track:</p> <p>a. The pack panel shall ride on 1/4" AR500 abrasion resistance steel for wear resistance from constant packing.</p> <p>b. The wear strips shall be easily replaceable.</p>	<p>Number of Panels: <u>2</u></p> <p>Storage Location: <u>inside hopper</u></p> <p>Hinge Type: <u>piano type</u></p> <p>Lubrication Required: Yes No</p> <p>Thickness: <u>3/8"</u> Yield: <u>50,000 PSI</u> reinforced steel plate-no frame required</p> <p>Thickness: <u>3/8"</u> Yield: <u>50,000 PSI</u></p> <p>How Fastened: <u>studs in blade, plate bolted down</u></p> <p>Roller Type: <u>steel</u> Roller Number: <u>2</u></p> <p>Size: <u>2"</u> dia x <u>6"</u> w 1.25" d x 5" w</p> <p>Permanently Lubricated: Yes No</p> <p>Yes No</p> <p>Shield Material: <u>rubber wiper</u></p> <p>Make: <u>Amrep</u> Model: <u>509-2362</u></p> <p>Cylinder Warranty: <u>2 year/based on approval from Amrep</u></p> <p>Rod Material: <u>chrome plated steel rod</u></p> <p>Scraper Blade Material: <u>dual floating bronze</u></p> <p>Force: <u>70,000</u> psi-lb force @ <u>2,000</u> psi</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Material: <u>AR500</u> Thickness: <u>1/4" top</u></p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>How Replaced: <u>torch and weld</u></p>	
H.	<p>Compacted Trash Ejection System:</p> <p>1. Load ejection shall be a combination of the packer panel and the ejection panel working together in an efficient manner to fully eject the load to include:</p> <p>a. Truck engine increases rpm to approximately 1,200 rpm for ejection cycle only.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Describe Ejection Cycle: <u>2 sweeps of packer panel and 3 sweeps of ejection minimal</u></p> <p>Truck Engine Speed @ Ejection: <u>1,200</u> rpm</p>	

11/26/201

Description of Equipment	Offered Equipment	Cost
<p>b. The packer panel cycling thru 2 full pack cycles and stopping in the full rear position to help block compacted trash from falling back into the hopper.</p> <p>c. The ejection panel traveling rearward approximately 1/3 of body distance to make partial load ejection.</p> <p>d. Truck pulls forward sufficient distance to provide a clear dump area behind the truck for a second ejection push.</p> <p>e. The ejection panel traveling approximately 2/3 of body distance to make a 2nd partial load ejection.</p> <p>f. Truck pulls forward sufficient distance to provide a clear dump area behind the truck for a second ejection push.</p> <p>g. The ejection panel traveling full body length to make final and complete load ejection.</p> <p>h. Ejection panel and packer panel retract to home or ready to use position</p> <p>2. Ejection cylinders shall have three stages, with packing force as follows:</p> <p>a. 1st stage: 119,000 lbs.</p> <p>b. 2nd stage: 97,000 lbs.</p> <p>c. 3rd stage: 76,000 lbs.</p>	<p>1st Stage Force: <u>47,492</u> psi-lb force @ <u>1,800</u> psi</p> <p>2nd Stage Force: <u>31,792</u> psi-lb force @ <u>1,800</u> psi</p> <p>3rd Stage Force: <u>19,232</u> psi-lb force @ <u>1,800</u> psi</p>	
<p>I. Tailgate:</p> <p>1. Operation, lock/unlock, raise and lowered using two hydraulic cylinders, minimum. In open position, tailgate maximum height not to be greater than 19'11". License plate mounted on tailgate</p> <p>2. Hydraulic operated locks :</p> <p>a. Locks at 9 tailgate point's minimum shall secure tailgate door lock.</p> <p>b. Outside of body tailgate locks: 2 required</p> <p>c. Inside body side locks 4 required, 2 per side</p> <p>d. Bottom tailgate locks 3 required</p> <p>e. Locks shall automatically actuate when rear door lift cylinders are actuated.</p> <p>3. Tailgate shall be strong enough not to deform or crack during use.</p> <p>4. Tailgate shall have an easy to replace one-piece rubber gasket. The gasket shall extend across the entire bottom and up the sides a minimum of 24".</p> <p>5. Tailgate trough/catch basin shall be provided to catch liquid leakage.</p>	<p><input checked="" type="radio"/> Yes No</p> <p><input checked="" type="radio"/> Yes No</p> <p><input checked="" type="radio"/> Yes No</p> <p><input checked="" type="radio"/> Yes No</p> <p><input checked="" type="radio"/> yes drip catch standard</p>	

11/2618/201

	Description of Equipment	Offered Equipment	Cost
	<ul style="list-style-type: none"> a. The trough shall self empty when the tailgate is raised for load ejection. b. A 2" NPT dia bung shall be provided for draining liquids without raising the tailgate. 6. Tailgate unlatched alarm; light/buzzer shall indicate when door is unlatched. 7. Tailgate safety prop rods shall be provided to hold the tailgate manually open. 8. Tailgate hydraulic lines shall have restrictors to prevent sudden tailgate descent. 9. Underride protection, shall be bolt on type, DOT approved. 10. All tailgate hinge points shall be easily greaseable from the ground. 11. Center mounted Truck Lite LED brake light shall 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 sides shall be <ul style="list-style-type: none"> a. Whelen IONSMC -Wide Angle LED color (Amber) safety lights (4 required). b. The lights shall be located 1/3rd and 2/3rd up the tailgate just inside the outer edge of the tailgate on each side 	<p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Make: <u>Truck Lite</u> Model: <u>91 (7" LED)</u></p> <p>Make: <u>Whelen</u> Model: <u>L360</u></p> <p>Make: <u>Whelen</u> Model: <u>IONSMC-LED</u></p> <p>Location: <u>Outer edge, side TG 1/3 & 2/3 up side of TG</u></p>	
J.	<p>Container Loading System:</p> <ul style="list-style-type: none"> 1. Orientation, right or curb side of body. 2. Loading arm system shall consist primarily of an extension/retraction arm, a container gripping system and a tracked lift/lower and dump track system or an approved equal with zero (negligible) barrel kick out. The truck will pick up in very narrow alleys with close obstructions on sides and overhead. 3. A drawing showing the full sweep arc for a 90-gallon plastic barrel shall accompany the bid. The drawing shall show the sweep of all corners of the plastic barrel. Failure to provide an adequate drawing may make the bid non-responsive 4. Performance: <ul style="list-style-type: none"> a. Cycle time <ul style="list-style-type: none"> 1) Retracted zero reach: 8 to 10 seconds, from pick-up through raise, dump, lower, and release. 2) Full 84" reach: 15 seconds, from pick-up through raise, dump, lower, and release. 	<p>Orientation Side: <u>curb side</u></p> <p>Yes No</p> <p>Retracted Cycle Time: <u>8-10</u> seconds</p> <p>Full Reach Cycle Time: <u>8-15</u> seconds</p>	<p>\$ <u>inc</u></p> <p>\$ <u>inc</u></p>

Reference Nos.:

Vendor/Sub Vendor: Rush Truck Center

11/26/2018

Description of Equipment	Offered Equipment	Cost
<p>b. Container grippers shall pick up all City used 32, 60, standard City 95 –gallon and 110-gallon plastic containers with a 36" clearance circle around the container.</p> <p>c. The container dump movement shall keep the trash barrel essentially level with no bottom end of container kick out that could damage adjacent property (zero clearance). The truck will pick up in very narrow alleys with close obstructions on sides and overhead</p> <p>d. The pick up arm shall be "zero grab" capable, pick up barrels at the side of the truck without extending the pick up arm.</p> <p>e. Hydraulic inhibitor shall prevent dumping on top of the hopper cover.</p> <p>5. Lift/Lower system shall:</p> <p>a. Track system for vertical lift of containers or approved equal design.</p> <p>b. Hydraulic Lift System/Cart assembly is to be driven by a chain connected to hydraulic cylinders on the rear side of the elevator ramp. Lifting/Loading mechanism must not require adjustment.</p> <p>c. Lifting capacity, 750 lbs (constant through lifts) at full extension.</p> <p>d. Barrel lift system shall have a brake system capable of stopping a full load (750 lbs) in any part of the lift/dump cycle and holding the weight without any settling.</p> <p>6. Loader arm shall pick up, dump, and return to ground 32, 60, standard City 95 –gallon and 110-gallon plastic containers. Operation shall be performed without the operator leaving the cab.</p> <p>7. Loader Arm Construction:</p> <p>a. The loader arm to vertical mast shall be fully welded on all sides with chamfered weld joints to assure full and deep penetration at all joints.</p> <p>b. The connection between the slide-out roller tube and mast shall have all heavy-duty bearing attachment points heavily braced/reinforced to prevent cracking/failure due to flexure.</p> <p>c. Loader arm to be constructed of a one piece 112"x8"x20" "C" channel.</p> <p>8. Loader arm shall be actuated by 8 hydraulic cylinders</p> <p>a. Cart Dump cylinder (2ea) – 3" bore x 1.25" rod x 10" stroke</p> <p>b. Cart Lift/Lower cylinders (2ea) 2.5" bore x 1.25" rod x 24" stroke</p> <p>c. Cart Leveling Cylinders (2ea) – 4.5" bore x 4" stroke x 1.25" rod</p>	<p>Container Sizes Grippers will safely and efficiently</p> <p>Clear Radius Required: <u>36</u> inches</p> <p>Kick Out: <u>zero</u> inches</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Yes <input checked="" type="radio"/> No</p> <p>Lifting Capacity: <u>750</u> lbs</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Extension Distance: <u>84</u> inches</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</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>

Reference Nos.:

Vendor/Sub Vendor: Rush Truck Center

	Description of Equipment	Offered Equipment	Cost
	d. Carriage ext/retract cylinder (1ea) - 2" bore x 1.25 rod x52" stroke	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>n/a</u>
	e. Barrel Grabber Cylinder (1ea) 2.5 bore x 1.25" rod x 5" stroke	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>n/a</u>
	f. Loader arm shall incorporate an interlock to prevent dumping outside of the hopper or releasing the container.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>n/a</u>
	g. The arm when fully retracted shall have a pneumatic lock that holds the arm docked preventing inadvertent drift out of the arm with PTO "ON" or "Off"	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>n/a</u>
	9. Loader arm shall have a spill shield to direct container spillage into the hopper and not on to the ground during dumping.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>n/a</u>
	10. Loader arm in-and-out travel shall be roller mounted.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>n/a</u>
	a. Rollers shall travel on hardened steel wear strips and be mounted on eccentric mounts for wear adjustment. Wear adjustment shall be easy and quick to accomplish.	<input type="radio"/> Yes <input checked="" type="radio"/> No no adjustment	\$ <u>n/a</u>
	b. The loader arm support rollers shall be 1-piece full width to fully support the loader arm on its outer perpendicular walls and prevent tube crushing and adjustment problems.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>n/a</u>
	c. Bearing adjustment shall be locked with castle nuts and cotter keys.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>n/a</u>
	d. Rollers shall be permanently lubricated.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>n/a</u>
	11. Lift arm manifold for hand/manual lubrication system shall be provided. The system shall be easy to access from the ground.		
K.	Gripper Mechanism:		
	1. The container gripper shall have an adjustable hydraulic circuit limiting the radial force applied to the container.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
	2. The grippers in down ready fully retracted ready position shall not increase the overall truck with past the 102" wide limit	Truck Width Grippers @ Ready: <u>102</u> inches	
	3. Gripper shall be a heavy-duty high-friction rubber contact point that will not damage containers.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
	4. The grippers design shall be radiused (rounder) to match the City's barrel radius have zero finger overlap for increased loading clearance to reduce damage to City trash, recycle barrels and property	<input checked="" type="radio"/> Yes <input type="radio"/> No	
	5. Self-leveling to keep containers level through complete travel of the outer boom.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
	6. The standard grippers shall be provided and capable of handling the City's round 32, 60 and standard City 95-gallon and 110-gallon containers.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
		Barrel Grip Height: <u>10-21</u> inches	

11/26/201

	Description of Equipment	Offered Equipment	Cost
	7. Grippers shall grip the container at approximately 24" above the bottom of the barrel 8. The grippers shall rotate on tapered roller bearings. 9. Grippers shall not release the container during the dumping process and re-grip at the beginning of the dump process 10. Gripper Mechanism hydraulic hoses that protrude outside of Gripper Mechanism must be shielded from damage.	<input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No	
L.	Service Hoist System: 1. The service hoist lift system shall provide excellent access to truck components located under the trash body 2. The service hoist system shall lift the front of the body up above the truck frame rail approximately 36" minimum for access 3. The hoist system shall be powered by a 12vDC hydraulic pump with sufficient power to raise a fully loaded trash body. 4. The system shall use hydraulic oil from the main hydraulic oil tank. 5. A trash body anti-lowering safety pins or legs shall be provided: a. The pin/legs shall lock the trash body preventing lowering of the body. b. The pin/legs shall be sufficient to support 3X's the fully loaded weight of the body incase truck maintenance is required and the trash load cannot be ejected c. Pin storage in a sleeve, that the pin cannot fall/vibrate etc. out of shall be provided. d. The pin shall be attached to the hoist/trash body/chassis with chain/cable to prevent loss. e. Safety legs shall rest in a saddle to prevent bouncing around.	<input checked="" type="radio"/> Yes No Lift Height @ front: <u>36</u> inches <input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No legs <input checked="" type="radio"/> Yes No Safety Factor: <u>3x.s</u>	\$ <u>n/a</u> \$ <u>n/a</u>
M.	Hydraulic system: Operate at Standard Low Idle. 1. Hydraulic pumps 2 required (body, arm) PTO "hot shift" drivethru a Chelsea 890 series direct drive off the transmission, 8 o'clock position. The gear pumps 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. Hydraulic components shall be warranted in Denver CO by a local Denver Parker representative. 3. Hydraulic system shall operate all hydraulic functions except load ejection at engine low idle speed (800 rpm) and shall not require	Number of Pumps: <u>2</u> Transmission Direct Drive: <input checked="" type="radio"/> Yes No Make: <u>Chelsea</u> Model: <u>890</u> Oil Bypass: <input checked="" type="radio"/> Yes No Parker Hannifin Corp. Certification and 3-Year Warranty shall be provided with bid. No certification or warranty info may make bid non-compliant Local Denver Parker Warranty <input checked="" type="radio"/> Yes No Local Parker Warranty Vendor: <u>750</u> Pump Operating Speed: _____ rpm Pump Output: <u>20-29</u> gpm @ <u>750</u> rpm	\$ <u>n/a</u> \$ <u>n/a</u> \$ <u>n/a</u> \$ <u>n/a</u> \$ <u>n/a</u> \$ <u>n/a</u>

Reference Nos.:

Vendor/Sub Vendor: Rush Truck Center

Description of Equipment	Offered Equipment	Cost										
<p>shifting transmission out of "Drive" gear or applying "Parking" brake. Increasing engine speed shall not increase system speed or pressures. For ejecting the trash load the engine rpm may increase to 1,200 rpm, (ejection function only not load packing)</p> <p>4. The hydraulic gear pump circuits shall be split into 2 separate hydraulic circuits with independent valve bodies (no cross feed).</p> <p>a. Larger gear pump circuit shall control the pack and ejection circuit</p> <p>b. Small gear pump circuit shall control the arm circuits</p> <p>5. Operating pressure,</p> <p>a. Body: 2,500 psig maximum.</p> <p>b. Grabber arm: 2,500 psig maximum</p> <p>6. Hydraulic valves shall have LED lights on valve coils to aid in troubleshooting the system.</p> <p>7. Hydraulic Cylinders shall:</p> <p>a. Be properly sized to efficiently and continuously perform their function without any cylinder degradation.</p> <p>b. The trash ejection cylinders, tailgate cylinders and any other cylinders that are in a location where they can be in contact with the trash or are subject to mechanical damage shall have nitrated piston rods with a positive-contact M2 tool steel scraper blade to shave off burrs, trash and other materials that could damage the cylinder seals, packing or other cylinder components.</p> <p>8. Hydraulic reservoir located on left side front body in front of tires</p> <p>9. Hydraulic Reservoir:</p> <p>a. Capacity 55-gallons minimum.</p> <p>b. Oil level and temperature gauge,</p> <p>c. Suction and pressure shut-off valves very easy to access and operate.</p> <p>d. Magnetic drain plug.</p> <p>e. Bung for Future Hydraulic Oil Pre-heater System</p> <p>1) Possible future installation bung for an Arctic Fox Hydra Liner H-4000 hydraulic fluid warmer.</p> <p>2) Tank bung shall be schedule 80 2" NPT female thread coupling.</p> <p>3) Bung shall be welded to 0.250" thick 8" dia steel tank reinforcing ring.</p>	<p>Does System Require Higher Ejection rpm <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Maximum Flow Rate: <u>29</u> gpm Maximum Flow Rate: <u>20</u> gpm <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Hydraulic Operating Pressure: <u>1,800</u> psig <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Make: <u>Amrep</u> Model: <u>all manufactured</u> List Cylinders and Provide Cylinder Cost:</p> <table border="1"> <tr><td>1) pack-single stage</td><td>\$ 1,280.64</td></tr> <tr><td>2) eject-3 stage</td><td>\$ 4,565.28</td></tr> <tr><td>3) extension</td><td>\$ 518.65</td></tr> <tr><td>4) gripper</td><td>\$ 474.47</td></tr> <tr><td>5) tailgate</td><td>\$ 851.57</td></tr> </table> <p>Location: <u>left side frame mounted</u></p> <p>Hydraulic Reservoir Size: <u>60</u> gallons <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Amrep will weld in correct bung for H1000 Arctic Fox Hydraulic oil element</p>	1) pack-single stage	\$ 1,280.64	2) eject-3 stage	\$ 4,565.28	3) extension	\$ 518.65	4) gripper	\$ 474.47	5) tailgate	\$ 851.57	<p>\$ <u>n/a</u></p> <p>\$ <u>n/a</u></p> <p>\$ <u>n/a</u></p> <p>\$ <u>8,986.58</u> Total Cylinder Cost</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>
1) pack-single stage	\$ 1,280.64											
2) eject-3 stage	\$ 4,565.28											
3) extension	\$ 518.65											
4) gripper	\$ 474.47											
5) tailgate	\$ 851.57											

Description of Equipment	Offered Equipment	Cost
4) 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.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
5) The baffles shall be suitable to accept a 24" long heater element and provide a 1" clearance all the way around the element.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
10. Hydraulic oil shall be ISO Grade 32 multi-viscosity with a -40°F pour point.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
11. Hydraulic system shall maintain oil temperature at no more than 90°F above ambient temperature.		
12. Hydraulic Filtration, a. Pressure line Parker model: WPF 7,000 psig rated with 7-micron absolute tandem type (2 required, 1 per pump)	Filter Size: <u>5</u> microns Make: <u>Parker</u> Model: <u>WPF5</u>	\$ <u>n/a</u>
b. Return line replaceable Parker 7-micron absolute with bypass mode indicator light, easy to access for replacement.	Filter Size: <u>5</u> microns Make: <u>Parker</u> Model: <u>KLS/KLT</u>	\$ <u>n/a</u>
c. Suction strainer 100-micron.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>n/a</u>
13. 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.	<input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u>n/a</u>
14. Hydraulic system test ports shall be provided for each circuit. Test port connections shall be compatible with the Parker Hannifin PD type connector.	Make: <u>Parker</u> Model: <u>451 "TC"</u>	\$ <u>n/a</u>
15. 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.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
16. All hydraulic hoses and tubing shall be neatly routed, shielded and secured/supported to prevent chaffing under truck.		\$ <u>n/c</u>
17. A hydraulic oil recirculation filter system connection system shall be provided with the following:	Tubing Size: <u>1" ID</u> inches Distance of Tank Bottom: <u>1/4</u> inches	
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 to within 1/4" off the tank bottom at the lowest point.	Make: <u>Parker</u> Type: <u>flat face</u>	
b. The hydraulic connections shall be 1" Parker FF male (flat face) fittings and orientated so they face to the inside (each other).	<input checked="" type="radio"/> Yes <input type="radio"/> No	
	<input checked="" type="radio"/> Yes <input type="radio"/> No	

Description of Equipment	Offered Equipment	Cost
<p>e. Each switch shall have a permanent engraved symbol on front side of the switch bracket showing the switch function</p> <p>f. The armrest pad shall be approximately 4" wide with a high-density ½" thick closed cell foam pad for operator comfort and support</p> <p>g. The armrest and switch assembly shall be easily operator adjustable fore and aft and up/down for operator comfort</p> <p>5. Console control shall be mounted into an easy to see and access location with out turning the head more than 30° to side and without physical stretching to reach. Console shall not obstruct the vision to left side of vehicles for shorter operators seated in the right side operator's position. Console location shall be mutually agreed upon. Console controls and switches shall be in an ergonomic, easy to view and operate position Console controls to include:</p> <p>a. E-stop.</p> <p>b. Packer cycle.</p> <p>c. Automatic packer cycle on/off switch and 1 or 3 cycles.</p> <p>d. Container dump cycle counter.</p> <p>e. Tailgate latch.</p> <p>f. The main panel shall have self-diagnostic troubleshooting capabilities.</p> <p>g. Transmission shifter control.</p> <p>h. Tailgate open/close.</p> <p>i. Master power.</p> <p>j. Work lights.</p> <p>k. Strobe lights.</p> <p>6. The barrel grabber arm controls shall be heavy-duty short height, short throw (approximately 15°) "joystick" type with an armrest. The grabber arm controls/armrest shall be multi-position adjustable (up/down, forward/back and in/out) within easy reach of the operator. The City has operators of varying statures and adjustable control will minimize on-the-job related physical problems. Control locations shall be mutually determined after Contract award.</p> <p>7. Control system shall be manufactures standard electric over hydraulic.</p> <p>8. Cab Mounted Controls:</p> <p>a. Cab mounted controls shall all be in ergonomic and natural, easy to reach locations.</p>	<p>Yes No</p> <p>Armrest Size: <u>4</u>" x <u>6</u>"</p> <p>Adjustment Range UP/Down: <u>4</u> inches Adjustment Range Fore/Aft: <u>5.5</u> inches</p> <p>Head Turn Angle: <u>30</u> ° Control Console Size: <u>7.5</u>" x <u>8</u>" x <u>3.5</u>"</p> <p>Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No</p> <p>Joystick Throw Angle: <u>15</u> ° Make: <u>H&M</u> Model: <u>AE-731J</u></p> <p>Control System Type: <u>Electric over air over hydraulic</u></p> <p>Yes No Yes No</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>

11/26/18/201

Description of Equipment	Offered Equipment	Cost
b. Controls shall be designed to comfortably and efficiently accommodate an operator making 1,200 dumping operations per day, 6 days per week.	Yes No	
c. Controls shall have a life cycle of 5,000,000 cycles minimum.	Yes No	
d. Controls shall utilize light touch and short throw devices.	Yes No	
e. Controls shall be multi-positional to accommodate a variety of operators. The City has operators of varying statures and adjustable controls will minimize on-the-job related physical problems. Control placement shall accommodate operators from 5'-2" to 6'-4" tall and from slender to large physics.	Yes No	
f. The controls shall be easy and quick for the operator to securely position without the use of tools for comfort and efficiency.		
g. Studies suggest that long periods of repetitive motion coupled with an improper work environment and incorrect operator position may be linked to certain types of physical discomfort or injury. These include Carpal Tunnel Syndrome (CTS), Cumulative Stress Disorder (CSD), Tendonitis and Tenosynovitis.		
h. To help avoid the conditions listed in Section 4.10.O.8.g the City is providing information sites where ergonomic information is available to help in the proper layout of operator controls.		
1) Ergonomist Certifying Organizations include:		
a) Oxford Research Institute: 301-865-4506		
b) Board of Certified Professional Ergonomists: 360-671-7601	Yes No	\$ inc
9. Main control panel shall be solid state design with LED function indicators. Rocker switches shall be back lighted type for easy identification at night.	Yes No	\$ inc
10. Controls shall be permanently labeled and lighted for easy night viewing.	Yes No	\$ inc
11. Vendor shall provide:	Yes No	\$ inc
a. The City preliminary drawings of the control layout and how the controls are positioned inside the truck cab within 45 days of the contract award.		\$ inc
b. Within 120 days of the Contract award the vendor shall provide a preliminary mock up set of controls for review by the City.		\$ inc
c. Vendor shall deliver the first article for review, testing and approval before shipping remaining units from the factory.		\$ inc

Reference Nos.:

37

Vendor/Sub Vendor: Rush Truck Center

	Description of Equipment	Offered Equipment	Cost
P.	Branch Protection: 1. The body shall have tree branch deflector plates to provide protection for: a. Grabber arm hoses. b. Rear tailgate hydraulic hoses/lines, wiring and for the grease lines. c. Grabber Arm Side hydraulic hoses and steel plumbing. d. Lights and switches. e. Side sign boards both front and back sides. f. All other components that is vulnerable to damage from tree branches.	Yes No Yes No Yes No Yes No Yes No Yes No	\$ inc \$ inc \$ inc \$ inc \$ inc \$ inc
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 dump 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. 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. Work lights Two (2) Hopper and gripper arm mount LED work lights with lighted on dash mounted control switch. 9. Wiring shall be sealed Fit' N Forget modular plug-in type where possible. 10. Dielectric grease shall be applied to all plug connections and terminals to prevent corrosion.	Make: <u>Truck-lite</u> Model: <u>LED</u> Make: <u>Truck-lite</u> Model: <u>super 44 or 60</u> Make: <u>Truck-lite</u> Model: <u>super 44 or 60</u> Make: <u>Truck-lite</u> Model: <u>44</u> Make: <u>Truck-lite</u> Model: <u>10 or 30</u> Make: <u>Truck-lite</u> Model: <u>35</u> Make: <u>Truck-lite</u> Model: <u>15</u> Make: <u>Truck-lite</u> Model: <u>81380</u> Make: <u>Truck-lite</u> Model: <u>Fit-n-forget</u> Yes No	\$ inc \$ inc \$ inc \$ inc \$ inc \$ inc \$ inc \$ inc \$ inc
R.	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.	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

11/26/18/201

Description of Equipment	Offered Equipment	Cost
5. Treating bare metal with manufacturer's conditioners and conversion coatings or approved equal.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
6. Paint to be applied with all body members painted.		
S. Special Tailgate Paint:		
1. Polyurethane paint equal to DuPont Imron 5000, Color:	Color: <u>bright white to match cab</u>	\$ <u> </u> inc <u> </u>
a. Top 1/2 of tailgate "Bright White",	Color: <u>safety yellow</u>	
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.	Tape to match existing fleet	\$ <u> </u> inc <u> </u>
2. Preparation to include:		
3. Removing all mill scale and slag.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
4. Variprime 615S self-etching primer or approved equal.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
5. Treating bare metal with manufacturer's conditioners and conversion coatings or approved equal.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
6. Paint to be applied with all body members painted.	<input checked="" type="radio"/> Yes <input type="radio"/> No	

Refuse Body Equipment SUB TOTAL COST | \$ N/A

4.7 Sundries Equipment

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

Description of Equipment	Offered Equipment	Cost
A. Driver Height Warning Sign		
1. Installed on truck dash providing the travel height of the vehicle.	Provide Specs: <u>Large decals to match existing Amrep fleet</u>	\$ <u> </u> inc <u> </u>
2. Sign shall be in 1" "white" block letters.		
B. Conspicuity Tape:		
1. DOT-C2 Standard No. 108 reflective conspicuity tape.	Provide specs: <u>Conspicuity tape standard to match existing Amrep fleet</u>	\$ <u> </u> inc <u> </u>
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.		
C. Mud flaps:		
1. Mud flaps shall be heavy-duty anti-sail type	Provide specs: <u>Anti-sail to match front and rear current Amrep fleet</u>	\$ <u> </u> inc <u> </u>
2. Installed front and rear on rear wheels.		\$ <u> </u> inc <u> </u>

Reference Nos.:

Vendor/Sub Vendor: Rush Truck Center

E.D.	<p>Tool Holders:</p> <p>1. Two shovel/broom holders mounted on curbside of body. Brooms and shovels shall be easy to access, remove and replace in the brackets. Toolbox:</p> <p>1. The toolbox shall be easily accessible for storage of the flare, triangles, tire chains and other small tools.</p> <p>2. Mounted underneath and attached to the right side of the body. The exact location shall be mutually agreed upon at installation.</p> <p>3. Size 36" long x 18" high x 18" deep heavy-duty steel with powder coat black finish.</p> <p>4. The door shall be side-mounted bottom hinged.</p> <p>5.2 The box shall have a flush mount latch/lock assemble.</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Make: _____ Model: _____</p> <p>Location: _____</p> <p>Size: _____</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>	<p>\$ _____</p> <p>\$ _____</p>
E.E.	<p>Spill Kit:</p> <p>1) A Brady (Sorbert Products Co.) 20-gallon lab pack oil only spill kit PN SKO-20 shall be provided.</p> <p>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.</p> <p>3) The oil spill kit shall contain the following minimum:</p> <p>a. 15" x 19" absorbent pads, 12 required</p> <p>b. 3" x 12" SOC's, 3 required</p> <p>c. 18" x 18" pillows, 2 required</p> <p>d. Nitrile gloves, 1 pair required</p> <p>e. Disposal bags, 3 required</p> <p>f. Goggles, 1 pair required</p> <p>g. Emergency response handbook, 1 book required</p> <p>4) The spill kit shall be installed on the truck frame's right/curb side in a mutually agreed upon location at installation.</p> <p>5) The spill kit mount shall secure the spill kit to the mounting frame so that the kit cannot dislodge during operation and shall have a provision for securing the kit with a standard padlock.</p> <p>The mount system shall not have any sharp corners/areas that could rub thru the spill container during operation. Tool Holders:</p> <p>1. Two shovel/broom holders mounted on curbside of body.</p> <p>2.6) Brooms and shovels shall be easy to access, remove and replace in the brackets.</p>	<p>Make: Brady Model: SKO-20</p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>	<p>\$ inc</p> <p>\$ _____</p>

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G.F.	<p>Tire Chain Holders:</p> <p>1. Special brackets for storing drive wheel tire chains during winter season shall be provided</p> <p>2. The chain holders shall be close to the drive wheels and easy to lift tire chains onto/off the brackets -</p> <p>Exact location shall be mutually agreed upon at installation</p> <p>Spill Kit:</p> <p>1) A Brady (Serbent Products Co.) 20-gallon lab-pack oil-only spill kit PN-SKO-20 shall be provided.</p> <p>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.</p> <p>3) The oil spill kit shall contain the following minimum:</p> <p>a. 15" x 10" absorbent pads - 12 required</p> <p>b. 3" x 12" SOCs - 3 required</p> <p>c. 12" x 18" pillows - 2 required</p> <p>d. Nitrile gloves - 1 pair required</p> <p>e. Disposal bags - 3 required</p> <p>f. Goggles - 1 pair required</p> <p>g. Emergency response handbook - 1 book required</p> <p>4) The spill kit shall be installed on the truck frame's right/curb side in a mutually agreed upon location at installation.</p> <p>5) The spill kit mount shall secure the spill kit to the mounting frame so that the kit cannot dislodge during operation and shall have a provision for securing the kit with a standard padlock.</p> <p>6) The mount system shall not have any sharp corners/areas that could rub thru the spill container during operation.</p>	<p>Yes No</p> <p>Make _____ Model: _____</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p>	<p>\$ inc.</p> <p>\$ _____</p>
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	<p>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><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ 11,325.00</p>
<p>B.</p>	<p>CNG Fuel System: Engine Option: 2-3. 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 3-4. The CNG engine shall meet all required EPA on-highway emissions standards 4-5. Fuel Tank: a Fuel tank shall meet or exceed 1) NFPA 52 standards 2) US-DOT/FMVSS304 3) ISO 11439 b Tank Manufacturer c Tank Information 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. d Tank Installation Locations: 2) 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 3) Behind Cab Location: a) Increase in Truck wheel base required</p>	<p>SEE PAGES 7-12</p> <p>Make: _____ Model: _____ HP: _____ @ _____ rpm Torque: _____ @ _____ rpm Yes No</p> <p>Yes No Yes No Yes No</p> <p>Make: _____ Model: _____</p> <p>Material: _____ Service Life: _____ yrs Recertification: _____ yrs Inspection Type: _____ Service Pressure: _____ psig Yes No</p> <p>Height of Body/Tank System: _____ 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: _____ Volume Decrease: _____ yds³</p> <p>Wheel Base Increase : _____ ins</p>	<p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p>

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<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 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 3) Alternate Location: a) Location of Tankage</p>	<p>Size: _____ dia x _____ long DEG Net _____ gal Size: _____ dia x _____ long # of Tanks: _____ DEG Net _____ gal Weight all tanks and brackets etc: _____ lbs Weight All Tanks Full CNG: _____ lbs Enclosure Size: _____ x _____ x _____ Material: _____ Gauge: _____ Location: _____</p>	<p>SEE PAGES 7-12</p> <p>\$ _____</p>
<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>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>\$ _____</p>
<p>e Tank Mouning: 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. 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>Yes No Frame Size: _____ x _____ x _____ Yes No</p>	<p>\$ _____ \$ _____</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. 4-h CNG Pressure Reducing Regulator System: a1) The pressure reducing regulator system shall be mounted inside a protective steel enclosure no more than 6 ft from the CNG fuel tank. b2) 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>PRD Pressure Release: _____ psig Yes No Tubing Size: _____ Yes No Tubing Size: _____ x _____ Type: _____</p>	<p>\$ _____ \$ _____</p>

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<p>gi The pressure reducing regulator system shall have 2 pressure gauges installed in the system.</p> <ol style="list-style-type: none"> 1) High Pressure gauge 0-to-5,000 psi installed on tank side to show tank system pressure 2) Low pressure gauge 0-to-250 psi to show engine downstream fuel delivery pressure to the engine. 3) Gauges shall be stainless steel glycerin filled. <p>dl 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>ek Engine coolant flow and CNG fuel supply shall enter the regulator on the same side of the regulator.</p> <p>fl Coolant ports shall be oriented vertical (up) in horizontal regulators to prevent air from becoming trapped in the regulator.</p> <p>gm The pressure reducing regulator shall not under any circumstance be installed in series with the truck cab heater system.</p>	<p>Pressure Range: _____ to _____ psi</p> <p>Pressure Range: _____ to _____ psi</p> <p>Yes No Yes No</p> <p>SEE PAGES 7-12</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Valve Cv: _____</p> <p>Yes No</p> <p>Make: _____ Type: _____</p> <p>Yes No</p> <p>Yes No</p> <p>Make: _____ Type: _____</p>	<p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p>
<p>6-7 Automatic Fuel Shut Off:</p> <ol style="list-style-type: none"> a The automatic fuel shut off valve shall be plumbed directly to the exit/warm side of the engine coolant heated pressure reducing regulator. b The automatic fuel shut off valve shall have its weight supported by a mounting bracket. c The automatic fuel valve shall have a Cv of 2.0 minimum to assure adequate fuel flow. d The automatic fuel shut off shall be a NC (normally closed) valve when the ignition is in "Off" position. <p>6-8 Fuel Lines:</p> <p>ae All high pressure shall be ½" od x 0.049" wall stainless steel 316L tubing appropriate for the application.</p> <p>bf Stainless steel lines shall have thermal expansion/contraction loops for smaller diameter lines and S-bend expansion joints for larger diameter lines.</p> <p>bg 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>dh Fitting for the CNG fuel system shall be:</p>	<p>Valve Cv: _____</p> <p>Yes No</p> <p>Make: _____ Type: _____</p> <p>Yes No</p> <p>Yes No</p> <p>Make: _____ Type: _____</p>	<p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p>

<p>1) <u>3</u> Stainless steel tube fittings shall be Swagelok or Parker A-lok with thread sealant.</p> <p>2) <u>4</u> Special NPTF pipe fittings shall be stainless steel with thread sealant.</p> <p>eg All NPT fitting shall be installed on male pipe threads using proper thread sealants.</p> <ol style="list-style-type: none"> 1) Thread sealant and anti-seize shall be a nickel impregnated or nickel coated Teflon tape. 2) Teflon tape shall start at 2nd thread. 3) On 1/2" and under use 2 wraps of tape 4) On 5/8" to 1" use 3 wraps of tape. 5) Assure last section of tape is pulled down tight against the threads. 6) Do not use sealant on compression threads <p>fh Post heat exchanger hoses and lines may be Parker 929 heavy-wall PTFE hose exceeding SAE 100R 14A or stainless steel tubing.</p> <p>7-6 Fuel Fill System:</p> <ol style="list-style-type: none"> 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. b The fuel fill nozzle: <ol style="list-style-type: none"> 1) Shall be a male NGV1 OPW with rubber protective cover boot 2) Fuel Fill locations (2/vehicle). One at front bumper driver's side and one at tank fill enclosure driver's side of the vehicle. Both Fuel fill locations require ample clearance for both "Fast Fill" and "Slow Fill" receptacles and hook-up. 3) The fuel filler line shall be plumbed to the CNG tank bank. c The tank fill enclosure shall have: <ol style="list-style-type: none"> 1) <u>5</u> A high pressure line/tank pressure gauge 0-to-5,000 psi 2) <u>6</u> A low pressure fuel to engine pressure gauge 0-to-250 psi 3) <u>7</u> An OPW male NGV1 fuel fill receptacle with easy access and excellent clearance for both "fast fill" and "slow fill" receptacles. 4) <u>8</u> An emergency 1/4-turn shut off valve for shutting down the system in case of a fueling emergency. d The fuel fill access shall be easy to access and easy for the operator to see for fueling and to prevent drive-off with fuel hose attached. 	<p>Yes No</p> <p>Yes No</p> <p>Sealant Type: _____</p> <p>SEE PAGES 7-12</p> <p>Make: _____ Type: _____ \$ _____</p> <p>Yes No</p> <p>Tubing Size: _____ \$ _____</p> <p>Make: _____ Model: _____ \$ _____</p> <p>Fill Location: _____ \$ _____</p> <p>Yes No</p> <p>Pressure Range: _____ to _____ psi \$ _____</p> <p>Pressure Range: _____ to _____ psi \$ _____</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p>	<p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p>
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	<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>8-11. 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>8-12 Fuel Gauge:</p> <p>ae An electric fuel gauge shall be provided with easy to see vehicle dash gauge to show fuel tank volume.</p> <p>bf The fuel sender shall be a sealed unit mounted to the high-pressure tank system</p> <p>eg A sealed 3-pin Weatherpak connector with a 1-amp fast blow automotive fuse shall connect the sender to the gauge.</p> <p>eh Pins are:</p> <p>1) Red = power</p> <p>2) Green = signal</p> <p>3) Black = ground</p>	<p>Make: _____ Model: _____</p> <p>Make: _____ Model: _____</p> <p>Fuel Gauge Type: _____</p> <p>Make: _____ Model: _____</p> <p>Yes No</p> <p>Yes No</p> <p>Yes No</p>	<p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p>
<p>C.</p>	<p>Remote High-Quality Color Safety ⁵³ Camera System.</p> <p>1. Cameras (5-3 required) color, <u>Brigade - SE7701004804C, 360 degree camera kit system with camera view selection on the TV monitor face, Zone Defense - Part # MG320HSE-SS system with camera view selection on the TV monitor face</u> (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 ON when vehicle ignition is on or in a forward gear.</p> <p>b. Left side camera (cab mounted) to serve as an auxiliary left rear view mirror function (blind spot view) to augment the left rear view mirrors. The camera shall be normally ON viewing the left side of the vehicle and blind spot. It shall automatically switch to rear of vehicle view when the transmission reverse gear function is activated. An override 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. The camera shall be placed in a housing (Middle gear, part # MG320HSE-SS; No approved equal) at front corner of cab.</p>	<p>Make: <u>Brigade</u> Model: <u>SE-770-1004804C</u></p> <p><input checked="" type="radio"/> Yes No Camera Price Required</p> <p><input checked="" type="radio"/> Yes No Camera Price Required</p> <p><input checked="" type="radio"/> Yes No Camera Price Required</p>	<p>\$ <u>2,095.00</u></p> <p>\$ <u>inc</u></p> <p>\$ <u>inc</u></p> <p>\$ <u>n/a</u></p>

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<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. The hopper camera shall automatically switch ON when the barrel pick up arm is activated for pick up operations</p>	<p>Make: <u>Brigade</u> Model: <u>VBV-701C-2575</u> Quantity: <u>2</u> <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p><u>109.45</u></p>
<p>2. Camera (rear of hopper) color <u>Brigade 360 sytem kit part with automatic shutters (2) required</u> (rear and hopper) color Zone Defense part number CAM-313SH-4P with automatic shutter (2) 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 broad cast 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><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Resolution: <u>800X480</u> lines</p> <p>Make: <u>Brigade</u> Model: <u>VBV-77EM</u> <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ <u>inc</u></p>
<p>3. Camera (Left Side) Zone Defense Model CAM-313SH-4P <u>Brigade 360 System Kit</u></p> <p>a. Left camera shall be mounted on the left front corner of the truck, installed in a Middlegear Camera Housing (part # MG320HSE-SS) NO APPROVED EQUAL!</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Pixels: <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ <u>197.65</u></p>
<p>4. Monitor LCD, 7" flat screen <u>Brigade VBV-77FM</u> <u>ECO-model M7000Q</u> with:</p> <p>a. Monitor shall be in a very easy to see location that requires as little as possible head movement and also with a little as possible front windshield obstruction. The monitor location shall be mutually agreed upon.</p> <p>b. Camera view selection switches on the TV monitor and trigger wires via power cable.</p> <p>c. Automatic day/night dimmer sensor</p> <p>d. Resolution 291,000 pixels or better.</p> <p>e. Picture control to include brightness, contrast and image.</p> <p>f. Speaker system to broadcast sound from camera.</p> <p>g. Picture shall be crisp and clear at all times</p> <p>h. Anti-glare sun shield and hood model A7000SS.</p> <p>i. Swivel mounting bracket.</p> <p>j. Automatic dimmer sensor to adjust for day and night viewing.</p> <p>k. Monitor capable of accommodating 2 cameras.</p>	<p>Make: <u>Brigade</u> Model: <u>VBV-770FM-4982</u> <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Warranty: <u>2</u> years <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ <u>518.56</u></p>
<p>5. All wiring shall be totally sealed with sealed locking connections to</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ <u>n/c</u></p>

	<p>prevent corrosion. 6. All wiring shall be routed to prevent damage to the wiring.</p>		
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Reference Nos.:

49

Vendor/Sub Vendor: Rush Truck Center

	<p>7. Warranty 2 years with replacement of failed components with new components shipped UPS "Next Day" upon notification of problem. 8. Additional 5 Year Warranty</p>	<p>Warranty: <u>2</u> years <input checked="" type="radio"/> Yes <input type="radio"/> No (NDA) ground only <input checked="" type="radio"/> Yes <input type="radio"/> No as long as registered with Brigade</p>	<p>\$ <u>n/c</u></p>
<p>D.</p>	<p>Automatic Lubrication System to include: 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>	<p>Make: <u>Lube Core</u> Model: <u>EP2 Pneumatic</u> Items that will be automatically lubricated: <u>complete body minus 1 eject cylinder pt. & 4 carrier rollers</u> Number of Automatic Lubrication Points: <u>40</u> <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No System Pressure: <u>500-3,000</u> psi Grease Line Material: <u>Korilla line</u> Grease Reservoir Size: <u>GKG</u></p>	<p>\$ <u>10,609.10</u></p>
<p>E.</p>	<p>Cab Heater: 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>	<p>Make: _____ Model: _____ Btu's: _____/hr Air Flow: _____ cfm Size: _____ x _____ x _____ Fuel Usage: _____ gal/hr</p>	<p>\$ <u>N/A</u></p>
<p>F.</p>	<p>Hydraulic Oil and Engine Coolant Heater: 1. Heater for hydraulic oil and engine coolant shall be a Webasto Thermo 90ST 2. Heat Value 6,100 to 26,000 Btu/hour 3. Water Flow 7.3 gallons/minute @ 2.2 psi 4. Size: 15 3/4" x 7 1/2" x 14" approximate 5. Electrical 12vDC @ 3 amps 6. Diesel Fuel Usage 0.06 to 0.24gallons/hour 7. Hydraulic oil heater Arctic Fox H-4000 series maximum length for hydraulic tank. Baffle may need to have pass-thru opening</p>	<p>Make: _____ Model: _____ Btu's: _____/hr Water Flow: _____ gpm Size: _____ x _____ x _____ Fuel Usage: _____ gal/hr Make: _____ Model: _____ Length: _____</p>	<p>\$ <u>N/A</u></p>
<p>G.</p>	<p>1.</p>		
<p>H.</p>	<p>Sign Boards, Two body mounted Roadway Displays Inc. (909.587.0207) mobile display systems shall be provided to include:</p>	<p>Make: <u>Amrep</u> Model: _____</p>	<p>\$ <u>inc</u></p>

11/26/18/201

	<ol style="list-style-type: none"> 1. Frame model SS315955 95-1/2" long x 31-1/2" high x 2-1/4" frame width with .025" aluminum backing. 2. Frame material, 6463-T6 aluminum extrusions with satin anodize. 3. Sign panel size 93-3/16" x 29-3/16" x .060" high impact styrene. View size 91" x 27". 4. Sign frame shall be securely mounted to body yet be easy to remove and replace. 5. The sign frame shall have branch deflectors on the front and rear edges to prevent damage to the sign frame. 	<p>Yes No</p> <p>Yes No</p>	
I.	<p>Spare Parts for Refuse Body:</p> <ol style="list-style-type: none"> 1. Joystick controller (1) required. 2. Door rocker switch platform complete with switches and armrest 		<p>\$ 1,287.48</p> <p>\$ 195.00</p>
J.	<p>Spare Tire and Wheel:</p> <ol style="list-style-type: none"> 1. Tire and wheel assembly: 1 per vehicle. 2. Tire: Michelin XZU, Steer Tire. 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>Make: _____ Model: _____</p> <p>Make: _____ Model: _____</p>	<p>\$ N/A</p>
K.	<p>Inspection Trip:</p> <ol style="list-style-type: none"> 1. The City and County of Denver reserves the right to inspect at the cab and chassis and body fabricating plant during the construction of the first (1st) article prior to paint and delivery. 2. Where the fabricating plant is located further than 200 road-miles from the City and County of Denver, the bidder shall include in the bid price all travel expenses to the fabrication plant for the inspection. 3. The City may select to send from 2 representatives to inspect the 1st article. The provided costs shall be based on one (1) person per day and the City will determine how many representatives the inspection will require and how many days the inspection will require. 4. Inspection Trip Costs to include: <ol style="list-style-type: none"> a. Air fare per person: b. Surface transportation costs: c. Lodging per person per day: d. Meals per person per day: 5. Total cost per person for 1st article inspection trip: 	<p>Provide information:</p> <p>Distance to fabrication plant: _____ miles</p> <p>Plant Location: _____</p> <p>Air Fare: \$ _____, Airline: _____</p> <p>Surface Transportation: \$ _____, Mode: _____</p> <p>Lodging / day: \$ _____</p> <p>Hotel: _____</p> <p>Meals / day: \$ _____</p>	<p>\$ N/A</p> <p>\$ N/A</p> <p>\$ N/A</p> <p>\$ N/A</p> <p>\$ N/A</p>

Reference Nos.:

51

Vendor/Sub Vendor: Rush Truck Center

11/26/18/201

Safety Vision System & Equipment SUB TOTAL COST | \$

5.0 **Manuals/Equipment**

Item	Description of Equipment	Offered Equipment	Cost
Training Video	One DVD or CD demonstrating and explaining the safe and proper use of the vehicle/equipment. 1. Cab and chassis. 2. Equipment and Body.	<input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u> N/A </u> \$ <u> N/A </u>
Operators Manual Paper	One book per vehicle/equipment with "safe equipment operation" section for each component. 1. Cab and Chassis. 2. Equipment and Body.	<input checked="" type="radio"/> Yes	\$ <u> inc </u> \$ <u> </u>
Service/Repair/Maintenance Manual Paper	Two complete sets per Contract (not per vehicle); binder required, A. Manuals shall be provided for: 1) Cab and chassis 2) Equipment and body B. Manuals shall include complete and detailed information for maintenance of the equipment, including general information, specifications, troubleshooting guide, lubrication and required adjustments. C. 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.	<input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No	\$ <u> inc </u> \$ <u> </u> \$ <u> inc </u>
Service/ Repair/Maintenance Manual on CD rom or DVD	One complete set; per Contract (not per vehicle) 1. Manuals shall be provided for: 1) Cab and chassis 2) Equipment and body 2. Manuals shall include complete and detailed information for maintenance of the equipment, including general information, specifications, troubleshooting guide, lubrication and required adjustments.	<input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No	\$ <u> inc </u> \$ <u> </u>

Reference Nos.:

Vendor/Sub Vendor: Rush Truck Center

	<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>4. New CD roms or DVDs shall be provided when information is updated, superseded or changed.</p>	<p>Yes <input checked="" type="radio"/> No</p> <p>Yes <input checked="" type="radio"/> No</p>	<p>\$ inc _____</p>
<p>Service/ Repair/ Maintenance Manual on Internet Access, or Other Electronic Media</p>	<p>One complete set; per Contract (not per vehicle)</p> <p>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 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 <input checked="" type="radio"/> No</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No If other Specify: <u>Davies from PACCAR for the MX engine E-portal for parts and service on the chassis</u></p> <p>Yes <input checked="" type="radio"/> No</p>	<p>\$ <u>250.00</u> annually</p>
<p>Parts Manual Paper</p>	<p>Two complete sets, per Contract (not per vehicle) binders required,</p> <p>1. Manuals shall be provided for: A. Cab and chassis 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><input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>\$ inc _____ \$ _____</p>
<p>Parts Manual on CD rom or DVD</p>	<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 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 Yes No Yes No</p> <p>Yes No</p>	<p>\$ inc \$</p>
<p>Parts Manual on Internet Access, or Other Electronic Media</p>	<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 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>Access Information: 7 days/week including holidays <input checked="" type="radio"/> Yes No</p> <p><input checked="" type="radio"/> Yes No <input checked="" type="radio"/> Yes No</p> <p>Yes <input checked="" type="radio"/> No</p> <p>If other Specify: <u>First year fee \$250.00 per year after first twelve months</u></p> <p><input checked="" type="radio"/> Yes No</p>	<p>\$ inc \$</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></p>	<p>\$ inc</p>

5.1 Operator and Mechanics Training

Reference Nos.:

Vendor/Sub Vendor: Rush Truck Center

11/26/201

Item	Description of Equipment	Offered Equipment	Cost
On Site Equipment Manufacturers Training	On site the vendor shall insure that the equipment manufacturers training representative, after delivery of the equipment Contacts Fleet Maintenances training manager to coordinate equipment training.	Rush Truck available per request from the city. Hardline Equipment available per request	\$ n/c
Fleet Maintenance Training Manager	Mr. Charlie Pletcher, Telephone: 720.865.3951 Contact time: 8:00 am to 3:00 pm M-F		
Training Requirements	Training shall consist of factory training materials, classroom and actual field training on the equipment for the equipment operators and supervisors.		\$ n/c
On Site Mechanics Training	On site mechanics training shall be 2 classes, approximately 8 hours, 2 shifts total provided at City facilities. The training shall cover maintenance and service procedures, trouble shooting and use of manuals.	Available upon request with Rush Truck Center	\$ n/c

6.0 **Repair Parts Delivery**

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

7.0 **Warranty**
7.1 **General Warranty Provisions**

Reference Nos.:

55

Vendor/Sub Vendor: Rush Truck Center

WARRANTY (Table 1) Class 7 & 8 Vehicles		Complies (Y or N/A)
C.	Express warranty is to be a minimum of 12 months on the Class 8 vehicle chassis. The warranty on the refuse body of the vehicle is to be a minimum of 2 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
D.	The Warranty is to include at no cost to the City of Denver, all parts and labor, and no charge for work performed at the vendors facility	n/a
E.	Warranty shall start when the City places the vehicle into service NOT on the delivery date. Taking an exception may make bid non compliant.	5 working days after delivery
F.	Warranty plans shall consist of the total unit and be broken out to a separate plan for each warranty item if applicable, such as engine warranty plan, transmission warranty plan, electrical, etc.	yes
G.	Options listed shall be bid and provided as factory installed under the terms of the full factory-backed warranty. This includes, but is not limited to: air conditioning, radios, cruise control, bumpers, towing packages etc. Dealer-installed options will not be permitted unless pre-approved by the City in writing and, where applicable, indicated on bid sheet as a "dealer installed" non-factory item.	yesyes
H.	Bidder will be responsible for warranty repair of all installed options/auxiliary equipment included in the bid that has a standard warranty that is less than the standard warranty for the base vehicle/equipment	yes
I.	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	Rush yes Hardline yes
J.	If applicable, bidder shall provide a plan for the City to be reimbursed if the work can be done by the City on site. The current shop rate is \$71.00/hour, not to exceed \$85.00/hour. (Enter a response of N/A if not available)	N/A
K.	The bidder shall respond to request for warranty assistance within twenty-four (24) hours.	yes
L.	Warranty work shall be accomplished within an appropriate length of time (generally less than 3 working days for everything other than major component repair such as a transmission rebuild) and shall be coordinated with an authorized City representative	N/A
M.	During the entire warranty period, if the unit requires transportation to a repair facility, the vendor/sub-vendors shall be responsible for all transportation at "NO COST" to the City and County of Denver. This includes transporting the unit back to the City's domicile location after repairs are complete. If an alternate is bid, charges to the City of Denver shall be listed (e.g. mileage, travel, labor, etc.). Even if an alternate is bid, in NO CIRCUMSTANCES will the City and County of Denver be responsible for transporting a unit greater than 25 miles from the center of Denver. For purposes of these warranty provisions, the center of Denver is defined as the City and County Building located on the corner of Colfax and Bannock Street.	N/A
N.	The item(s) procured by the City pursuant to this Bid Proposal shall, in addition to being subject to the express warranties referenced above, be subject to all implied warranties arising by operation of law under State of Colorado and Federal law, including but not limited to the implied warranty of merchantability and, to the extent applicable, the implied warranty of fitness for a particular purpose arising under the Colorado Uniform Commercial Code, Title 4, Colorado Revised Statutes. The bidder shall in no event attempt to limit or disclaim any of such implied warranties under this Bid Proposal, and any attempt to do so will render the bidder's bid non-responsive under this Bid Proposal.	yes

7.2 Fleet Defects

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.

7.3 Warranty Options

WARRANTY Options (Table 3) Class 7 & 8 Vehicles	

Reference Nos.:

Cost of Factory Extended Warranties		Please indicate in the columns below the additional cost of an extended warranty for all applicable components listed in the left hand column.		
		Inc = Included		N/A = Not available
		Two Years	Three Years	Five Years
A.	Cab and Chassis	\$1,265.00	\$2,915.00	\$5,445.00
B.	Engine	included	\$935.00	\$1,185.00 (200K miles)
C.	Transmission	included	included	\$1,150.00
D.	Drive Train	included	included	\$900.00
E.	Suspension	\$471.00	\$708.00	N/A
F.	Air Conditioning	\$330.00	\$655.00	N/A
G.	Hydraulics			
H.	a. Pumps			
	b. Cylinders			
	c. Tanks			
	d. Valves			
	e. Controls			
I.	Attached Body			
J.	Joystick			
K.	Electrical Components			
L.	Camera System			
M.	Other			
N.	Notes:			

7.4 **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.

A. Cab & Chassis: Dealership Name: Rush Truck Center of Colorado Telephone #: 303-291-6352
 Street Address: 6955 E 50th Ave City: Commerce City, CO 80022

B. Barrel Loader Trash Body: Dealership Name: Hardline Equipment Telephone #: 303-288-8989
 Street Address: 7550 Dahlia St. City: Commerce City, CO 80022

Reference Nos.:

Vendor/Sub Vendor: Rush Truck Center

11/26/18/201

C. Sundries

Dealership Name: Hardline Eq
Street Address: 7550 Dahlia St

Telephone #: 303-288-8989
City: Commerce City, CO 80022

8.0 Heavy Duty Vehicle Delivery Documentation:

Delivery Documentation (GVWR 26,001-Lbs and Above Heavy Duty)	
A.	Vehicles ordered under this specification shall be complete and delivered to CITY AND COUNTY OF DENVER, Fleet Management Division. All prices quoted must be quoted at a firm price F.O.B. Denver, Colorado, 5440 Roslyn St. Building C.
B.	<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>

Reference Nos.:

59

Vendor/Sub Vendor: Rush Truck Center

11/2618/201

9.0 Vehicle Delivery
91 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>145</u> DAYS
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9.2 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	150 DAYS
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10.0 Complete Vehicle Cost

Include:

- Cab & Chassis Total Cost
- Side Loader Body Total Cost
- Sundries Items Total Cost

Do Not Include:

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

ONE COMPLETE VEHICLE TOTAL COST	<u>\$ 303,425.00</u>
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