

# **CITY OF EAST PROVIDENCE**

## **SPECIFICATIONS:**

**RFP NO. EP15/16 - 6 - ONE NEW DUMP TRUCK WITH PLOW**

**TITLE: ONE HEAVY DUTY TANDEM DUMP TRUCK (SIX-WHEELERS)**

**BID OPENING: TUESDAY, JANUARY 26, 2016 AT 2PM**

**CREATED: JAN. 7, 2016**

## **TABLE OF CONTENTS**

Section 1 —Introduction

Section 2 - Background and Purpose

Section 3 - Scope of Work (Specifications)

Section 4 • Technical Proposal

Section 5 - Cost Proposal

Section 6 - Evaluation and Selection

Section 7 • Proposal Submission

## SECTION I: INTRODUCTION

The successful offeror must be an Authorized Manufacturer or Authorized Manufacturer Representative

The Authorized Manufacturer or Authorized Manufacturer Representative will be responsible for the maintenance of the entire vehicle and all optional equipment

No alternatives to the specifications will be accepted. All proposals must meet or exceed specifications only one (1) set of specifications will be accepted per offeror

Delivery must be completed within one hundred eighty (180) days of the successful proposal,

This is a Request for Proposals. Responses will be evaluated on the basis of the relative merits of the proposal, in addition to price; there will be no public opening and reading of responses received by the Division of Purchases pursuant to this Request, other than to name those offerors who have submitted proposals

### **INSTRUCTIONS AND NOTIFICATIONS TO OFFERORS:**

- 1 Potential vendors are advised to review all sections of this RFP carefully and to follow instructions completely, as failure to make a complete submission as described elsewhere herein may result in rejection of the proposal.
- 2 Alternative approaches and/or methodologies to accomplish the desired or intended results of this procurement are solicited. However, proposals which depart from or materially alter the terms, requirements, or scope of work defined by this RFP will be rejected as being non-responsive.
- 3 All costs associated with developing or submitting a proposal in response to this RFP, or to provide oral or written clarification of its content shall be borne by the vendor. The City assumes no responsibility for these costs.
4. Proposals are considered to be irrevocable for a period of not less than 60 days following the opening date, and may not be withdrawn, except with the express written permission of the City Purchasing Agent,
- 5 All pricing submitted will be considered to be firm and fixed unless otherwise indicated herein.
- 6 Proposals misdirected to other state locations, or which are otherwise not present in the Division at the time of opening for any cause will be determined to be late and will not be considered. For the purposes of this requirement, the official time and date shall be that of the time clock in the reception area of the Division
- 7 It is intended that an award pursuant to this RFP will be made to a prime vendor, who will assume responsibility for all aspects of the work. Joint venture and cooperative proposals will not be considered. Subcontracts are

permitted, provided that their use is clearly indicated in the vendor's proposal and the subcontractor(s) to be used is identified in the proposal.

8. All proposals should include the vendor's FEIN or Social Security number as evidenced by a W9.
9. The purchase of goods/services under an award made pursuant to this RFP will be contingent on the availability of funds.
10. Vendors are advised that all materials submitted to the City for consideration in response to this RFP will be considered to be Public Records as defined in Title 38, Chapter 2 of the General Laws of Rhode Island, without exception, and will be released for inspection immediately upon request once an award has been made
- 11 Interested parties are instructed to peruse the Division of Purchases website on a regular basis, as additional information relating to this solicitation may be released in the form of an addendum to this RFP
- 12 Equal Employment Opportunity (G .L 1956 § 28-5 1-1, et seq.) — § 28-5 1.1 Declaration of policy — (a) Equal opportunity and affirmative action toward its achievement is the policy of all units of City of East Providence, including all public and quasi-public agencies, commissions, boards and authorities, and in the classified, unclassified, and non-classified services of state employment This policy applies to all areas where City dollars are spent, in employment, public services, grants and financial assistance, and in state licensing and regulation..
- 13 In accordance with Title 7, Chapter 1.2 of the General Laws of Rhode Island, no foreign corporation, a corporation without a Rhode Island business address, shall have the right to transact business in the State until it shall have procured a Certificate of Authority to do so from the Rhode Island Secretary of State (401-222.3040). This is a requirement only of the successful vendors)

## **SECTION 2: BACKGROUND**

The City of East Providence is seeking to contract with a vendor with demonstrated proficiency in Six Wheel Dump Trucks

The City expects to contract for a minimum of one (1) unit, the vendor cost proposal will represent one total cost, not itemized,

Although cost is a significant consideration, warranty/warranty resolution; availability of parts; delivery schedule/significant milestones and overall quality of the work plan; and experience, capability, capacity, and qualifications of the offeror are also critical to the procurement of the six-wheel dump trucks.

### **SECTION 3: SCOPE OF WORK (SPECIFICATIONS)**

#### **General Scope of Work**

The following specifications and dimensions shall apply to purchases of HEAVY DUTY TRUCK (6-WHEELER) for the City of East Providence. The City reserves the right to waive minor technicalities under this specification Federal and State laws supersede any conflicting part of this specification.

City of East Providence desires to purchase one (1) unit through this RFP, subject to availability of funds

The unit shall be a current model; new and unused, under standard production by the manufacturer, and of which parts are stocked at one or more locations in Rhode Island and/or Southern New England region. All parts utilized on the unit shall be new and unused.

The bidder agrees, if his proposal is accepted, to guarantee the design, material and workmanship of the unit bid according to the standard factory warranty, or detailed in the following specification, whichever is greater. A copy of the warranty shall accompany the bid, Warranty coverage shall include costs of transporting the unit to and from servicing shop, when outside a 50 mile radius of the delivery point. The bidder shall be responsible for pickup and delivery (including fuel) of any units that are found to have defects within the first three (3) weeks of delivery to City of East Providence and have to return to dealer for repairs

Complete specifications and literature on the unit bid shall accompany the bid. Any exceptions to these specifications shall be indicated on the bid or on a separate attachment to the bid, labeled as such.

Any "or equal" or "equivalent" items for brand specified components shall be listed with the bid package. Complete description and literature on the "or equal" components shall be supplied for consideration by the City of East Providence the burden of proof regarding "or equal" items will be upon the vendor

**GENERAL:** This specification is intended to allow competitive bids on the following manufacturers or approved equal: International Workstar, Freightliner 114SD, Peterbilt 348, and Mack Granite.

**PRIMARY PURPOSE:** Units are utilized primarily for Winter Operations and must be suitable to be outfitted with Dump Body, V- Sander, saddle tanks, and front plow.

**PRE-DELIVERY SERVICE:** The unit shall be delivered complete and fully operational. It shall be properly serviced, free of leaks, with all mechanical adjustments made prior to delivery. A copy of the line set ticket shall accompany the vehicles. A minimum of three days' notice prior to delivery shall be given to the person to whom the unit is to be shipped. Upon award of the bid the successful bidder shall supply a completed City of East Providence "Equipment Information" sheet listing all the pertinent details that are specific to the units being purchased. Failure to do so will result in 2% retention of the total order.

All units must be inspected prior to delivery with a focus on functionality, consistency, and quality assurance **the body installation company must develop an inspection check sheet that is detailed and includes all major components of each dump truck.** Each inspection item must be initialed and a copy of the inspection sheet shall be placed in the document holder of the truck prior to delivery. The inspection check sheet shall be developed and presented at the body company prototype meeting for review and input from City of East Providence the inspection check sheet shall be developed and presented at the final prototype meeting for review and input from City of East Providence

All units must be inspected prior to delivery with a focus on functionality, consistency, and quality assurance just before final delivery. **The bidder must develop an inspection check sheet that is detailed and includes all required pre delivery inspection and service items required by the chassis supplier.** This inspection check list should also include checking items that may have loosened or have been missed by the body company such as hydraulic leaks and body components shaking loose Each inspection item must be initialed and a copy of the inspection sheet shall be placed in the document holder of the truck prior to delivery..

#### **TRUCK DELIVERY SCHEDULE**

All bidders shall provide as part of their bid a schedule for the delivery of the truck to City of East Providence. This date shall be listed as the number of days following issuance of a "Notice to Proceed", that the bidder shall successfully deliver all units to the City of East Providence. Failure to submit a schedule will result in the bid being considered non-responsive. Failure to meet the schedule will result in 3% retention on the total order

## 2016 MODEL YEAR CAB & CHASSIS 6-WHEEL TRUCK

### A. Dimensions/G.V.W

GVW rating 47,000 lbs minimum  
Wheelbase 177" minimum  
CA dimension 110"- to be verified by body builder  
Platform 159" LP with 49" AF to be verified by body builder

### B. Frames

Single rail 120,000 psi steel  
Section Modulus 22.12  
REM 2,654,400  
20" integral flame extension (not bolted)  
Swept back bumper  
Two front tow hooks  
Two rear tow hooks

### C. Engine Diesel/Engine Equipment

Minimum .360, HP @1700 rpm minimum  
1450 ft/lbs torque minimum  
Inside/outside air intake with in-cab controls  
120V/1500W engine block heater wheel receptacle under driver door  
15 9 CFM compressor;  
Bug screen mounted behind grille  
Silicone engine hoses  
DPF regeneration control  
Engine shut down for low engine oil pressure, high coolant temperature and low coolant level  
Davco FuelPro 382 fuel/water separator with thermostat control  
Engine compression brake (fake Brake) with on/off switch  
Exhaust-single RH vertical with muffler guard and turn back tailpipe  
2015 OBD compliant  
2015 Federal emission compliant

### D. Transmission and Equipment/Drivelines

Allison 4000-RDS six speed automatic transmission with PTO gear  
Synthetic transmission fluid  
Dash mounted PTO control  
Transmission oil cooler  
Push button shift control

### E. Axles

Front axle  
I-beam 20,000 lb capacity  
20,000 lb multi-leaf shackle type springs  
Front RH spring build-up for wing plow to level chassis  
Shock absorbers  
RH auxiliary air bag with driver control for wing plow application  
Synthetic: lube

Rear axle  
30,000 lb single reduction rear axle  
Driver controlled locking differential  
31,000 multi-leaf springs with 4,500 lb auxiliary springs  
synthetic lube  
Driveshaft  
Heavy Duty SP1170XL

#### F. Brakes

Front S-cam 16.5x6"  
Rear S-cam 16.5x7" with cast brake drums  
Brake chambers 36"/36" on rear  
Heated air dryer  
Dust shields front and rear  
Automatic slack adjusters - front and rear  
Anti-lock brake system with traction control  
Full trailer package with air and light lines

#### G. Tires

Front 315/80R22.5 Goodyear G287 load range L/20 ply 10,000 lb weight rating  
Rear 12R2.4.5 Goodyear G177 Load range H/16 ply  
One front and two rear spare tires and rims matching above  
Front and rear Wheels shall be powder coated white.

#### H. Wheels

Front steel disc-hub piloted 22.5x9.0" rims  
Rear steel disc-hub piloted 24.5x8.25" rims

#### I. Electrical System

Twelve volt negative ground electrical system 160 amp alternator  
Three maintenance free batteries - total 1950 CCA  
Stop, turn, tail and backup lights  
Body builder wiring for body installation

All lights and reflectors shall conform to the motor vehicle laws of the State of Rhode Island

#### J. Fuel System

100 gallon aluminum fuel tank  
9 5 gallon DEF tank

#### K. Cab

Conventional steel cab includes rust prevention  
Tinted windshield and glass  
LH & RH interior cab access grab handles with additional driver side outside handle  
Fiberglass tilt hood and fenders with frame mounted splash shields  
Engine access hatch  
ICC clearance, lights  
Long life Halogen headlights that turn on when windshield wipers are 'turned on  
Chrome stationary grille  
Sound abatement-extra insulation under hood and splash panels  
Heated LH & RH west coast mirrors with integral convex mirrors  
Frame mounted air horn  
Radio AM/FM/CD with weather band  
Winter wiper blades  
Power windows/ Power Locks

#### L. Paint

Cab shall be RED over proper primer for cab and sheet metal No other color will be accepted by City of East Providence, chassis and running gear shall be black Wheels shall be powder coated white. Black dump body preferred.

#### M. Accessories

Two wheel chocks  
Fire extinguisher #5 ABC  
Three safety triangles  
Three sets keys

Fender extensions for front tires  
Textured Poly Single Axle Fenders  
Back-up alarm  
In cab power source  
Air conditioning  
Driver side air ride seat  
One First-Aid Kit  
One Spill Response Kit  
800 MHz digital radio (See attached specifications for ONLY ACCEPTABLE Motorola  
Mototrbo XPR5550  
Floor Mats  
Heated Mirrors

**Note all hoses and wiring have to be water tight and loomed:**

An infrared pavement temperature sensor shall be properly mounted per the manufacturer's recommendations. The gauge shall be mounted in a visible location integrated into the dash layout or as part of spreader control and shall display both air and pavement temperature simultaneously. To be a Sprague Roadwatch (800 441-2048) or Quixote Transportation Technologies Surface Patrol or approved equal

A lockable weatherproof toolbox with I-handle latches shall be mounted to the frame on the curb side, under the body. The toolbox shall be approximately 36 inches long by 18 inches high by 18 inches wide, To be constructed of 12 gauge 201 Stainless Steel minimum, with curbside opening steel door with stainless steel piano hinge. Front panel shall have exterior jam lip designed to deflect water away from the door opening. Edges of door shall seal tightly against weather stripping and chain door retainer. Two keys shall be provided with each unit. The unit shall be bolted to the frame using cradle type mounting brackets

**N. Warranties**

Engine — Please provide warranty information (complete engine including injectors, turbocharger, electrical harnesses, lines and tubes — 100% parts and labor) Exceptions are: after treatment system components and related sensors and EA harnesses which shall be covered under separate warranties.

Engine After treatment system and EA Harness and sensors - 60 months/100,000 miles - 100% parts and labor

Chassis - "Bumper to bumper" - 60 months/100,000 miles - 100% parts and labor - including components (but not limited to) such as radiators, cab, suspension, and electrical.

Transmission - 60 months/no mileage limits - 100% parts and labor

No engine hour limitation in above warranties

A breakdown of the standard manufacturer's warranty when it is in excess of the 2. years requested shall be listed for each component of the cab and chassis and included in the manual set..

**O. Training**

A 2 day, "hands on" technician training session shall be provided at City of East Providence

Public Works Complex  
60 Commercial Way  
East Providence.

The training session topics will be coordinated through Department of Public Works and may include but are not limited to diesel engine tune-up and maintenance, multiplex systems. The training session shall accommodate at least 6 City of East Providence employees at each session. Training shall be provided approximately 3 weeks after delivery of the first unit

There shall be a one day (1) seminar, to instruct City of East Providence personnel on the operation, servicing and repair of the hydraulic system, at each delivery location. 1/2 of the day shall be for operator training and the other 1/2 for mechanics. This seminar is separate from the training required on above covering the truck package excluding the hydraulics. A web broadcast shall be an allowed method of conducting this seminar.

A follow up session is required for operators after the trucks have been used one winter season. These sessions are to be held City of East Providence Public Works Complex at 60 Commercial Way, East Providence. The operator's session is to be approximately 4 to 6 hours.

All training sessions shall be scheduled on a date mutually agreed upon by City of East Providence and the hydraulics supplier.. All training sessions shall be performed by competent technician thoroughly trained in the use, service, and operation of the unit..

#### **P. Hydraulics**

If the hydraulic component supplier is different than the supplier of the spreader controller, the truck equipment company (body installer) shall take responsibility for coordinating efforts of the two suppliers. It will be the responsibility of the truck equipment company to ensure that the total hydraulic package functions as intended

The control valve system shall be enclosed in a stainless steel box with side opening weather resistant lid, mounted behind the cab on the left side frame rail in a location where the manual overrides can be accessed. The lid shall be removable without the use of tools and shall provide for maximum access to the valve. A legend describing each valves operation shall be stuck on the inside of the lid.. Enclosure shall be integrated with the hydraulic reservoir

#### **POWER TILT CUSTOM TRUCK PLOW ATTACHMENT SPECIFICATIONS**

The custom truck/plow attachment shall be manufactured by a recognized snowplow manufacturer and shall include 1/2" side plates reinforced and bolted as far back on the truck frame as feasible

The upper and lower horizontal support members shall be fabricated from not less than 7" x 4" x 3/8" (upper) and 4" x 4" x 3/8" (lower) wall square and rectangular structural tubing. The cylinder base angle shall be fabricated from 4" x 4" x 3/8" tube with 1/2" cylinder connecting lugs. The attachment shall provide a selection of four (4) push heights, two on 30 1/2" and two on 21" hole centers for connection of the plow

The plow lift cylinder shall be double acting with a 4" bore, 10" stroke, chrome plated piston rod and a polypack seal with a rubber return wiper to clean the piston as it retracts into the cylinder barrel. The base of the cylinder shall attach to the aforementioned horizontal member, while the cylinder rod attaches to a horizontal pivoting lift yoke weldment

it shall be possible to lockout plow lift action and instead hydraulically tilt the entire center portion of the plow attachment (and any applicable side wing appurtenances) forward so to accommodate a tilt hood truck chassis. This function shall utilize the same cylinder noted above.

In addition, it shall be possible with the removal of four (4) pins to expediently detach the plow lift device (and any applicable side wing appurtenances) from the custom truck attachment for summer truck application

**HARDWARE PLATING:** All nuts, bolts and chain shall be zinc plated.

**PAINT:** All snowplow components shall be shot blasted and painted with one (1) coat of primer and one (1) coat of finish paint.

**CYLINDER RODS:** All snow plow hydraulic cylinder rods shall be induction hardened and chrome plate to a minimum of 1.0 mm thickness

**PLOW LIGHTS:** The upper horizontal member shall be fitted with a set of standard elevated 12 volt, hi-low beam plow lights, with quick-disconnect harness

**BACK UP CAMERAS:** Provide rear view camera that can be incorporated with spreader control monitor, Monitor shall give priority to backup camera when truck is in reverse

#### **TRIP EDGE POWER REVERSIBLE PLOW SPECIFICATIONS**

**Moldboard:** Shall be 11" long, 42" high inside and shall extend at least 12" out over the cutting edge.. The moldboard shall be formed from one piece of 3/8" thick UHMV polymer sheet The upper portion of the polymer sheet shall be bolted to and sandwiched between .3" x 3"x 1/4" and 3 1/2" x 3 1/2" x 1/2" angles to form a rigid structure at the top,. The bottom of the moldboard shall be reinforced by not less than a 5" x 5" x 1/2" angle It shall be provided with eight one piece 1/2" plate vertical ribs, and shall be equipped with two 10-degree moldboard shoes

The moldboard shall be equipped with a 1/2" x 18" rubber flap bolted across the top of the moldboard to prevent snow from blowing over

**Carbide Cutting Edge:** It shall be (3) piece 3/4" x 6" carbide sections, and shall be bolted to the plow for easy replacement with 5/8" Grade 5 carriage bolts and locknuts on 12" centers. Shall be equipped with a carbon steel backer blade

**Cutting Edge Reinforcement:** Shall be at least 4" x 4" x 3/4" steel angle with 1/2" steel plate gussets electrically welded to the framework

**Shoes:** Replaceable wear parts shall include two (2) moldboard shoes and two (2) cast chilled malleable iron curb shoes..

**Trip Mechanism:** The trip mechanism shall be of the single section trip edge type. It shall consist of five (5) 7/8" alloy wire torsion springs with sixteen coils 17 3/8" long. It shall have two hinge rods made from PA" HR steel which slide through springs and hinge lugs to support the trip edge mechanism each spring shall have provision for preload adjustment.

**Reversing Frame:** The reversing frame shall be fabricated from 4" x 4" x 3/8" square tubing and 4" x 3" x A" rectangular structural tubing gusseted at key stress points. Three (3) sets of 1/2" thick reinforced connecting lugs spanning 80" shall be welded to the 4" x 4" x 3/8" member of the reversing circle These lugs shall serve as connection points to the moldboard.

**"A" Frame:** Shall include a weldment consisting of two (2) pieces of 4" x 3" x 1/4" rectangular tubing spaced so to accommodate a sliding member from 7" x 4" x 3/8" rectangular tubing This weldment shall have top and bottom members from 3/8" thick plate, and rear plate not less than 1" thick x 10" wide The rear plate shall be fitted with an oscillating bar from 3/4" plate, which incorporates 1 1/4" drive ears on 30 1/2" centers

The oscillating bar shall revolve about an 1 1/2" Grade 5 bolt so to allow the plow to follow road contour.

The sliding member, as noted above in the "A" frame section, shall include a 1-15/16" diameter CRS pivot pin for attachment to the Reversing Frame.. It shall sit inside the "A"

Frame weldment where it shall be secured in position by a 9/16" diameter wire extension spring

This spring retained sliding member shall provide moldboard locking/unlocking action when the Reversing cylinders are activated.

**Reversing & Locking Mechanism NO EXCEPTIONS:** The hydraulic reversible push frame shall offer nine (9) plowing positions: four (4) on either side of center to a maximum of 37 degrees for discharge to the right or left Reversing actuation shall be via two (2) 3" diameter x 18" stroke single acting cylinders

Cylinder protection shall be provided by the aforementioned spring retained sliding mechanism, which pulls a 1 1/4" NiCroloy locking pin located at the rear underside of the "A" Frame into a 1/2" thick indexed locking plate at the Reversing Frame

Locking force is provided by the combination of spring tension and forward plows movement, while unlocking force is provided by the reversing cylinders

Hardware Plating: All nuts, bolts and chain shall be zinc plated

Plow lift to include dead sheave leveling device with stainless steel cable,

Paint: All snowplow components shall be shot blasted and painted with one (1) coat of primer and one (1) coat of finish paint.

Cylinder Rods: All snow plow hydraulic cylinder rods shall be induction hardened and chrome plated to a minimum of 0.04" (1 mm) thickness.

Wrap-A-Round Bumper: An additional bumper shall be supplied at each end of the moldboard (quantity 2) They shall be from a minimum of 5/8" thick steel, shall bolt at the cutting edge face and shall project outward beyond the cutting edge where they shall terminate with a 2 1/8" diameter round bar

#### **DUMP BODY AND HOIST PACKAGE:**

**General:** The specifications describe a "Heavy Duty" conventional dump with a nonshell design, the material used for the floor/sides and gate will be HARDOX 450, Finish paint will be white to match the truck cab. Must be equipped with side boards rough cut 2x10x10 painted Black.

Body length: 11'

Side Height: 30"

Tailgate Height: 39"

**Floor:** One piece 1/4" material with 45 degree ramps to the sides and front

**Sides:** 3/16" Smooth side with dirt shedding lower rub rails, boxed top rail with inverted angle the full length for dirt shedding, board pockets capped.( See General side Boards )

**Gate:** 'A" two panel with air controlled tailgate latch, two manual asphalt chute doors installed in the left and right of the gate

**Cab Shield:** 42" Full seam welded

**Lift Cylinder:** 20 Ton Capacity designed for salt application, cylinder shall not protrude past the front body panel, and cylinder shall not protrude more than 14" into the load space area

**Flaps:** Installed front and rear of the rear axle.. (On Poly Fenders)

**Reflective Tape:** Installed on body sides and tailgate.

**Tool box:** An aluminum tool box, approximately 18"x 18" x 36" shall be installed.

**Lighting:**

Betts LED ICC and rear light modules #A5R0J0139 mounted to body per City of East Providence direction

Two sanding lights mounted to the spreader per City of East Providence direction

One wing spot light installed per City of East Providence direction (LED preferred)

One wing strobe light Whelen model WPLOWIA installed per City of East Providence direction (LED preferred)

Two Whelen model L-31 lights mounted to the front of the body cab shield per City of East Providence direction

Two oval grommet mounted LED flashers and two LED S/T/T mounted in the body rear corner post

All wiring will be sealed and run thru junction boxes, PVC pipe routed inside chassis Frame

**Towing:**

Chassis mounted 3/4" pintle plate with a 25-ton swivel hook, Two "D" rings, electrical socket, pintle.

Hook height and electrical socket type per City of East Providence direction

**MATERIAL SPREADER**

Length: 10'

Width: 82"

Height: 56"

12 gauge stainless steel sides and ends with a 45degree side slope, 7 Gauge stainless steel longitudinal with slotted ends fox gearbox and chive shaft removal, 25:1 gearbox with 1 1/2" drive shaft and 1 3/4" idler shaft, spring loaded chain take up, 6 tooth sprockets, pintle type. Conveyor chain with 1 1/2"x 3/4" double welded cross bars; tip up style spinner assembly with Poly disc, I op screen, stainless steel light bar with flashers/ICC and S/T/T mounted to the top rear of the spreader, installed in the dump body with a tailgate latch bar and four tie downs

**Must come with 2x6 pressure treated board mounted on bottom of sander.**

Pre-Wetting System: (2) 90 gallon poly tanks mounted to the spreader with stainless steel hardware, Hydraulic powered calcium pump mounted in a stainless steel enclosure, all required hoses/spray bar and nozzles to make the system fully functional and controlled by the CS550 controller. **Must have 1" Banjo nozzle with Cap for filling of tanks.**

**GROUND SPEED ORIENTED CENTRAL HYDRAULIC SYSTEM NO EXCEPTIONS**

Power take off will be transmission mounted and will be hot shift design with no less than 100% of engine speed, the PTO will accept a variable displacement pump via direct mount. Controls for engage/disengage of the PIO shall be a CS 105.. The CS 105 controller shall monitor hydraulic reservoir oil level via the reservoir oil level float switch, once the oil level drops below a safe operating level, this switch will disengage the PTO The controller shall be compatible with CS550 design..

The direct PTO mounted hydraulic pump shall be a piston type, variable displacement, pressure compensating design.

The pump shall be a Rexroth A 10V060 52 series

Hydraulic valves shall be Rexroth load sense M4.12 series to control all hydraulic functions. The valve shall be installed in a frame mounted stainless steel enclosure.

Controls for all valves shall be Del pneumatic equipped with an adjustable filter/lubricator/regulator assembly plumbed in line with all controls mounted in the cab per City of East Providence direction.

The spreader control shall be a Compu Spread CS550 with all the latest updates and shall be compatible with City of East Providence existing units. This unit shall control the pre-wet and application rate of all materials and monitor the road and air temperature. Shall include software required to transfer data to City of East Providence account with Interfleet Inc. a division of Webtech Wireless in the same manner as City of East Providence existing trucks.

The location and mounting of all controls shall be pre-approved by City of East Providence

All hose ends and fittings shall be compatible with the hose on which they are used, Suction and return lines shall meet or exceed a rating of SAE100R4. Pressure lines shall meet or exceed a rating of 100R2 and shall be of double wire braid construction,

All hoses shall be sized to pump and cylinder requirements and shall be routed in such a way as to avoid contact with the exhaust system, driveshaft, and/or the chassis. Hoses shall be wrapped with protective hose wrap in potential wear spots and shall be securely anchored to the frame rails. All hydraulic lines from the control valve area to the front of the truck shall be custom formed. Stainless steel tubing, bulkhead mounted at both ends and supported by cushion type clamps. All hydraulic lines from the control valve area to the rear of the chassis shall be stainless steel tubing supported by cushion type clamps.

The spreader control shall be constructed with a "digital" type electronic circuit. Features will include night time vision display for viewing by the operator and used in calibration. Display shall also inform operator of service problems. The light shall illuminate when spreader is in operating mode. The display shall indicate if the spreader is in operating mode or stand-by mode. A backlit minimum 7" color LCD shall be mounted in clear view of the operator, location in cab to be approved by City of East Providence. Display shall show granular set rate, actual spread rate, spinner spread width, and pre-wet set rate. For Anti-Icing application display shall show set rate, actual rate, and lanes that are active. Controller shall be able to switch from pre-wet to anti-ice with a flip of a switch and without going into set-up or calibration mode

Controller shall be capable of adjusting granular material rates, pre-wet rates, and anti-icing rates on the fly without pause or interruption of spreader output while driving. Adjustment shall be accomplished with a straightforward, single hand operation without entering setup or calibration mode

It shall not be possible for an operator to select manual mode unless the proper clearance password has been entered into calibration. If a feedback error occurs, the controller shall default into Open Loop Mode..

There shall be a ground speed sensor that will signal the control box to speed up or slow down the conveyor as the truck ground speed changes.. All spreader functions shall stop when the truck stops, and shall resume immediately when the truck starts to move. There shall be a programmable jump start feature to provide immediate material flow at one MPH..

Spreader speed sensor wire cable shall be of the same material and integral to the main spreader control cable. Spreader cable wire shall be 18 gauge, minimum

The system shall include all necessary wiring and switching required to be fully operational

The electrical harness from the control console to connector #1 and from the control console to the valve bank box shall be shielded and be solvent and oil resistant. Wiring from the control console to connector #1 and from the control console to the valve solenoids shall be enclosed in a sealed, dry system with no external splices.

#### **COVER SYSTEM SPECIFICATIONS MODEL DT-2000 CH**

1/2" STEEL POWER MOUNTS WITH Teflon sealed spherical bearing

Grade 8 bolts and nuts

The in-cab power cover control lever shall be in line with other control levers

- A spool sectional valve is stacked with the existing sectional valves.. A built -in check valve in the sectional valve safety locks the system in both directions.. 2.5/3000 PSI hydraulic hose with #4 JIC fitting

Hydraulic cylinders have a W-bore 16, stroke with an 1" chrome plated piston rod

Side arm wall tubing (2" x 1 1/2" x 11 gauge) with steel welded ends and cylinder mounts

- :3 Y2." galvanized steel tube roll assembly

- 18 oz Armor Guard Cover (wear resistant and asphalt approved) (UHMW) self-lubricating wedges (high density polypropylene)

- Full 100% warranty on parts and labor for one year (excludes cover)