

**FORM A: BID**  
(See B7)

1. Contract Title SUPPLY & DELIVERY OF A COMBINATION STREET FLUSHER ANTI-ICING VEHICLE

2. Bidder

\_\_\_\_\_  
Name of Bidder

\_\_\_\_\_  
Street

\_\_\_\_\_  
City

\_\_\_\_\_  
Province

\_\_\_\_\_  
Postal Code

\_\_\_\_\_  
Facsimile Number

(Mailing address if different)

\_\_\_\_\_  
Street or P.O. Box

\_\_\_\_\_  
City

\_\_\_\_\_  
Province

\_\_\_\_\_  
Postal Code

The Bidder is:

(Choose one)

a sole proprietor

a partnership

a corporation

carrying on business under the above name.

3. Contact Person

The Bidder hereby authorizes the following contact person to represent the Bidder for purposes of the Bid.

\_\_\_\_\_  
Contact Person

\_\_\_\_\_  
Title

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
Facsimile Number

\_\_\_\_\_  
E-Mail Address

4. Definitions

All capitalized terms used in the Contract shall have the meanings ascribed to them in the General Conditions and D3.

5. Offer

The Bidder hereby offers to perform the Work in accordance with the Contract for the price(s), in Canadian funds, set out on Form B: Prices, appended hereto.

6. Commencement of the Work

The Bidder agrees that no Work shall commence until he is in receipt of a notice of award from the Award Authority authorizing the commencement of the Work.

7. Contract

The Bidder agrees that the Bid Opportunity in its entirety shall be deemed to be incorporated in and to form a part of this offer notwithstanding that not all parts thereof are necessarily attached to or accompany this Bid.

8. Addenda

The Bidder certifies that the following addenda have been received and agrees that they shall be deemed to form a part of the Contract:

No.	_____	Dated	_____
	_____		_____
	_____		_____

9. Time

This offer shall be open for acceptance, binding and irrevocable for a period of sixty (60) Calendar Days following the Submission Deadline.

10. Signatures

In witness whereof the Bidder or the Bidder's authorized official or officials have signed this

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_ .

Signature of Bidder or  
Bidder's Authorized Official or Officials

\_\_\_\_\_

(Print here name and official capacity of individual whose signature appears above)

\_\_\_\_\_

(Print here name and official capacity of individual whose signature appears above)

**FORM B: PRICES**  
 (See B8)

**SUPPLY & DELIVERY OF A COMBINATION STREET FLUSHER ANTI-ICING VEHICLE**

**UNIT PRICES**

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
1.	Combination Street Flusher Anti-Icing Vehicle	<b>08038</b>	(Each)	(3)	\$ _____	\$ _____

TOTAL BID PRICE (GST and MRST extra) (in figures) \$ \_\_\_\_\_

(in words) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
 Name of Bidder

## FORM N: DETAILED SPECIFICATIONS 08038

### 1.0 **INSTRUCTIONS FOR COMPLETION OF SPECIFICATIONS-**

- 1.1 The Supply & Delivery of the Combination Street Flusher Anti-Icing Vehicle shall be a 2008 or 2009 model year. **The complete Street Flusher Anti-Icing Vehicle shall be a current a published production model.** Upon request of the contract administrator, the City may request published literature of the model being bid and must be provided within forty-eight (48) hours. The equipment shall be furnished complete and ready for use by the Contractor. All parts not specifically mentioned but which are required to complete and place the vehicle into successful operation shall be furnished as though specifically mentioned in these specifications.
- 1.2 It will be the responsibility of the Bidder to inform the City of any errors or omissions in these specifications, for under this Contract the Contractor shall be held responsible for the satisfactory operational function of the vehicle.
- 1.3 All items in these specifications must be answered indicating compliance or non-compliance. **Bidders shall state "yes" for compliance or state deviation,** or give a reply where requested to do so. Deviations shall be clearly stated and fully detailed. Alternatives will be considered subject to evaluation.
- 1.4 Each bidder is required to fill in every blank. Failure to do so may be used as a basis for rejection of bid.
- 1.5 All applicable SAE standards form an integral part of these specifications and shall have precedence in any conflict concerning minimum acceptable standards.
- 1.6 **The completed equipment and all its components shall comply with all City of Winnipeg, Provincial and Federal Safety & Lighting Regulations for the equipment being bid.**
- 1.7 **Intent & Description of application-** The Street Flusher Anti-Icing Vehicle shall be used for Anti icing streets and bridges, flushing for street cleaning, power back flushing, gravity spray bar gravel road preparation dust control, and pressurized fan spray pattern dust control, power washing bridges, guard rails, walks and boulevards.

### 2.0 **SERVICE FACILITY-**

- 2.1 For the purpose of warranty repairs, the supplier shall have an authorized service facility located within 10 kilometres of the boundaries of the City of Winnipeg. The facility, or a portion thereof, shall be dedicated to the service and maintenance of the type equipment being offered. Further to B9.1, Bidders shall provide a description of the service facility including, but not limited to, number of qualified service staff, years of service experience, and general service capabilities within three (3) Business Days upon request of the Contract Administrator.
- 2.2 If a suitable warranty facility is not available within 10 km of the boundaries of the City of Winnipeg, the Bidder may propose that the City of Winnipeg Repair Facility perform warranty work. Any Work performed by the City of Winnipeg Repair Facility shall be charged to the Contractor at the Facility's shop rate in effect at the time the work is performed (for example, shop rate for 2008: \$82.00/hour and \$112.00/hour for overtime and callout).
- 2.3 **Location of the service facility located within 10 km of the boundaries of the City of Winnipeg.**
- The Bidder shall choose and fill in one (1) of the Clauses listed below. (2.3.1) or (2.3.2)
- 2.3.1 Bidder's own facility location. State the location of the service facility below.
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2.3.2 Bidder elects to have warranty work be performed by the City of Winnipeg Repair Facility.

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**3.0 PUBLISHED STOCK MODEL-**

3.1 All equipment furnished and the parts thereof shall be of the manufacturer's latest listed published stock model, which must meet all the applicable requirements of these specifications.

**4.0 REFERENCE LIST-**

4.1 The bidder must provide a minimum of five (5) Canadian references for recently built units that are used as a Street Flusher Anti-Icing Vehicle in this specification. No prototypes will be accepted.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**5.0 CHASSIS SPECIFICATIONS-**

5.1 Drive vehicle must be provided from a local Winnipeg major truck manufacturer. No "home made" proprietary truck chassis will be accepted. Chassis must be Low Forward Cab Over design, tandem axle as per below specifications.

5.2 **State make & model-** \_\_\_\_\_

**6.0 GVWR /WEIGHT DISTRIBUTION-**

6.1 The Street Flusher Anti-Icing Vehicle shall not exceed the City of Winnipeg's limit for gross vehicle weight, axle and tire loads

**Note: The City of Winnipeg and the Province of Manitoba limits the gross vehicle weight and axle and tire loads to:**

- Front axle (steering axle) – 7300 kg (16,094 lbs.).
- Rear axle (tandem axle) – 16 000 kg (35,274 lbs.).
- Tire load – 9 kilograms for each millimetre width of tire (approx. 500 lbs. per inch of tire width).

6.2 **Weigh scale ticket** – The Contractor shall provide a certified weigh scale ticket upon delivery of the completed unit. The scale ticket shall include front and rear axle weights including two (2) operators, full of liquid, and all attachments.

**CHASSIS SPECIFICATONS**

**7.0 CHASSIS-**

7.1	Total GVWR	58,000 lbs.	_____
7.2	Front	18,000 lbs.	_____
7.3	Rear	40,000 lbs.	_____
7.4	Cab-to-axle	As required for 3500 gallon capacity Street Flusher Anti-Icing Vehicle, state-	_____
7.2	Wheelbase	As required for 3500 gallon capacity Street Flusher Anti-Icing Vehicle, state-	_____

**8.0 ENGINE-**

8.1	Engine model-	State make & model-	_____
8.2	Horsepower	340 HP	_____
8.3	Torque	1150 lb-ft	_____
8.4	Engine shut down	Low oil pressure / high water temperature	_____
8.5	Anti-idling	Programmable	_____
8.6	Cold weather Starting	Cold weather starting, air Intake warmer or equivalent, state-	_____
8.7	Fuel shut-off	Electric solenoid type	_____
8.8	Air cleaner	State make & model-	_____
8.9	Air intake restriction	Dash mounted restriction indicator	_____
8.10	Oil drain plug	Magnetic type	_____
8.11	Oil filter	Full flow, spin-on or cartridge type	_____
8.12	Fuel filter	Spin-on or cartridge type	_____
8.13	Fuel Primer Pump	Fuel primer pump required if applicable to engine, state location-	_____
8.14	Fuel/water separator	Heated, drainable, located to not to impede with body Installation be protected from road spray	_____
8.15	Block heater	Immersion type, 1000 Watt minimum with plastic, covered recessed male plug, located under driver's side door	_____
8.16	Coolant	Extended life coolant, antifreeze to -60°F	_____

8.17	Coolant hoses/clamps	Silicone type, Gates Blue Stripe or Premium type Hoses, constant tension hose clamps.	_____
8.18	Radiator	Aluminum 1200 sq/in. with lower radiator guard	_____
8.19	Fan Drive	Thermostatically controlled, automatic type, with switch	_____
8.20	Air compressor	Water cooled, pressure lubricated, state cfm-	_____
8.21	PTO Provisions	Front engine PTO provision required & 1310 crankshaft adapter	_____
<b>9.0</b>	<b><u>ELECTRICAL SYSTEM-</u></b>		
9.1	Chassis wiring	State type-	_____
9.2	PTO protection	State type-	_____
9.3	Alternator	200 Amp minimum, state make & model-	_____
9.4	Starter	Over Crack Protection (OCP) with thermal Protection.	_____
9.5	Batteries	Four (4), 12-volt, group 31, 2800 CCA Combined capacity minimum. Located not to impede with body installation, state-	_____
9.6	Battery disconnect	State location-	_____
9.7	Remote boost terminal	Remote battery boost jump start terminal(s), protected from road spray, covered, state location-	_____
9.8	Cab marker lights	Required, LED preferred, state-	_____
9.9	Back-up alarm	Capable of 87-112dBA, located on inside-rear of frame rails.	_____
9.10	Accessory switches	Four (4) required, dash mounted. All switches wired through ignition, complete and wired for body installation, labelling shall be determined upon pre-production meeting.	_____
<b>10.0</b>	<b><u>EXHAUST SYSTEM-</u></b>		
10.1	Configuration	Single stationary outboard of rail vertical galvanized steel exhaust, curved tail pipe, not to impede with body installation. Exhaust guard required. Exhaust height to be determined upon pre-production meet.	_____

**11.0 TRANSMISSION-**

- |      |                    |  |       |
|------|--------------------|--|-------|
| 11.1 | Model              | Allison RDS Series, 6 speed programming, w/ synthetic fluid required or extended warranty, state make & model- | _____ |
| 11.2 | Shift selector     | Dash mounted digital push button   | _____ |
| 11.3 | Cooling            | Water to oil transmission cooler   | _____ |
| 11.4 | PTO provision      | Required with maximum clearance from exhaust   | _____ |
| 11.5 | Oil level dipstick | Bayonet type with high and low level markings  | _____ |
| 11.6 | Trans. drain plug  | Magnetic type  | _____ |

**12.0 FRONT AXLE-**

- |      |          |  |       |
|------|----------|--|-------|
| 12.1 | Capacity | 18,000 lbs. capacity with synthetic fluid- | _____ |
|------|----------|--|-------|

**13.0 REAR AXLE-**

- |      |                    |   |       |
|------|--------------------|---|-------|
| 13.1 | Capacity           | 40,000 lbs. capacity with synthetic fluid-                | _____ |
| 13.2 | Ratio              | Recommended as per application & city usage, state ratio- | _____ |
| 13.3 | Differential locks | Required for both rear drive axles w/dash switch          | _____ |

**14.0 FRONT SUSPENSION-**

- |      |      |  |       |
|------|------|--|-------|
| 14.1 | Type | Taper leaf spring suspension, 18,000 lbs. capacity | _____ |
|------|------|--|-------|

**15.0 REAR SUSPENSION-**

- |      |                    |   |       |
|------|--------------------|---|-------|
| 15.1 | Type               | Air ride suspension, 44,000 lbs. capacity minimum with dual levelling response, state make and model of suspension being bid- | _____ |
| 15.2 | Suspension Control | Manual dump valve for air suspension c/w dash mtd. switch   | _____ |
| 15.3 | Suspension Audible | Switch to be audible when air bags dumping  | _____ |



**16.0 RIMS, WHEELS, HUBS-**

16.1	Front	22.5 X 12.00 aluminum, 10-bolt, hub piloted	_____
16.2	Rear	22.5 x 8.25 aluminum, 10-bolt, hub piloted	_____
16.3	Hubs	Aluminum, front and rear, state-	_____
16.4	Hub seals	Oil lubricated front and rear	_____
16.5	Wheel nut indicators	Required on all wheel nuts, front and rear	_____

**17.0 TIRES, FRONT-**

17.1	Make & model	Michelin or Bridgestone, ice and snow capable, state tires-	_____
17.2	Size	As per requested GVWR, state-	_____

**18.0 TIRES, REAR-**

18.1	Make & model	Michelin or Bridgestone, ice and snow, state tires-	_____
18.2	Size	As per requested GVWR, state-	_____

**19.0 FRAME-**

19.1	Type	As per requested GVWR and application, outside frame clear as to not impede with body installation.	_____
19.2	Application	Suitable for requested application and GVWR	_____
19.3	Chassis fasteners	Grade-8 threaded hex headed frame fasteners or huck-spin fasteners	_____
19.4	After-frame	As required for requested 3500 gallon tank ,state-	_____
19.5	Frame Extension-	Required for applicable application, state size-	_____

**20.0 STEERING-**

20.1	Type	Heavy- Duty Power steering	_____
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**21.0 BRAKES-**

21.1	Type	Air, ABS, with "Tattle Tail" brake stroke indicators on all brakes	_____
21.2	Slack adjusters	(Clearance sensing), automatic type Grease-able slick	_____

		adjuster pins.	_____
21.3	Parking brake	Spring set	_____
21.4	Dust shields	Required	_____
21.5	Moisture ejector	Bendix DV-2, heated in wet tank, state-	_____
21.6	Drain valve	Chain or cable operated, required on each air tank except wet tank	_____
21.7	Air drier	Heated, Wabco System Saver 1200 or equivalent, State-	_____
21.8	Air Tanks	All Tanks to be aluminum, with aluminum straps. Location as required for suitable body installation. Isolated or coating on mounting point of frame.	_____
<b>22.0</b>	<b><u>FUEL TANKS-</u></b>		
22.1	Type	Provide largest fuel tank(s) capacity not to impede with body installation and design. State capacity and location-	_____
22.2	Tank straps	Aluminum mounting straps with minimum 1/16 in. rubber or neoprene isolators	_____
22.3	Fuel separator	Heated, drainable	_____
<b>23.0</b>	<b><u>CAB-</u></b>		
23.1	Type	Cab over design, with hydraulic cab lift, aluminum or steel w/corrosion inhibitor, state BBC-	_____
23.2	Hood	Cab tilt, hydraulically operated	_____
23.3	Cab mounts	Rubber mounts	_____
23.4	Cab Floor	Cab floor slip resistant	_____
23.5	Cab interior/trim	Extreme climate insulation including custom cloth or Vinyl headliner on roof, door panels and rear interior of cab	_____
23.6	Cab silencer package	Required for minimal decibel level, state dba-	_____
23.7	Engine Compartment	Insulated firewall	_____
23.8	Floor mats	Two (2), rubber	_____
23.9	Driver's seat	High or mid back, air suspension w/foldable dual	_____

		armrests, lumbar seat belt.	_____
23.10	Front passenger seat	High or mid back, air suspension w/foldable left hand armrests, lumbar, seat belt.	_____
23.11	Seat Material	Heavy-duty cloth or equal	_____
23.12	Sun visors	Dual flip-up type	_____
23.13	Steering wheel	Stationary	_____
23.14	12-Volt power outlet	(2) required on dash	_____
23.15	Radio	Factory installed AM/ FM/ WB/ CD	_____
23.16	Two Way Radio Provision	Two way radio provisions required, wired with independent circuit	_____
23.17	Starter switch	Key operated c/w three (3) sets of keys	_____
23.18	Cruise Control	Capable of settings of 11-15 kph	_____
23.19	Interior light	Dome light with door switches on both doors	_____
23.20	Heater / Defroster	High output, capable of keeping all windows clear at an outside temperature of -35°F (-37°C)	_____
23.21	Air conditioning	Required	_____
23.24	Horns	One electric with dual roof mtd. air horns with shield.	_____
23.25	Exterior mirrors	Dual cab mounted west cost stainless steel or moulded in color, left & right hand remote, heated.	_____
23.26	Convex mirrors	(8) in., stainless steel or moulded in color.	_____
23.28	Windshield wipers	Electric, intermittent	_____
23.29	Windshield washers	Electric	_____
23.30	Grab handles	Required for doors	_____
23.31	Entrance steps	Dual each side, open grate / grip type	_____
23.32	Bug Screen	Required with snap type fasteners	_____
<b>24.0</b>	<b><u>INSTRUMENTATION-</u></b>		
24.1	Oil pressure	Gauge	_____
24.2	Coolant temperature	Gauge	_____
24.3	Transmission oil temp.	Gauge	_____

24.4	LOP/HWT	Warning light and buzzer	_____
24.5	Voltmeter	Gauge	_____
24.6	Am meter	Gauge	_____
24.7	Air reservoir pressure	Gauge with LAP warning light and buzzer	_____
24.8	Engine hour-meter	Required, non-reset-able type	_____
24.9	Rear axle temp gauges	Required	_____
24.10	Tachometer	Required	_____
<b>25.0 <u>TOW HOOKS-</u></b>			
25.1	Location	Required Front & Rear, exact location to be determined upon pre-production meet.	_____
<b>26.0 <u>FRONT BUMPER-</u></b>			
26.1	Type	10 gauge stainless steel or chrome, full width c/w license plate bracket	_____
<b>27.0 <u>COLOUR AND FINISH-</u></b>			
27.1	Exterior	White	_____
27.2	Interior	Blue or grey	_____
27.3	Frame & suspension	Primed and finished with black Imron 5000 paint or Equivalent	_____
<b>28.0 <u>ACCESSORIES-</u></b>			
28.1	Flare kit / First Aid Kit	Three (3) triangular reflectors, CVSA approved, first Aid kit required.	_____
28.2	Fire Extinguisher	(2) ABC type as required for application, required externally, with mounting brackets. (10 lbs. required). State location as per recommendation of supplier-	_____
<b>29.0 <u>CHASSIS WARRANTY-</u></b>			
29.1	Basic vehicle	Three (3) years, 640,000 km	_____
29.2	Batteries	One year (1) years or 161 000 km	_____
29.3	Drive-train	Three (3) years, unlimited km	_____
29.4	Cab structure/corrosion	Five (5) years, unlimited km	_____

29.5	Frame	Five (5) years, unlimited km	_____
29.6	Cab paint	One (1) year or 100 000 km	_____
29.7	Engine	Five (5) years or 800, 000 km complete coverage	_____
29.8	Towing coverage	One (1) years unlimited	_____
29.9	Transmission	Five (5) years, unlimited km	_____
29.10	Axles, front & rear	Three (3) years or unlimited km	_____
29.11	Exhaust system	Two (2) years or 250,000 miles	_____

## STREET FLUSHER SYSTEM

### **30.0 TANK & PLUMBING-**

- 30.1 3,500 U.S. gal. cap., elliptical shape, state dimensions- \_\_\_\_\_
- 30.2 The shell skin shall be un-spliced sections for the entire length of tank, and be electrically welded longitudinally for body strength. The entire tank (heads, baffles, shell sections) will be 100% double welded to ensure quality. Baffles are required, state quantity of baffles for a 3500 U.S. gallon tank. The tank will have a rear ladder and top cat walk with rails and grip strut rungs. \_\_\_\_\_
- 30.3 Stainless steel 20" over center locking hatch type manhole cover will be required \_\_\_\_\_
- 30.4 A hydrant fill station will be constructed at tank rear curb-side. The plumbing will be equipped with visible approx. 6" air gap at or near top tank center and fill hole will be arranged so that debris, tree leaves, etc., cannot enter the tank. The entry station will be equipped with approx. 2 ½" Y-strainer with clean out basket. Plumbing assembly will be bolted to tank exterior, and be removable. Hydrant fill station to have air gap to meet exceed City of Winnipeg specifications. \_\_\_\_\_
- 30.5 All plumbing **shall be Stainless Steel for anti-icing application.** \_\_\_\_\_

### **31.0 SUB-FRAME-**

- 31.1 The skid mount rails shall be constructed from 3/16" steel and installed with five (5) cross members supported to tank bottom and side rails. 1" x 2 3/4" rubber sills shall be installed under skid mount rails in inverted channels. \_\_\_\_\_

### **32.0 TANK MOUNTS-**

- 32.1 Tank mounts shall be male-female with coil springs (two (2) per mount), three (3) mounts per side bolted to truck and tank frame. Coil springs to be constructed from 5/16" material using 5/8" bolts and self locking nuts. Two (2) mounts per side. All mounting bolt shall be coated with anti-seize compound if available \_\_\_\_\_

### **33.0 FENDERS-**

- 33.1 Truck rear tires to be equipped with full formed stainless steel mounted fenders. \_\_\_\_\_

### **34.0 WATER PUMP SYSTEM-**

- 34.1 The pump will be a cast iron pump. 5" tank suction plumbing to the suction orifice of the pump. The pump will have performance capability of 600 gpm at 100 psi. \_\_\_\_\_
- 34.2 The water pump to be driven by a piston-type closed loop, hydrostatic transmission with loop cooling filtration, and adjustable pressure control. The hydro-static system will be sized for continuous duty, long life and compatible with the torque values of the chassis engine and optimum performance speeds required of the water pump. \_\_\_\_\_

34.3 The front bumper-mounted hydrostatic pump transmission will be servo- controlled, variable displacement , driven by a drive shaft connected to the front of engine crankshaft. The servo control will be electrically operated (E.D.C.) with water pressure transducer and quadrant throttle. The water pressures will be set with the throttle to a predetermined pressure setting of 0 to 100 psi, and will be maintained regardless of how many flusher heads are operating. Full performance of 600 gpm will be attained at 850 engine rpm and will remain through the governed engine speeds. Pump shaft should have grease points that are accessible if possible.

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34.4 The electric automatic control system will have a disable switch, so that higher pressures can be obtained if desired. The hydro-static motor will be fixed displacement VOAC F-12 bent axis, & coupled directly to the water pump. The motor sizing will be as necessary to provide correct rpm performance required of the water pump. The condition of the oil in the Hydro-static loop will be maintained by a 30 gpm, 10 micron full flow spin on type filter and an oil cooler rated at 27,000 B.T.U./HR. under acceptable operating conditions. The oil reservoir (10 gallon cap.) will be vented in such a manner as to prevent ingestion of water spray. The high pressure hydraulic hoses will be 16 X T four (4) wire braid with heavy cover. All other hoses including the cooling circuit will be SAE rated medium pressure wire braid hose with heavy cover. All fittings will be crimp style. Di-electric compound and/or sealed connection where possible.

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34.5 An overflow pipe shall be mounted to the side of the tank with a 3" cab controlled butterfly valve to prevent overfilling the water tank.

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**35.0 ADDITIONAL WATER PUMP-** (When self loading is required)

35.1 Additional water pump shall be self priming cast iron centrifugal, cast iron pump. 5" tank suction plumbing to the suction orifice of the pump. The pump will have performance capability of 600 gpm at 100 psi.

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35.2 The water pump will be equipped with two (2) 4" hand operated butterfly valves and one(1) 5" hand operated butterfly valves. These valves will be located in a position which will allow self loading of the water tank. The "source" suction orifice will be a 4" cam-lock connection. A section (4" x 20' long) of rubber suction hose will be furnished with a strainer and cam-lock connection, as well as "J" hooks and lockable hasp to store the hose.

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**36.0 STREET FLUSHER SYSTEM-**

36.1 Two middle front-mounted nozzle heads will be located below front bumper, in approximate alignment with the chassis frame rails.

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36.2 The front nozzle heads to rotate independently in a horizontal arc 45 degrees either way from center, air controlled from cab console.

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36.3 Two (street and curb-side) mid ship nozzle heads will be located under or slightly behind cab.

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36.4 The nozzle will be constructed to discharge water at a narrow 20 degree fan. Allowing the flushing of heavy debris on high medians. The head assemblies shall rotate independently in a vertical arc approx. 45 degrees either way from

- center. System shall be controlled from cab console.
- 36.5 All plumbing to flusher heads will be 3" on manifold and 2" to individual front-mounted nozzle heads. \_\_\_\_\_
- 36.7 This unit will be equipped with one (1) rotating flusher head mounted under left corner of front bumper. The nozzle will be constructed of steel and have a discharge arc of approximately 15 degrees. \_\_\_\_\_
- 36.8 The nozzle heads rotator assembly must be capable of rotating 360 degrees continuously without having to be reversed to unwind water or hydraulic hoses. \_\_\_\_\_
- 36.9 This system will be directly controlled by a joy stick located on the console inside cab ergonomically position, and be powered by an independent hydraulic pump. \_\_\_\_\_
- 36.10 The nozzle head rotator assembly will be equipped with a parallelogram type lift frame with stainless steel pins and bushings, such that the rotator assembly remains parallel to the road surface at all times. \_\_\_\_\_
- 36.11 The unit will be remotely adjusted for height from approx. 7" to 17" above the road surface, using a three (3) position air valve located on cab console. \_\_\_\_\_
- 37.0 CANNON SYSTEM** – (To clean under bridges or any hard to reach locations)
- 37.1 A front mounted water cannon shall be installed. This cannon system shall Rotate horizontally approx. 180 degrees and vertically approx. 45 degrees above horizon and approx 20 degrees below horizon. The cannon shall be equipped with a straight stream / fog adjustable nozzle. All operation of the cannon system shall be controlled by a joystick located on the console inside the cab. Exact location of the cannon shall be determined upon a pre-production meet. \_\_\_\_\_
- 37.0 CONTROL CONSOLE**-
- 37.1 The control console shall be constructed and mounted between seats inside cab. The console will have a water pressure gauge, and all necessary air valve switches and hydro-static throttle controls. \_\_\_\_\_
- 37.2 High level ("Tank Full") float operated legend indicator light will be positioned at fill station. Low level ("Tank Empty") float operated legend indicator light will be positioned on cab console. Both floats inside the water tank will be stainless Steel. There shall also be an exterior visual water level indicator. Shall be visual from the cab. \_\_\_\_\_
- 38.0 HOSE REEL**- (for hand flushing duties, and safety measures)
- 38.1 A live hose reel with accommodations for 1" x 125' hard rubber hose, mounted right side mid-ship, or on rear of tank for hand flushing. Water flow to hose to be air-operated with on/off valve located on hose reel. Reel to be Coxwell (or equivalent), with electric rewind and crank rewind (back-up). 2/3 HP motor is required. 1 ½" X 60" hose is optional. A 200 psi hose of either size selected, and a fog nozzle will be installed. \_\_\_\_\_



**39.0 REAR POWER BAR SPRAY HEAD SYSTEM - (Dust control operations for pre-wetting or after-flushing during street sweeping operations)**

39.1 A 2" X 96" power bar with clean out removable ends will be installed under the rear bumper deck. It will be equipped with at least 10 fan spray nozzles evenly spaced and will be cab controlled.

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**40.0 JETTER HOSE REEL SYSTEM- (To clean culverts and hard to reach areas)**

40.1 A high pressure sewer rodder system will be installed using a "Tri-plex" model style or equivalent water pump. The pump will be located under the front area of the water tank and will be PTO driven from the chassis transmission. The pump rating shall be approx. 65 gpm @ 2000 psi.

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40.2 The hose reel will be mounted at the rear of the tank and be positioned so the hose reel can be operated from either the left or right side. The reel will be powered hydraulically for both wind and unwind positions. Shall be equipped with 500 feet of one inch heavy-duty hosing.

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40.3 The operation of the jetter hose reel system shall be rear mounted adjacent of the hose reel for ease of operation and safety. The console shall be equipment with engine oil pressure, engine water temperature, engine tachometer, liquid filled water pressure gauge and all necessary switches to operate the system.

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**41.0 LIGHTING-**

41.1 All running lights will be make Truck-lite or Groté L.E.D. style rubber mounted lamps. Wiring shall be enclosed in conduit. Reflectors will be installed, and the system will comply with all City of Winnipeg, Province of Manitoba and Federal lighting regulations. All body builders connections should be soldered and sealed with shrink tubing.

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41.2 One programmable message board mounted at rear capable of messages stating Anti-Icing, Dust Control, Street Cleaning, Bridge Washing. An additional directional sign board to indicate traffic to move left or right directional. Two (2) strobe beacons (yellow & blue) will be installed on top left and right side of truck cab roof. Two (2) strobe beacons (yellow & blue) will be installed on top left and right rear of tank. All strobe beacons shall have branch heavy-duty guards.

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**42.0 PAINT-**

42.1 Outside of tank and all parts above truck frame will be painted with color, acrylic enamel with catalyst. Dupont Centari, or Endura Paint Products or equal paint number. Frame area and below will be painted black enamel.

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## **ANTI-ICING SPRAY SYSTEM**

### **43.0 GROUND SPEED CONTROL SYSTEM & CAPACITIES-**

43.1 The controller will be a radar speed sensor assembly. The system will be capable of 3 lane application with 100 gallons per lane mile at 35 mph (60 kph). \_\_\_\_\_

### **44.0 POWER METHOD FOR ANTI-ICER SYSTEM-**

44.1 This system is powered by the same hydrostatic pump as the street flusher system. A second setting on the power switch on the in-cab control panel will power the Anti-Icer motor which is equipped with and governed by an rpm magnetic pickup pulse arrangement. The motor will be a bent axis piston style, and be sized to insure full operations performance at 800 engine rpm. The hydrostatic throttle on console will be able to pre-select a performance setting, and that performance will remain stable from 800 engine rpm through engine governed speed. \_\_\_\_\_

### **45.0 PUMP AND VALVING-**

45.1 A Hypro cast iron 2" X 1 1/2" centrifugal chemical pump will be used. A 2" stainless steel flow control valve and a RFM 100 flow meter shall be used to meter fluid at pre-selected rates from the cab console. Valving will be 12 volt electric over air 1 1/4" Cla-valves where remote control of system is required. The 1/4 turn ball valves required will be heavy duty pvc style on suction side and stainless steel on pressure side. The remote operated valves will be positioned and controlled so as to allow automatic recirculation of product when the discharge booms are in the "off" position, and stop when the boom valves are turned on. \_\_\_\_\_

45.2 A 2 1/2" bottom load plumbing arrangement will be installed to prevent aeration or foaming of product while loading. A 2 1/2" 1/4 turn heavy duty ball valve will be installed at inlet with a removable cap. \_\_\_\_\_

45.3 The tank recirculation bar will be constructed from 1 1/4" schedule 40 stainless steel and inserted into rear tank head approximately 20" right of center line and 8" up from bottom. The bar pipe will extend forward to include the front section of baffled tank, and be equipped with drill holes at strategic locations on an 8:00 o'clock position. \_\_\_\_\_

#### **45.4 The spray booms will be positioned as follows:**

The main boom will be constructed from 1 1/4" schedule 40 stainless steel and positioned under rear deck.

The left and right booms will be extensions of main boom arrangement and will be positioned at each end of rear deck. \_\_\_\_\_

45.5 The 3 boom sections will receive and apply product independently, and each boom will be equipped with ten (10) each T-jet straight stream nozzles with 3/16" orifices. The left and right boom nozzles shall be positioned to evenly cover 12 foot lanes. The spray bar shall be capable of (3) lanes with out spray bar protruding beyond the width of the truck. \_\_\_\_\_

45.6 Complete equipment design and plumbing shall be capable of using sodium, Calcium, magnesium chloride.

**46.0 TRAINING-**

46.1 The Contractor shall provide operational and maintenance training by qualified staff for City of Winnipeg personnel. The training shall be conducted in separate sessions for each group of personnel. Each session shall be approximately one day in duration and shall provide adequate familiarization and orientation on the unit, to the satisfaction of the Contract Administrator. The training shall be conducted in Winnipeg at a location to be designated by the Contract Administrator.

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46.2 State if other training aids (videos, CDs) are available.

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46.3 **Please state-** the manufactures recommended training time for the complete equipment.

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**47.0 WARRANTY-**

47.1 The warranty for the **Street Flusher Body** shall cover the complete equipment, and all parts thereof against any defects of workmanship, construction and materials, for a period of not less than **one (1) year unlimited hours on Street Flusher Anti-Icing Body and associated equipment.** Any article that has become defective during said warranty period and has not proven to have been caused by negligence on the part of the user shall be repaired or replaced at no cost to the City. The warranty shall be effective from the date the equipment is put into service by the City of Winnipeg.

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47.2 **DELIVERY POINT-** The complete unit shall be serviced, ready for operation and delivered F.O.B. with the freight prepaid, including invoice and N.I.V.S. to the WFMA 185 Tecumseh Street, Winnipeg MB.

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47.3 **DELIVERY TIME-** Within **thirty (30) calendar weeks** from the date of official notification of award of contract. Equipment shall be delivered between 8:00 am and 3:00 pm on Business Days.

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47.4 **DELIVERY CONTACT-** The Contractor shall contact the Contract Administrator prior to delivery of the equipment.

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47.5 **P.D.I-** A pre-delivery inspection shall be performed by the Contractor on the equipment. Proof upon inspection including completed check list

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**48.0 GREASING SYSTEM-**

48.1 Complete unit shall have a CPL automatic greasing System. Automatic greasing system – **complete body and chassis** shall be supplied with a Groeneveld/CPL Systems Inc. automatic greasing system including all required grease points on the **flusher body**, and automatic low level shut-off with in-cab red light indicator.

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48.2 **State,** quantity of greasing points-

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