



**THE CORPORATION OF  
THE CITY OF THOROLD**

**PUBLIC WORKS**

**REQUEST FOR PROPOSAL  
RFP NO.: PWCS2019-07**

**FOR THE PROVISION OF:  
ONE (1) 2019 TRACTOR AND BOOM MOWER COMBINATION UNIT**

**MUST** be received by the

City of Thorold Clerk's Department  
City Hall, 3540 Schmon Parkway,  
Thorold Ontario, L2V 4A7

By no later than

**2:00 p.m. local time on Tuesday, May 14, 2019**

**RETURN LABEL**

Bidders are asked to use their own envelope and firmly affix this label to the front of the envelope containing their bid submission and relevant manufacturer's literature.

The City of Thorold cannot be held responsible for documents submitted in envelopes that are not labelled in accordance with this instruction.



Company Name:

---

Address:

---

**DOCUMENTS**

**ATTENTION:** Donna Delvecchio, City Clerk  
The Corporation of the City of Thorold  
3540 Schmon Parkway  
Thorold, Ontario L2V 4A7

**CONTRACT NO:**

**DESCRIPTION:** ONE (1) 2019 TRACTOR AND BOOM MOWER  
COMBINATION UNIT

**CLOSING:** 2:00 p.m., Local Time, Tuesday, May 14<sup>th</sup>, 2019

**ANY OR ALL BID SUBMISSION NOT NECESSARILY ACCEPTED**

---

## **TO WHOM IT MAY CONCERN**

The information contained in this bid opportunity is being collected pursuant to the provisions of the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA) and will only be used to make a decision concerning the acceptance of this bid. The name of the Contractor and the total price will be made public. All other information contained in this document will be held in accordance with MFIPPA provisions.

This bid document is received in confidence save and except the name of the tender and the total tender amount. However, the successful tender document will be made public and will form part of the accepting by-law and/or contract. Further information may be obtained by contacting the Municipal Clerk City of Thorold (905) 227-6613.

**THE CORPORATION OF THE CITY OF THOROLD**

**REQUEST FOR PROPOSAL**

**ONE (1) 2019 TRACTOR AND BOOM MOWER COMBINATION UNIT**

**RFP NO. PWCS2019-07**

**INSTRUCTIONS TO BIDDERS**

1. **SEALED DOCUMENTS** clearly marked as to contents and on the forms provided will be received by Donna Delvecchio City Clerk, City of Thorold, 3540 Schmon Parkway, Thorold, Ontario, P.O Box 1044, L2V 4A7 until **2:00 p.m. Local Time Tuesday, May 14<sup>th</sup>, 2019** for the purchase of a new equipment as noted above and to the specifications contained herein this bid package.
2. The supplier must state the time and delivery for the unit complete. The City is to be advised immediately of any necessary change in the stated time of delivery.
3. The supplier must contact the City of Thorold Manager of Public Works, Steve Santo at 905-227-3521 for an inspection **prior to delivery**.
4. Bidders must submit with their bid, relevant manufacturer's literature on the equipment (photocopies not accepted) in their envelope with the provided envelope template securely affixed to it. (Page 2)
5. Should the Corporation be made aware that there has been patent infringement, the Bidder will be disqualified.
6. The lowest or any bid will not necessarily be accepted.
7. Award is based on Council/budget approval.
8. When completing the tender, answers yes or no will not be accepted if specify is indicated, and may result in disqualification.
9. Form of bid and/or addendum(s) must be completed in ink or by typewriter/electric print. Photocopies of tender form will **not** be accepted.

**THE CORPORATION OF THE CITY OF THOROLD**

**REQUEST FOR PROPOSAL**

**ONE (1) 2019 TRACTOR AND BOOM MOWER COMBINATION UNIT**

**RFP NO. PWCS2019-07**

**INFORMATION TO BIDDERS**

1. PROCEDURE

The following policy regarding the preparation and submission of bids and bid opening procedures shall be followed.

Bids are requested to adhere strictly to the instructions concerning submission.

2. ACCEPTANCE OR REJECTION OF BIDS

The lowest or any bid will not necessarily be accepted. The Corporation reserves the right to reject any or all bids for any reason whatsoever, and to accept any proposal considered to be in the best interest of the Corporation.

3. INFORMAL BIDS

Bids that are incomplete, conditional or obscure or which contain additions not called for, erasures, alterations or irregularities of any kind, may be rejected as informal. The tenderer may however, submit alternative prices on any item for consideration. The Corporation reserves the right to waive informalities at its discretion.

4. WITHDRAWL OF BID

A Bidder will be permitted to withdraw the bid unopened after it has been deposited, provided such request is received in writing prior to the time specified for opening of the bids.

5. EQUIPMENT SPECIFICATIONS

It is the intent of the attached specifications to describe specific details of equipment required in this matter. It is the responsibility of the successful bidder to supply any equipment not described in the specifications, but required for the satisfactory operation of the vehicle. All vehicles shall be delivered with all accessories mounted and operating.

6. BIDS LEFT OPEN

The bidders shall keep his/her tender open for acceptance for sixty (60) days after the closing date.

**THE CORPORATION OF THE CITY OF THOROLD**

**REQUEST FOR PROPOSAL**

**ONE (1) 2019 TRACTOR AND BOOM MOWER COMBINATION UNIT**

**RFP NO. PWCS2019-07**

**FORM**

**The Corporation of the City of Thorold is part of the Broader Public Service of the Province of Ontario and as such is entitled to the concessions (discounts) as arranged by the Ministry of Government services under VOR: OSS 074423.**

I/We \_\_\_\_\_ the undersigned agree to supply and deliver to the City of Thorold, as per City specifications or equivalent, and at the Total Bid Price, in Canadian Funds, stated herein.

State Model Year \_\_\_\_\_

Price before Discount \$ \_\_\_\_\_

Discount \$ \_\_\_\_\_

Total Bid (excluding taxes) \$ \_\_\_\_\_

Harmonized Sales Tax (H.S.T.) (if applicable) \$ \_\_\_\_\_

**TOTAL BID \$ \_\_\_\_\_**

Based on an award date of \_\_\_\_\_ (or sooner) the vehicle will be delivered on \_\_\_\_\_

DEALER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

NAME/EMAIL: \_\_\_\_\_

DATE: \_\_\_\_\_

WITNESS: \_\_\_\_\_

SIGNED: \_\_\_\_\_

**TENDER CLOSES 2:00 p.m. LOCAL TIME TUESDAY, MAY 14<sup>TH</sup>, 2019**

**THE CORPORATION OF THE CITY OF THOROLD**

**REQUEST FOR PROPOSAL**

**ONE (1) 2019 TRACTOR AND BOOM MOWER COMBINATION UNIT**

**RFP NO. PWCS2019-07**

	<b><u>General</u></b>		
	It is the intent of this specification to describe an industrial self propelled mower tractor. The unit shall be the manufacturers current production model meeting or exceeding the terms of this specification.		
	For any offer to be considered all items must be of a standard production model and not modified for bid purposes.		
	<b>SPECIFICATIONS REQUIRED</b>	<b>COMPLY YES/NO</b>	<b>EXCEPTIONS, DEVIATIONS AND ANSWERS</b>
	<b>Main Tractor Unit</b>  Make:  Model:  Year:		
	<b>Tractor shall be able to accommodate the following:</b>		
	Boom Mower, as specified in tender		
	96" PTO driven rear hydraulic side shift flail mower, as specified in tender		
	Tractor shall be capable of operating the boom and rear mowers simultaneously		
T1.0	<b><u>Engine</u></b>		
T1.1	Diesel In-line 4-Cylinder Wet-Sleeve with High Pressure Common Rail (HPCR) Fuel System and 16 Valve Head		
T1.2	276 CID (4.5 Liters)		



T1.3	105 - Engine horsepower @ rated speed		
T1.4	89 PTO Horsepower @ rated speed		
T1.5	Wastegate Turbocharger and Exhaust Gas Recirculation		
T1.6	Closed cooling system		
T1.7	PowerCore Air Filtration System with Permanent Pre-Cleaning and Safety element		
T1.8	Under hood after treatment system with deluxe Corner Post Exhaust		
T1.9	44.4 Gal Fuel Capacity		
T1.10	Front auxiliary drive preparation kit		
T1.11	<b><u>Transmission</u></b>		
T1.12	12 forward speeds, 12 reverse speeds, with left hand power reverser		
T1.13	Neutral safety start system		
T1.14	Mechanically actuated park brake		
T1.15	Wet Multi-Disk Clutch		
T1.16	<b><u>Steering and Brakes</u></b>		
T1.17	Hydrostatic Power Steering		
T1.18	Sealed wet disk brakes		
T1.19	Rear axle differential Lock		
T1.20	<b><u>Hydraulics</u></b>		
T1.21	Open Center Hydraulic System		
T1.22	20.0 GPM (75.7 L/min) Pump Flow @ rated speed (2200), Two SCV - (2 SCV); ISO Couplers		
T1.23	Dual selective control valve with couplers		
T1.24	Power beyond, allows hydraulic pump to power implements that have independent control valves		
T1.25	Hydraulic oil cooler		
T1.26	<b><u>Power Take off Shaft</u></b>		
T1.27	540/1000 RPM, 1-3/8 In. Independent Rear PTO, Reversible Shaft and PTO Master Shield		
T1.28	Electro-hydraulic Activation		
T1.29	Wet Multi-disk clutch		
T1.30	Neutral start Safety System		
T1.31	Seat activated PTO warning		
T1.32	<b><u>Rock Shaft and Draw Bar</u></b>		

T1.33	<u>Mechanical Hitch</u>		
T1.34	Category 2 3pt hitch		
T1.35	Mechanical hitch control		
T1.36	5500 Lb. Lift capacity		
T1.37	Telescopic draft links		
T1.38	Adjustable sway chains		
T1.39	Top link sensing draft control		
T1.40	Cat 2 drawbar, swinging		
T1.41	Safety chain holder		
T1.42	<b><u>Instrumentation</u></b>		
T1.43	Tachometer		
T1.44	Speedometer		
T1.45	Hour meter		
T1.46	Fuel Gauge		
T1.47	Engine oil pressure		
T1.48	Coolant temperature		
T1.49	PTO engagement		
T1.50	Engine air filter		
T1.51	Alternator		
T1.52	Directional indicators		
T1.53	Hazard switch		
T1.54	Park brake indicator		
T1.55	<b><u>Comfort Guard Cab</u></b>		
T1.56	Air conditioning and heating		
T1.57	2 door cab		
T1.58	Front fixed windshield wiper and washer		
T1.59	Air Ride Suspension Seat with seat belt		
T1.60	Tilt/Telescopic Steering Column		
T1.61	Right and left hand foot steps		
T1.62	Operational controls, RH console		
T1.63	Floor mat		
T1.64	Foot throttle control		
T1.65	Power Outlet		
T1.66	Radio prep package, antenna, cable, two speakers, wiring harness for speakers and radio		
T1.67	Overhead courtesy light		
T1.68	2 cup Holders		
T1.69	Telescopic rear view mirrors (2) manually adjustable		
T1.70	<b><u>Electrical</u></b>		
T1.71	Key engine shutoff		

T1.72	12 volt electrical system		
T1.73	One 12-Volt Battery, 925 CCA		
T1.74	7 terminal ASAE outlet socket		
T1.75	90 amp alternator		
T1.76	<b><u>Lights</u></b>		
T1.77	Four front grille headlights		
T1.78	Two Front Roof Worklights		
T1.79	Two rear roof lights		
T1.80	Flashing hazard lights		
T1.81	Two Rear Fender Tail Lights with Brake Lights		
T1.82	<b><u>Rear Axle and Tires</u></b>		
T1.83	Flanged rear axle		
T1.84	8 position steel wheels		
T1.85	460/85/R34 8PR R1W		
T1.86	<b><u>Front Axle and Tires</u></b>		-
T1.87	Electro-hydraulic MFWD engagement, right hand console		
T1.88	8 position steel wheels		
T1.89	340/85R24 8PR R1W		
T1.90	<b><u>Mounting</u></b>		
T1.91	Unit must be mounted at the mower manufacturers factory facility, no dealer mounting.		
T1.92	<b><u>Miscellaneous</u></b>		
T1.93	Operators Manual		
T1.94	SMV emblem		
T1.95	Horn		
T1.96	Fuel tank guard		
T1.97	<b><u>Warranty</u></b>		
T1.98	24 months or 2000 hours which ever comes first		
	<b><u>General (Modular Frame T4F D5 3OS)</u></b>		
	It is the purpose of the following specifications to describe a hydraulic driven boom mower. Mowing is forward and right of the right rear tire and extended by means of an articulated two section boom with hydraulic break away. This unit shall be constructed to interchange with any of the following: 50" Rotary Cutting Head, 60" Rotary Cutting Head, 63" Flail cutting head, 50" Flail Cutting Head, 48" Saw Blade, 50" WetCut Sprayer, Boom Snow Blower, 22" Rotary Ditcher, 60" Side Rotary Mower or 75" Side Flail Mower. The unit will be the manufacture's current production model with a minimum of (1) one year previous production, meeting or exceeding the terms of these specifications. Unit's shall be manufacturer's heaviest duty model available. The vendor shall guarantee that a stock of component parts be available at a location convenient to the user. For any offer to be considered, all items must be of a		

	standard production model, not modified for bid purposes. It is a requirement of this bid that vendors submit the pertinent information requested in each section marked "(VENDOR REQUIREMENT)". <b><u>In the event the requested material and responses are not supplied, by the bidder, the bid submitted will be considered non-responsive and will automatically be rejected.</u></b>		
	<b>Boom Mower</b>		
<b>Line Number</b>	<b>SPECIFICATIONS REQUIRED</b>	<b>COMPLY YES / NO</b>	<b>EXCEPTIONS, DEVIATIONS, and ANSWERS</b>
B1.0	<b><u>SAFETY AND TESTING</u></b>		
B1.1	Shall meet the following industry standards: SAE: J232(Rotary), J1001(Flail), J284, J990, J1065. ANSI/ASAE- 201.4, S203.13, S205.2, S279.12, S350, EP363.1, S483, S493. ASTM: A370. (VENDOR REQUIREMENT)Submit compliance report signed by a registered Professional Engineer(PE).		
B1.2	Unit shall be equipped with a 7 second brake valve on the cutting assembly.		
B1.3	Electric Solenoid control transport lock to be integrated into the mower control box.		
B2.0	<b><u>MAIN FRAME</u></b>		
B2.1	Main Frame shall be constructed to be supported on the front tractor bolster, center of tractor and rear axel housings, to absorb side torque and impact of severe applications.		
B2.2	Main Frame shall be constructed of fabricated 80,000 PSI steel, bolted directly to each side of tractor frame. An underbelly frame member, running under engine, shall be welded, box frame constructed, and connect the mainframe to each side of tractor(specifically excluding frames over hood designs). A bolt on mast assembly shall have an integral swing cylinder as a welded assembly with the mast assembly.		

B2.3	Main Frame shall have a bolt on mast assembly to allow easy change from Boom Mowers to Side Mower attachments. Weldment shall bolt face to face with tower and shall have a mounting surface with not less than 10, 3/4" grade 5 bolts. Mounting surface shall be constructed of 80,000 lbs. steel 1/2" thick. (VENDOR REQUIREMENT) Vendor shall submit diagram of mast mounting.		
B3.0	<b><u>BOOM SWIVEL BRACKET</u></b>		
B3.1	Swivel shall be box construction with a 100,000 PSI yield steel swivel cylinder tang with a vertical bearing boss, with steel backed, porous bronze inner structure, and acetal resin overlay bearings. Bearings shall have grease pockets built in and support a 2 1/2" vertical pin. Pin shall be constructed of 4140 cold drawn steel, prehardened(heat treated), to a minimum yield of 105,000 PSI, pin shall be zinc plated. (VENDOR REQUIREMENT) Submit manufacturer of bearing, model and size.		
B3.2	Swivel shall connect to inner boom cylinder with a greaseless spherical bearing. (VENDOR REQUIREMENT) Submit type of bearing and size.		
B3.3	Swivel shall be supported by a greaseless thrust washer to eliminate galling between swivel bracket and boom mounting bracket. (VENDOR REQUIREMENT) Submit ID and OD dimensions and thickness.		
B3.4	Hydraulic Hoses shall be routed thru hose clamp/guides with hose guards to prevent chaffing.		

B3.5	Base shall have integral boom swivel attachment fork and constructed of 3/4" and 1" thick 100,000 PSI steel. (VENDOR REQUIREMENT) Submit material and thickness of fork.		
B3.6	Horizontal swing cylinder shall have an internal cushion device to limit flow when boom is operated to the forward boom position.		
B4.0	<b><u>PRIMARY BOOM</u></b>		
B4.1	Primary boom shall have a minimum of 70,000 PSI 8" x 6" structural tube and reinforcement with 50,000 PSI steel.		
B4.2	Primary boom shall have a one piece reinforced cylinder attaching rib, with the end welds strategically welded around end of rib to boom upper surface. Inner reinforcement shall be a 1/4" x 5" anchor plate, saddle mounted to the top of boom. Anchor plate shall be structurally welded to main tube and have 2, 1" diameter core welds in the top center of plate. Outer reinforcement shall be 1/4" box sectioned, 100,000 PSI steel with 2, 1" x 6" core weldments on each side, and 1, 1 x 1 1/4" oblong core welds. Inner end of Primary boom shall have a 1 1/2" diameter 105,000 PSI yield, hardened, nitride surface pin, with a high-strength, steel backed, porous bronze inner structure, acetal resin overlay bearing installed. (VENDOR REQUIREMENT) Submit a complete description of boom, materials, and boom reinforcements.		
B4.3	Pressure and return lines will be preformed steel tubes, or hoses, with hoses at pivot points and mounted to back of boom. (Specifically excluding hoses and tubing inside or front of booms)		

B4.4	Top mounted double acting lift cylinder shall have a nitrogen accumulator.		
B4.5	Cylinder end attach points shall have replaceable bearings. Primary boom lift cylinder shall not be less than 5" in diameter.		
B5.0	<b><u>SECONDARY BOOM</u></b>		
B5.1	Secondary boom shall have a minimum of 50,000 PSI 6" x 4" tube and reinforced at all stress points.		
B5.2	Pressure and return lines are preformed steel tubes and hoses mounted to rear of boom.		
B5.3	Cylinders shall be welded, double acting and mounted to top of boom. Hydraulic cylinder mounted between primary and secondary boom shall have a spherical bearing rod end.		
B5.4	Outer end of secondary boom shall have an integrally designed mounting boss, box sectioned into the boom. (Specifically excluding external boom end reinforcements)		
B6.0	<b><u>HYDRAULICS</u></b>		
B6.1	Pump shall be direct drive from the tractor front crankshaft adapter. (rubber mounted engine design shall have a double u-joint pump drive shaft) (VENDOR REQUIREMENT) Submit type of shaft attachment supplied.		
B6.2	Reservoir shall be internally treated against corrosion with industry approved chemical agent at time of manufacture. Reservoir shall have a in tank filter rated at 75 GPM, 10 micron, 200 beta, element with bypass, restriction gauge, minimum (1) one PSI pressure at suction outlet and have ball valve at suction line. Tank pressurized to 3 PSI. (VENDOR REQUIREMENT) Submit material used to treat		

	reservoir. Type, design and micron size of filter element.		
B6.3	Reservoir shall be mounted in tractors left hand rear wheel well. Reservoir shall have sufficient clearance for proper cooling and shall be a minimum 37 gallons of oil in an operating condition. Reservoir shall have a minimum of not less than 5" clearance (oil cold) from top of reservoir for expansion. Hydraulic fluid level and temperature gauge to be built-in reservoir.		
B6.4	Hydraulic pressure connections shall meet SAE O-ring and JIC standards.		
B6.5	Pump shall be front mount, cast steel housing, steel gears, rated at 3250 PSI, 45 GPM and 96 HP input. (specifically excluding piston type pumps and cast aluminum housing pumps)		
B6.6	Suction hose shall be unrestricted. (Specifically excluding suction filters and screens)		
B6.7	Hydraulic oil shall meet a cleanliness standard of ISO 46 rating, and the ISO Code 16/14/11 or better. (VENDOR REQUIREMENT) Submit report of oil sample.		
B6.8	Hydraulic hoses and tubes shall be cleaned with pneumatic, triple projectile cleaning, and shall maintain a JDS-G169, class 5.6. ISO cleanliness rating. (VENDOR REQUIREMENT) Submit method of cleaning and standard met.		
B6.9	Motor shall have cast steel housing with steel gears.		



B6.10	Mower control valve shall be an electrically controlled, pilot operated. Logic elements shall be used to control pressures and ramp up and down speed to prevent excessive pressure spikes to system. Valve shall stop mower from turning in the off position and will not cause a restriction to generate drift while in the off position.		
B6.11	Mower control valve shall stop cutter assembly in maximum of 7 seconds from full RPM. (VENDOR REQUIREMENT) State time to stop from full RPM.		
B7.0	<b><u>JOY-STICK CONTROL LIFT VALVE</u></b>		
B7.1	Joy-Stick Valve Option: Shall be an electro-hydraulic, load sensing valve. Valve shall have interchangeable spools and shall have a manual over-ride for each section, and 12 volt electrical actuation.		
B7.2	Valve(Joy-Stick) shall have load-independent flow control, oil flow to individual function is independent of the load pressure of the function. Valve shall have built in pressure relief in pump side module(PVP), with system capabilities of pressures of not less than 4,350 psi continuous, and 4,640 psi intermittent. PVP shall have a pressure gauge connection for service and have an open center option for fixed displacement pumps.		
B7.3	Valve (Joy-Stick) body shall have interchangeable spools, integrated pressure compensator, check valves, and different spool variants. Valves shall be configured with manual over-ride levers on one end and an electronic actuation module on the other.		

B7.4	<p>Electrohydraulic(Joy-Stick) actuation module shall integrate directly with proportional valve body. Module shall have integrated electronics, sensors, and actuators, and shall have a feedback transducer measuring spool movement in relation to input signal, module shall control the direction, velocity, and position of main valve spool. Module shall have automatic active fault monitoring, and directional indication and LED light indication. Module shall have low hysteresis and shall have attachment for a sealed Deutsch connector. (REQUIRED)Vendor shall provide module hysteresis value, brand of connector, and IP rating of connector.</p>		
B7.5	<p>Joy-Stick controller shall be an ergonomic right hand control, with two proportional functions on X-Y mode, and a top grip to house two proportional rollers. Controller handle shall have a leather-like grained surface to allow hand to breathe during operation. Controller rollers shall have a spring centered potentiometer with a working range of + or - 42°. Controller shall be adjustable with dead band adjustment, independent voltage limiting potentiometers for each function, and integrated direction switches for each proportional module. Controller shall have integral cable plug in, and an RF shielded cable shall be supplied by the manufacturer. (VENDOR REQUIREMENT)Vendor shall state the manufacturer, model, and type of electronic module, joy-stick, and valve.</p>		
B8.0	<b><u>COUNTERWEIGHT</u></b>		

B8.1	Counter weight, with tractors having 30" minimum rear tires shall have a total ballasted weight (wheel weight and Calcium Chloride solution) of 2,087 lbs. Wheel weight shall be cast steel, mounted flush to outside of wheel, and shall weigh not less than 1,300 lbs. for 18' and 22' boom reaches. Counter weight, with tractors having 34" minimum rear tires shall have a total ballasted weight (wheel weight and Calcium Chloride solution) shall be a minimum of 2,781 lbs. Wheel weight shall be cast steel, mounted flush to outside of wheel, and shall weigh not less than 1,700 lbs.(specifically excluding flame cut steel and or frame mounted weights) (VENDOR REQUIREMENT) Vendor to state total ballast weight and describe and list wheel weight.		
B9.0	<b><u>OPERATOR PROTECTION</u></b>		
B9.1	Shall have 3/8" right side, hard surfaced, polycarbonate protection for operator. Installed into the original cab manufactured door and or side window. (VENDOR REQUIREMENT) State thickness, manufacturer, and type of hard surface to polycarbonate.		
B10.0	<b><u>STOW SYSTEM</u></b>		
B10.1	A single point mounted boom stow system shall be attached directly to tractor with two frame members extending to the right-hand and left-hand rear axle housing and further extends forward to mower main frame. 3 point hitch system shall function normally.		

B10.2	Stow system shall consist of two axle braces extending from the mower mainframe running and below and attached to the right rear and left axle housing. The axle brace shall attach to the upper single post stow assembly which saddles on top of the axle brace and has an adjustable stow plate bolted to the upper single post stow assembly.		
B10.3	The axle brace shall be of the square tube design. An axle brace shall be provided of not less than A500 material 4" x 4" square tube with a minimum 1/4" wall. The tube shall attach to the mower mainframe and extend below and attach to the right rear axle.		
B10.4	The upper stow assembly shall be constructed of 1/4" x 4" x 4" square tubing saddle mounted to axle brace extending above and behind the right rear axle.		
B10.5	The adjustable stow plate shall be attached to upper stow assembly and shall be adjustable up or down and side to side in 3" increments. The stow shall contact the outer boom and shall not be more than 27" above the axle center line and not more than 39" behind the axle center line. (VENDOR REQUIREMENT) Vendor shall state the stow dimension above and behind axle center line.		
	<b>Medium Duty Flail Cutter Head</b>		
	<b>FL50MBG</b>		
H1.0	<b><u>CUTTING HEAD</u></b>		
H1.1	Shall have 50" of actual cut.		
H1.2	Shall have replaceable skid shoes.		
H1.3	Rubber deflector shield shall be bolted to back of bonnet.		
H1.4	Head shall weigh not less than 808 lbs.		
H1.5	Head shall rotate 180° around outer boom.		
H1.6	Shall have minimum of 81 HP drive belt system.		

H2.0	<b><u>CUTTER HOUSING</u></b>		
H2.1	Bonnet shall be minimum of 3mm thick and shall be constructed of 100,000 PSI yield steel.		
H2.2	Shall have minimum of 5/16" solid steel side walls.		
H2.3	Cutter head pivot assembly shall be fully welded and integrated into the cutter head design. (specifically excluding cutter heads that bolt to pivot assembly) (VENDOR REQUIREMENT) Vendor shall provide line drawing of cutter head attachment.		
H3.0	<b><u>CUTTER SHAFT</u></b>		
H3.1	Cutter shaft shall be a minimum of 6" diameter and 1/2" wall, DOM 1-513 type 5 tubing, with 2 3/16" diameter bearings manufactured in the US. Each Bearing race shall have 2, 3/8" set screws, counter-sunk 60° from each other into cutter shaft, end shaft to prevent movement. Bearings shall be attached to cutter housing end plate with not less than 4, 1/2" x 2", NC, L9 bolts. (VENDOR REQUIREMENT) Vendor shall indicate: Country of bearing manufacture, size, and design of bearing attachment and hardware to bearings to both the shaft and cutter end plates.		
H3.2	Cutter shaft shall have a minimum of 48 double edged knives.		
H3.3	Knives shall weight not less than 3 lbs. (per pair), and attached to the shaft so as the knives do not have direct contact with bolt. A spacer on each side of knives shall keep the knives centered between the cutter shaft lugs.		
H3.4	Knife swing circumference shall be no less than 70 5/8".		
H3.5	Cutter shaft shall rotate at minimum of 2,300 RPM at rated tractor RPM.		

H3.6	Cutter shaft shall have wire wrap protection each end.		
H4.0	<b><u>GROUND ROLLER</u></b>		
H4.1	Cutter height shall be adjustable up to 6" and accomplished through a bolt on adjuster.		
H4.2	Ground roller shall not be less than 6" diameter, with 22/64" side wall, constructed of DOM A513 Type 5 tubing.		
H4.3	Ground roller shall have a 5/8" thick bearing carrier plate welded integral with the tube. The carrier shall have a pilot hole of 3 5/8" diameter. With 4 tapped holes with 7/16"-14 NC threads.		
H4.4	Ground roller bearings shall be a 1 3/8", flanged type, ball bearing, with double lipped sealing, attached with 4, 7/16" grade 5 cap screws.		
H4.5	Ground roller shall have a through shaft, with the bearings attached, and anchored at each end with a 1 1/8" NF loc-nut at each end.		
H4.0	<b><u>BOOM DIMENSIONS (Specify Dimensions)</u></b>		
H4.1	Reach Out 21.2 feet		
H4.2	Reach Down 10.9 feet		
H4.3	Reach Up 20.4 feet		
H4.4	Reach In 5.7 feet		
	<b><u>FLAIL SPECIFICATIONS 96"PTO DRIVEN REAR HYDRAULIC SIDE SHIFT FLAIL MOWER</u></b>		
	<b><u>General</u></b>		
	It is the purpose of the following specifications to describe a PTO powered, 3-point mounted, flail type mower, which shall mow behind and or offset to the right hand side of the tractor. The rear mounted unit shall be designed to work with a 63", 75", or 90" side mounted flail mower, a 60" or 72" side mounted rotary mower. The unit shall be of the manufacturer's current production model, meeting or exceeding the terms of these specifications. Unit(s) shall be the manufacturer's most heavy-duty model available. The manufacturer shall furnish parts and operation manuals for the unit(s) bid. The manufacturer shall also guarantee equipment against defects in workmanship and materials for a period of (1) year. For any offer to be considered, all items must be of a standard production model, "not" modified for bid purposes. It is a requirement of this bid that vendors submit the pertinent information requested in each section marked "(VENDOR REQUIREMENT)". In the event the requested material and		

	responses are not supplied, by the bidder, the bid submitted will be considered non-responsive and will automatically be rejected.		
<b>Line Number</b>	<b>SPECIFICATIONS REQUIRED</b>	<b>COMPLY YES / NO</b>	<b>EXCEPTIONS, DEVIATIONS, and ANSWERS</b>
B1.0	<b><u>SAFETY AND TESTING</u></b>		
B1.1	Shall meet the following industry standards: SAE: J1001,J284, J990, J1065. ANSI/ASAE-S201.4, S203.13, S205.2, S279.12, S350, EP363.1. ASTM: A370, (VENDOR REQUIREMENT)Submit compliance report signed by a registered Professional Engineer(PE).		
B1.2	Safety Shielding must include Foot Probe guarding as described in SAE Standard J1001. A safety guard consisting of a horizontal bar that is welded to the front cross tube with a 3/8" thick styrene butadiene rubber attached to the bar shall be standard on all side and rear flails.		
B1.3	Rubber deflector shield shall be bolted to back of bonnet.		
B1.4	Standard rotation models shall have internal, bolt in, formed steel, baffle. Reverse rotation models shall be equipped with front deflector shield. (VENDOR REQUIREMENT) Vendor shall describe baffle system.		
B2.0	<b><u>FLAIL SPECIFICATIONS</u></b>		
B2.1	Cutting width shall be at least 96" of actual cut.		
B2.2	Cutting assembly shall be flail type, mechanically powered by tractor's PTO.		
B2.3	Flail mower assembly weight shall be a minimum weight of 1520 pounds.		
B2.4	Cutting height shall be infinitely adjustable from 1/2" to 7". (It shall not be necessary to remove the roller mounting brackets to adjust cutting height)		

B2.5	Tractor's 3 point hitch system shall be used for mower's lift system.		
B3.0	<b><u>MOUNTING SYSTEM</u></b>		
B3.1	Unit shall have 3 point hitch Category II mountings that shall side shift, hydraulically 23".		
B3.2	3 point frame shall provide hydraulic side shift to the unit and be directly attached to a 2" x 24", industrial welded cylinder.		
B3.3	3 point fabricated steel frame shall have mountings for 3 point hitch's lower links and top link. The front 3 point frame tube and the rear transit frame tube shall have UHMW bushings installed and bonded to the frame tubes. The rear portion on the frame shall have a bolt on assembly connecting the frame to the rear transit frame. The rear transit frame shall be attached with 4, 1/2" x 2 1/4" NC grade 5, bolts.		
B3.4	3 point frame shall be mounted directly to two horizontal shafts extending the length of the cutter head. The shafts shall be constructed of not less than 2 1/2" steel shafting, 69" long, finished with chrome plate over nickel plate, and with a polished surface.		
B4.0	<b><u>DRIVE SYSTEM</u></b>		
B4.1	PTO shaft shall have a minimum rating of 65 horsepower.		
B4.2	Gearbox shall be reversible, rated at 90 HP constant & 135 HP intermittent.		
B4.3	Drive belt system shall have automatic belt tensioner. Rated at 81 HP. (Specifically excluding back bend belt tensioner)		
B5.0	<b><u>CUTTING HEAD</u></b>		
B5.1	Cutting head shall have replaceable skid shoes.		
B5.2	Cutting head shall be rated for 540 RPM PTO.		



B5.3	Cutter head shall have PTO shaft storage stand.		
B5.4	Cutting head bonnet thickness shall be 10 gauge, 80,000 lb yield steel with 1/2" drive side and 3/8" carrier side steel end plates.		
B6.0	<b><u>CUTTER SHAFT</u></b>	-	-
B6.1	Cutter head shall have 104 forged, hardened to 40-50Rc, self cleaning, reversible all purpose knives, or 52 smooth cut grass knives. (VENDOR REQUIREMENT) Vendor to indicate type material and hardness of cutter knives.		
B6.2	Cutter shaft shall have operating speed of 2,400 RPM at rated tractor RPM.	-	-
B6.3	Cutter shaft shall be a minimum of 4 3/4" diameter and 3/8" wall with 1 15/16" diameter bearings manufactured in the US. Each Bearing race shall have 2, 3/8" set screws, counter-sunk 60° from each other into cutter shaft, end shaft to prevent movement. Bearings shall be attached to cutter housing end plate with not less than 4, 1/2" x 2", NC, L9 bolts. (VENDOR REQUIREMENT) Vendor shall indicate: Country of bearing manufacture, size, and design of bearing attachment and hardware to bearings to both the shaft and cutter end plates.		
B6.4	Cutter shaft shall have maximum clearance of 3/32" from bearing wrap protection.		
B6.5	Knife swing circumference shall be a minimum of 58 1/2".		
B6.6	Knife interchangeability shall not require change of cutter shaft.		
B7.0	<b><u>GROUND ROLLER</u></b>		

B7.1	Ground roller system shall be a horizontal tube with replaceable stub shafts located at each end. A bearing assembly shall be located in the roller adjustment bracket located at each end of the cutter housing, and connect to the roller through the stub shafts.		
B7.2	Ground roller shall be 8 5/8" outside diameter tube with .280" side wall with outer ends, constructed of A53 steel, heat tapered to reduce scalping. 5/8" thick stub shaft mounting plates shall be welded to the tube in both ends.		
B7.3	Stub shafts shall be of the replaceable, bolt in design, with a 3 5/8" x 1/2" piloted flange, and attached to roller with 4, 7/16" x 1 1/2", NC, Grade 8, internal hex cap screws. Stub shaft shall be solid 1 piece design, with 1 3/8" bearing surface, outer diameter of not less than 5 1/4", and machined of 36,000 PSI steel.		
B7.4	A 1 3/8" double row spherical bearing shall support roller shaft on each end. Inner bearing area shall be protected by a full double lipped seal. Bearing shall be secured to the stub shaft with 2, 5/16" x 1/2" piloted set screws, located 60° from each other. Outer bearing cap shall be O-ring sealed, piloted to bearing and attached with not less than 6, 8-32 x 1/2", stainless steel, internal hex screws. (VENDOR REQUIREMENT) Vendor shall describe attachment of bearing to stub shaft, and design of outer bearing cap.		

<b>REFERENCES</b>	Supply references for 5 municipal customers located with the Regional Municipality of Niagara.
-------------------	--

	<b>Name of Municipality</b>	<b>Contact Name</b>	<b>Length of time unit in service for</b>	<b>Phone #</b>
1				
2				
3				
4				
5				