

FORM A: BID
(See B7)

1. Contract Title **SUPPLY AND DELIVERY OF AN AIRLESS TRUCK MOUNTED PAVEMENT MARKING 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 AND DELIVERY OF AN AIRLESS TRUCK MOUNTED PAVEMENT MARKING VEHICLE

UNIT PRICES

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX QTY	UNIT PRICE	AMOUNT
1.	SUPPLY AND DELIVERY OF AN AIRLESS TRUCK MOUNTED PAVEMENT MARKING VEHICLE	07056	Each	(1)	\$ _____	\$ _____
2.	Technical Service & Parts Manuals, CD preferred	07056	Each	(1) Set	\$ _____	\$ _____
TOTAL BID PRICE (GST and MRST extra) (in figures) \$ _____ (in words) _____ _____						

 Name of Bidder

FORM N(R1): DETAILED SPECIFICATIONS 07056

SUPPLY & DELIVERY OF AN AIRLESS TRUCK MOUNTED PAVEMENT MARKING VEHICLE

(Traffic Services Department)

1.0 INSTRUCTIONS FOR COMPLETION OF SPECIFICATIONS

- 1.1 The **Supply & Delivery of an Airless Truck Mounted Pavement Marking Vehicle shall be a 2007 or 2008 model year.** The vehicle 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.

It is the intent and purpose of this specification to describe a truck mounted self-contained airless striping machine. The machine shall apply reflectorized lines utilizing currently available traffic paints either alkalyde and/or water based. The equipment must be capable of applying this material at ambient temperatures as low as 3 degrees C. on dry, clean pavement. Noise generated by this machine will comply with current safety standards. The machine shall be capable of applying lines in two colors, in either a solid or skip pattern, or combination of these patterns. A vehicle striping speed of 20 kilometres per hour can be reached.

This machine shall apply quick-dry traffic paints, and provide medium temperature heat to allow for proper drying times of these paints. The airless spray painting system shall not develop pressures in excess of 600 psi for safety and environmental reasons.

Adequate spare paint-related parts will be maintained in stock at the manufacturer's location to normally provide for 24 to 48 hour supply in an emergency.

- 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 unit and all its components shall comply with all C.M.V.S.S. Canadian Motor Vehicle Safety Standards, M.H.T.A. Manitoba Highway Traffic Act, S.S.A Safety Standards Act, F.M.V.S.S Federal Motor Vehicle Safety Standards, D.O.T Department of Transportation, NVSM National Safety Mark regulations and requirements as applicable, including but not limited to, a Manitoba Government Inspection with Safety Sticker on the driver's side window.

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 2007: \$80.00/hour and \$ 105.00/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.

2.3.2 Bidder elects to have warranty work be performed by the City of Winnipeg Repair Facility.

3.0 REFERENCES-

All equipment furnished and the parts thereof shall be of the manufacturer's latest listed and published stock models, which meet all the applicable requirements of these specifications. Manufacturer must provide references for **five (5) or more**, recently built units that use the striping technology reflected in this specification. No prototypes will be accepted.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

4.0 CHASSIS SPECIFICATIONS-

4.1 Drive vehicle must be provided from a local Winnipeg major truck manufacturer. No "home made" proprietary truck chassis will be accepted. Specifications of the chassis as follows. Chassis must be Low Forward Cab Over design, tandem axle as per below specifications. State make & model - _____

5.0 GVWR /WEIGHT DISTRIBUTION-

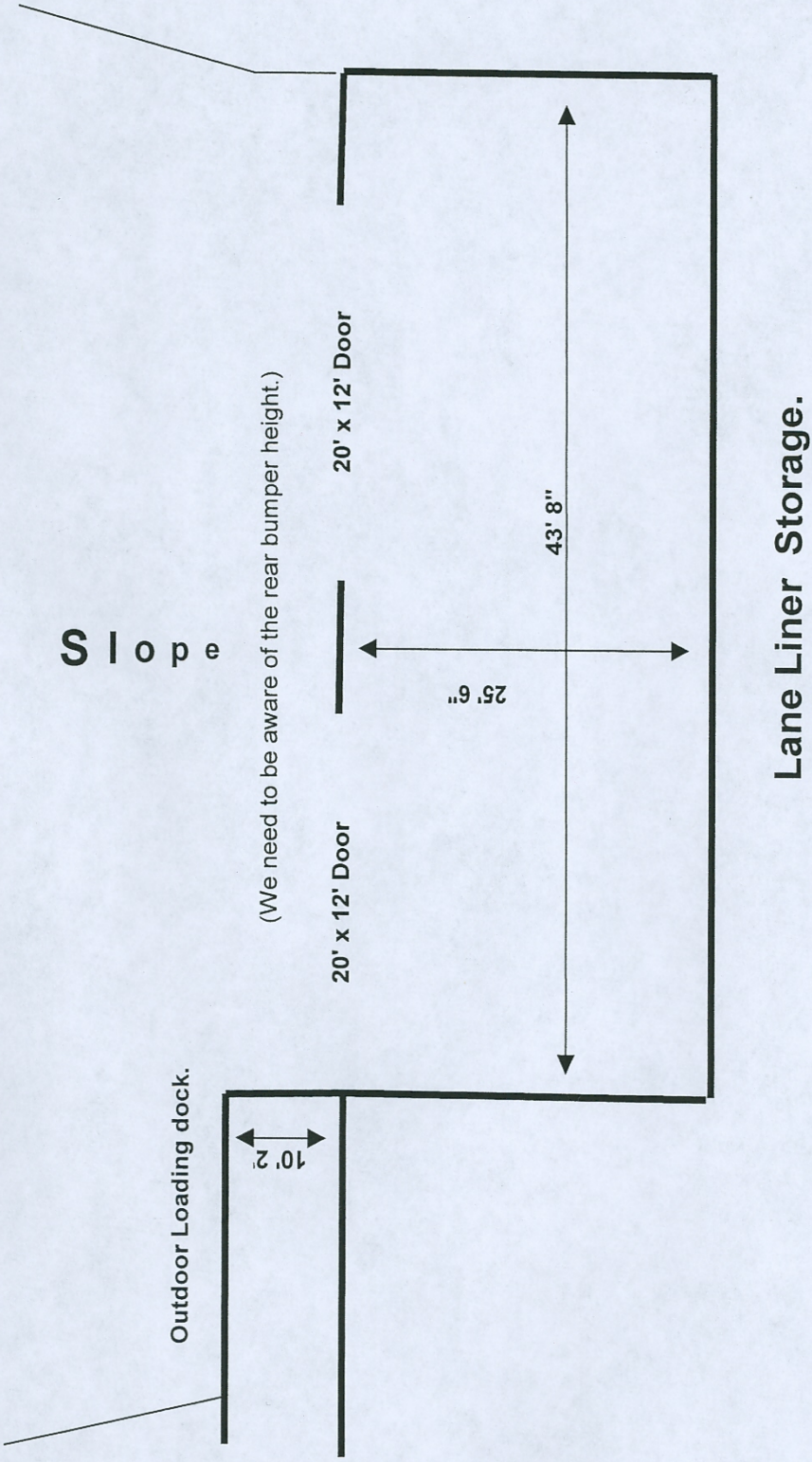
The Airless Truck Mounted Pavement Marking Machine **shall not exceed the City of Winnipeg's limit for gross vehicle weight**, axle and tire loads with the unit (including the chassis) fully fuelled and operational, marking machine body with **full paint tanks**, three (3) operators.

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).

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 three (3) operators

5.1	Total GVWR	54,600 lbs.	_____
5.2	Front	14,600 lbs. minimum	_____
5.3	Rear	40,000 lbs. minimum	_____
5.4	Height	Completed Truck and body must be able to enter the shop door Located at 421 Osborne (Traffic Services) See below reference drawing	_____



6.0 MEASUREMENTS-

- 6.1 Cab-to-axle As required for 450 gallon paint capacity, state- _____
- 6.2 Wheelbase As required for 450 gallon paint capacity, state- _____

7.0 ENGINE-

- 7.1 Engine model- State make & model- _____
- 7.2 Horsepower 330 HP gross minimum _____
- 7.3 Torque 1000 lb-ft minimum _____
- 7.4 Engine shut down Low oil pressure / high water temperature _____
- 7.5 Anti-idling programming Programmable _____
- 7.6 Air intake warmer Required _____
- 7.7 Fuel shut-off Electric solenoid type _____
- 7.8 Air cleaner One-Stage air cleaner with passive pre-clean _____
- 7.9 Air intake restriction ind. Dash mounted restriction indicator _____
- 7.10 Oil drain plug Magnetic type _____
- 7.11 Oil filter Full flow, spin-on or cartridge type _____
- 7.12 Fuel filter Spin-on or cartridge type _____
- 7.13 Fuel Primer Pump Fuel Primer pump required, state location- _____
- 7.14 Fuel/water separator Heated, drainable, located to not to impede with body
Installation be protected from road spray _____
- 7.15 Block heater Immersion type, 2000 Watt minimum with plastic,
covered recessed male plug, located under driver's
side door _____
- 7.16 Coolant Extended life coolant, antifreeze to -60°F _____
- 7.17 Coolant hoses/clamps Silicone type, Gates Blue Stripe or Premium type
Hoses, constant tension hose clamps. _____
- 7.18 Radiator Aluminium 1500 sq/in. with lower radiator guard _____
- 7.19 Fan Drive Thermostatically controlled, automatic type, with
switch _____
- 7.20 Air compressor Water cooled, pressure lubricated, minimum 18.7 cfm _____
- 7.21 PTO Provisions Required left and right side of transmission _____

8.0 ELECTRICAL SYSTEMS

- 8.1 Chassis wiring State type- _____
- 8.2 PTO protection State type- _____
- 8.3 Alternator 270 Amp minimum, state make & model- _____

Template Version: F020070711

8.4	Starter	Delco Remy 39-MT/OCP Series with thermal Protection.	_____
8.5	Batteries	Three (3), 12-volt, group 31, 3300 CCA combined capacity minimum. Located not to impede with body installation.	_____
8.6	Battery disconnect	State location-	_____
8.7	Remote boost terminal	Remote battery boost jump start terminal(s), protected from road spray, covered, state location-	_____
8.8	Cab marker lights	LED	_____
8.9	Back-up alarm	Capable of 87-112dBA, located on inside-rear of frame rails.	_____
8.10	Accessory switches	Seven (7) required, dash mounted. All switches wired through ignition, complete and wired for body installation, labelling shall be determined upon pre-production meeting. Switches shall be backlit. Wired through power distribution box.	_____
9.0	<u>EXHAUST SYSTEM-</u>		
9.1	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.	_____
10.0	<u>TRANSMISSION</u>		
10.1	Model	Allison 3000 RDS Series, 5 speed programming, w/ synthetic fluid required or extended warranty	_____
10.2	Shift selector	Dash mounted digital push button	_____
10.3	Cooling	Water to oil transmission cooler	_____
10.4	PTO provision	Required with maximum clearance from exhaust	_____
10.5	Oil level dipstick	Bayonet type with high and low level markings	_____
10.6	Trans. drain plug	Magnetic type	_____
11.0	<u>FRONT AXLE-</u>		
11.1	Capacity	14,600 lbs. capacity minimum, with synthetic fluid	_____
12.0	<u>REAR AXLE-</u>		
12.1	Capacity	40,000 lbs. capacity minimum, with synthetic fluid	_____
12.2	Ratio	Recommended for low speeds as per application, state ratio-	_____
12.3	Differential locks	Required for both rear drive axles w/dash mtd. switch	_____
13.0	<u>FRONT SUSPENSION</u>		

Template Version: F020070711

13.1 Type Taper leaf spring suspension, 14,600 lbs. capacity minimum _____

14.0 REAR SUSPENSTION

14.1 Type Air ride suspension, 40,000 lbs. capacity minimum with lateral support beam and dual levelling response, state make and model of suspension being bid- _____

14.2 Susp. control valve Manual dump valve for air suspension c/w dash mtd. switch _____

14.3 Suspension audible Switch to be audible when air bags dumping _____

15.0 RIMS, WHEELS, HUBS

15.1 Front 22.5 X 9.00 aluminium, 10-bolt, hub piloted _____

15.2 Rear 22.5 x 8.25 aluminium, 10-bolt, hub piloted _____

15.3 Hubs Aluminium, front and rear, state- _____

15.4 Hub seals Oil lubricated front and rear _____

15.5 Wheel nut indicators Required on all wheel nuts, front and rear _____

16.0 TIRES, FRONT-

16.1 Make & model Michelin XZUS or, Bridgestone M860 state tires- _____

16.2 Size 315/80R 22.5, minimum 18-ply _____

17.0 TIRES, REAR-

17.1 Make & model Michelin XZE2 or Bridgestone M726EL, state tires- _____

17.2 Size 11R22.5H _____

18.0 FRAME

18.1 Type As per requested GVWR and application, outside frame clear as to not impede with body installation. _____

18.2 Application Suitable for use with an airless truck mounted pavement marking body _____

18.3 Chassis fasteners Grade-8 threaded hex headed frame fasteners or huck-spin fasteners _____

18.4 After-frame As required for payment marking body installation State- _____

19.0 STEERING

19.1 Type Heavy- Duty Power, with tilt-telescopic steering _____

20.0 BRAKES-

20.1 Type Air, ABS, with "Tattle Tail" brake stroke indicators on _____

Template Version: F020070711

		all brakes	_____
20.2	Slack adjusters	(Clearance sensing), automatic type Grease-able slick adjuster pins.	_____
20.3	Parking brake	Spring set	_____
20.4	Dust shields	Required	_____
20.5	Moisture ejector	Bendix DV-2, heated in wet tank	_____
20.6	Drain valve	Chain or cable operated, required on each air tank except wet tank	_____
20.7	Air drier	Heated, Wabco System Saver 1200	_____
20.8	Air Tanks	All Tanks to be aluminium, with aluminium straps. Location as required for suitable body installation. Isolated or coating on mounting point of frame.	_____
21.0	<u>FUEL TANKS-</u>		
21.1	Type	Provide largest fuel tank(s) capacity not to impede on Body installation and design. State capacity and Location-	_____
21.2	Tank straps	Aluminium mounting straps with minimum $\frac{1}{16}$ in. rubber or neoprene isolators	_____
21.3	Fuel separator	Heated, drainable	_____
22.0	<u>CAB-</u>		
22.1	Type	Cab over design, 68" BBC, with hydraulic cab lift, aluminium or steel w/corrosion inhibitor	_____
22.2	Hood	Cab tilt, hydraulically operated	_____
22.3	Cab mounts	Air mounts	_____
22.4	Cab Floor	Cab floor slip resistant	_____
22.5	Cab interior/trim	Extreme climate insulation including custom cloth or Vinyl headliner on roof, door panels and rear interior of cab	_____
22.6	Cab silencer package	Required for minimal decibel level, state dBA	_____
22.7	Engine Compartment	Insulated firewall	_____
22.8	Floor mats	Two (2), rubber	_____
22.9	Driver's seat	High back, air suspension w/foldable dual armrests, lumbar seat belt, heavy-duty cloth	_____
22.10	Front passenger seat	High back, air suspension w/foldable left hand armrests, lumbar, seat belt, heavy-duty cloth.	_____
22.11	Seat Material	Cordura cloth or equal	_____
22.12	Sun visors	Dual flip-up type	_____
22.13	Steering wheel	Tilt, telescopic type	_____

Template Version: F020070711

22.14	12-Volt power outlet	(2) required on dash	_____
22.15	Radio	Factory installed AM/ FM/ WB/ CD	_____
22.16	Two Way Radio Provision	Two way radio provisions required, wired with independent circuit	_____
22.17	Starter switch	Key operated c/w three (3) sets of keys	_____
22.18	Cruise Control	Capable of settings of 11-15 kph	_____
22.19	Interior light	Dome light with door switches on both doors	_____
22.20	Heater / Defroster	High output, capable of keeping all windows clear at an outside temperature of -35°F (-37°C)	_____
22.21	Air conditioning	Required	_____
22.22	Power Door/Windows	Power for both doors and windows	_____
22.23	Brake & accel. pedals	Hanging type brake and accelerator pedals, state-	_____
22.24	Horns	One electric with dual roof mtd. air horns with shield.	_____
22.25	Exterior mirrors	Dual cab mounted west cost molded in color, left & Right hand remote, heated.	_____
22.26	Convex mirrors	(8) in. min. molded in color.	_____
22.27	Exterior Sun-visor	Exterior sun-visor required	_____
	Windows & windshield	Tinted	_____
22.28	Windshield wipers	Electric, intermittent	_____
22.29	Windshield washers	Electric	_____
22.30	Grab handles	Required for doors,	_____
22.31	Entrance steps	Dual each side, open grate / grip type	_____
22.32	Bug Screen	Required with snap type fasteners	_____

23.0 INSTRUMENTATION-

23.1	Oil pressure	Gauge	_____
23.2	Coolant temperature	Gauge	_____
23.3	Transmission oil temp.	Gauge	_____
23.4	LOP/HWT	Warning light and buzzer	_____
23.5	Voltmeter	Gauge	_____
23.6	Am meter	Gauge	_____
23.7	Air reservoir pressure	Gauge with LAP warning light and buzzer	_____
23.8	Engine hour-meter	Required, non-reset-able type	_____
23.9	Rear axle temp gauges	Required	_____
23.10	Tachometer	Required	_____

24.0 TOW HOOKS-

24.1 Location To be determined upon pre-production meet. _____

25.0 FRONT BUMPER-

25.1 Type 10 gauge stainless steel, full width c/w license plate bracket _____

26.0 COLOUR AND FINISH-

26.1 Exterior White _____

26.2 Interior Blue or grey _____

26.3 Frame & suspension Primed and finished with black Imron 5000 paint or equivalent _____

26.4 Wheels Aluminium _____

27.0 ACCESSORIES-

27.1 Flare kit / First Aid kit Three (3) triangular reflectors, CVSA approved, first Aid kit required. _____

27.2 Fire extinguisher (2) ABC type as required for application, required externally, with mounting brackets. (10 lbs. required). State location- _____

28.0 CHASSIS WARRANTY-

28.1 Basic vehicle Five (5) years, 400,000 km _____

28.2 Batteries Five years (5) years or 400 000 km _____

28.3 Drive-train Three (3) years, unlimited km _____

28.4 Cab structure/corrosion Five (5) years, unlimited km _____

28.5 Frame & cross-members Five (5) years, unlimited km _____

28.6 Cab paint One (1) year or 100 000 km _____

28.7 Engine Seven (7) years or 240 000 km complete coverage _____

28.8 Towing coverage Four (4) years unlimited _____

28.9 Transmission Five (5) years, unlimited km _____

28.10 Axles, front & rear Five (5) years or 240 000 km _____

28.11 Exhaust system Five (5) years or 400,000 km _____

29.0 MANUALS-

29.1 Manuals Required, quantity as per Form B: Prices _____

30.0 BODY SPECIFICATIONS

30.1 PLATFORM-

The vendor shall supply and install on the chassis a steel platform of adequate size to accommodate all relevant equipment. The bed shall not exceed 96” in

width, and shall be of the minimum length required to obtain proper weight distribution and fulfill its need for placing all components. The platform framing shall be constructed of aircraft- style 5" formed structural cross-channels with integral cut-outs for routing plumbing. Channels will comprise 34 strategically placed holes to facilitate routing. These shall be mounted on a 10" formed channel with 4" flanges, using minimum 10 gauge steel plate, with colour grey **LINE-X products anti-skid floor coating** applied to walkway areas to provide better mounting for deck items, and improved non-slip areas when compared to checker-plate flooring. Perimeter channel is 6" at 8.2 lbs./ft. Cross-member spacing will not exceed 30". All floor plates to be continuous welded. Paint and air plumbing shall be routed through the cut-outs in the 5" channel where possible. Platform shall be mounted to the chassis by Grade 8 tie-down rods so as not to interfere with the original chassis structure.

Ladders shall be furnished as required. Railings shall be installed around the perimeter where necessary. Railing height shall be 42".

A lockable toolbox shall be bolted to the platform on **both sides**. State size of tool box-

The finished unit will be supplied with **full width fenders** and mud-flaps behind the **front and rear**, tandem axle wheels complete with anti-sail devices.

All electrical connections at the marker lights will be soldered shrink tubing, **no splices**. Proper junction boxes will be supplied to integrate the chassis wiring with the platform wiring.

Lighting will conform to the applicable Manitoba Highway Traffic Act.

31.0 PRESSURE VESSELS-

31.1 All pressure vessels exceeding 6.8 gal. Capacity shall be manufactured to A.S.M.E. Standards.

32.0 COMPRESSED AIR SYSTEM-

The air compressor shall be a rotary screw type of a minimum 185 c.f.m. displacement, powered by a 4 cylinder water-cooled diesel engine. The compressor will be mounted on the deck of the vehicle in a transverse position, and will include an air receiver with 125 psi safety valve. The compressor unit will comply with current noise level standards. The unit will be furnished with a key switch and electric starter. Fuel for this engine will be drawn from the chassis fuel tank.

Bidders to supply a schematic of filters, air regulators, lubricators and water drains to clean and dry the compressed air. Compressor must have a stall warning indicator buzzer and light. Unit must have the ability to start the compressor from rear of cab.

A piped air supply shall be available at the carriage locations for auxiliary usage when required. Dusting guns shall be located on each spray gun carriage to be used as a dirt blaster prior to painting. Controls for these guns shall be within easy reach of the operator.

Air piping, tubing or hose used on the vehicle shall be firmly attached to the frame or bed, except where flexible conductors are required for proper operation or service. Rigid lines shall be minimum 3/4" I.D. An auxiliary air take-off will be provided for use with air tools.

33.0 **PAINT STORAGE-**

The paint tank, mounted across the width of the truck, shall have two compartments. Holding a total of 450 gallons (2046 litres) of paint. Tank shall have a overfill protection system with a warning light and a removable top lid for cleaning purposes. Greco pneumatic agitators are required on both tanks.

White tank shall hold – 270 Gallons / 1227 Litres of paint.
Yellow tank shall hold – 180 Gallons / 818 Litres of paint

A low-pressure strainer of a minimum 50 sq. Inch filter area shall be inserted in each system. The strainer shall be accessible and valves shall be provided to allow isolation from the main paint lines for cleaning. High pressure filters shall be inserted into each system, and shall have a minimum 50 sq. Inch filter area.

All material conductors on the outlet side of the paint pumps, other than pipe, shall be flexible steel or solvent resistant synthetic material, capable of constant pressures to 600 psi. Each conductor to the spray gun shall be a minimum of 3/8" inside diameter.

All hoses, pumps, fittings and valves that are in contact with the traffic paints shall be impervious to any petroleum based or water-based solvent. Paint plumbing shall be stainless steel tubing and fittings. Valves will be ball type with Teflon seals. Valve construction shall be stainless steel. All rigid plumbing shall be constructed of industrial style sanitary-clamp piping and fittings, with two-bolt clamps on the high pressure side, and one-bolt clamps on the low pressure side. All elbows shall be smooth 90 degree style. Pipe tees and plugs are not acceptable. Pipe thread fittings shall be minimized.

Air piping, tubing or hose used on the vehicle shall be firmly attached to the frame or bed, except where flexible conductors are required for proper operation or service.

34.0 **PUMPS-**

Two paint pumps, pneumatically actuated, with a minimum rating of 28 U.S. GPM and generating maximum pressures 600 psi shall be supplied. The pumps shall be used for the airless striping application and shall not require charging pumps for prime. The pump will be constructed of stainless steel wetted parts with stainless steel or teflon balls/seats, Teflon and/or leather packing. Pump location to be determined during pre-production meeting. State make and model of pump-

35.0 **LOADING PUMPS-**

Two 1½" diaphragm loading pumps will be supplied. These pumps will be air operated and will pump 60 gpm at 70 psi. The pumps are to be plumbed so that the pump can be flushed with solvent back into a pail after loading has been completed. Pump location to be determined upon pre-production meeting. State make & model of pump-

36.0 **SPRAY GUNS-**

The paint spray guns shall be capable of processing material in quantities which will yield a 4" wide line of 16 mils thickness measured wet. It shall do so at speeds up to 20 kilometres /hr.

Each of these spray guns will be of a single color design. The striping unit will consist of eight paint guns in total. Located on the left carriage will be three **white paint guns** and **two yellow paint guns**. The right carriage will consist of **three white paint guns** required to maintain proper mil thickness wet when operating at 12-18 kph.

Gun configuration:

X- Left Side	<u>W W W</u>	X- Right Side	<u>W W W</u>
	Y Y		B B B
	B B B		

These guns shall be Graco 238377 or equivalent. Each gun shall have a capacity of 3.4 gallons per minute.

System shall be designed to accommodate the installation of tandem guns at a later date. _____

37.0 PAINT HEATING SYSTEM-

The paint heating system will heat a water/glycol mixture by utilizing (2) two high transfer heat exchangers one for white and one for yellow, which will draw heat from (2) two Webasto model auxiliary heaters.

Two thermostats shall be provided which will cycle input heat to maintain constant desired paint temperature. Water/glycol shall be diverted as the set temperature is reached.

Two medium-pressure paint heat exchangers shall be supplied. They shall have stainless steel wetted parts and contain a minimum heat transfer area of 130 sq. ft. each.

Bidder shall supply a schematic of the water heat system.

Temperature of the heating water will be controlled and monitored by a solid-state device designed for 12-volt operation. Temperatures of the heated paint shall be monitored and the heated water cycled and directed to control the set temperatures. _____

38.0 SOLVENT SYSTEM-

A tip flushing system shall be provided to flush the airless tips when required. A 500 psi pneumatic pump & "flushable" tip adapters shall be supplied. Paint filters are drained and removed for cleaning. Periodic cleaning or paint color changes use the primary paint pump to introduce solvent throughout the system. Bidder shall supply a schematic of the solvent system. _____

39.0 GLASS SUPPLY-

A pressure vessel designed to A.S.M.E. specifications shall be supplied with a capacity of **3500 pounds** of glass beads. This container shall be tested for 110 psi working pressure, hydrostatically tested at 165 psi, be of all steel construction and shall have a top opening of not less than 8". It shall be equipped with an air release valve, a pressure gauge, and a 100-pound pressure relief valve. A coalescing filter shall be supplied to remove moisture from air used to operate the glass system.

The glass guns **six (6) in total (ref. Item 37.0)**, shall be Graco model # 238338, or equivalent. These guns shall operate on 12 VDC or 24 VDC and draw 2.3 amps per gun and have an operating capacity of up to 36 pounds per minute with operating pressure up to 100 psi. Opening time: 40 milliseconds. Closing time: 60 milliseconds.

A vacuum glass loading system with a capacity of 200 lbs / min. shall be supplied with a minimum 12' loading hose. Will require a screen filter for the loading system.

40.0 CARRIAGE ASSEMBLIES-

Two gun carriage assemblies shall be supplied to support and align the spray guns. These carriages shall be located between the front and rear axles, as close to the rear axle as possible, but far enough ahead as to allow for easy viewing by the rear operator. Carriage construction shall be of structural tubing within mating tubing. Lifting of the carriage shall be accomplished with pneumatic cylinders. A safety switch shall be supplied to prevent the paint guns from being tuned on accidentally with carriages up. Guns shall have threaded gun mounting rods. Bidder shall provide a drawing schematic of the carriages. Exact location of carriages shall be determined upon pre-production meeting.

The main carriage, mounted on the left side of the vehicle, shall have provisions for attaching up to ten paint guns and three bead guns and the dusting gun. A pneumatic lift cylinder controlled from the operator's position shall be used to raise the carriage and a safety device will be supplied to support it during transporting.

The cross slide supporting the carriage shall allow the carriage to be positioned for transport within the width of the vehicle platform, and permit its use anywhere from this location outward for a distance of 42". All pivots on the carriage, where relative motion occurs, shall have replaceable bushings or anti-friction bearing and lubrication fittings.

A second spray gun carriage shall be provided along the right side of the striping unit approximately on the same lateral axis as the standard carriage, to align and support up to six paint spray guns and three glass sphere guns. The design shall be identical to the main carriage.

Each carriage shall be equipped with an operator-controlled proportional positioning lever for moving the carriage to any point within its operating range. The movement shall be double acting, allowing instant response of the carriage in the inward or outward motion. The carriage shall not creep when the positioning levers are not in use and shall operate with a smooth outward or inward motion when the levers are manipulated.

41.0 ELECTRONIC SKIP CONTROLLER-

The system shall be controlled with an electronic controller with an integrated touch screen display. The system must include controls for painting function, system heat, footage counters, indication of paint usage and an automated pattern tracker system.

The operator interface shall consist of a black and white touch-screen display coupled with touch-sensitive selection buttons used for routine striping and setup functions.

This skip-line system will allow remote electrical control of the spray guns and bead dispensers independently, and permit the application of various pre-selected line patterns. It shall have available for immediate access three preset skip cycles and two custom cycles. All cycles are available instantly to the control box operator without using resets. Provisions are available to control firing of second tandem guns.

A semi-automatic mode will allow any gun in the skip position to be fired for a predetermined line length, after which it will reset and be ready to fire again at the command of the operator.

Counters shall be an integral part of this system, which will determine actual painted line lengths. Adjustable delays, operator available, will allow proper registration of the beads to the painted line when striping in the 'automatic' mode. A button will allow

adjustment of the length of the space portion of any chosen cycle while in motion.

Must include a visual display showing amount of paint left in each tank.

The system must be able to be interfaced with a pattern recording device. This recording device must be GPS equipped and be able to record pattern changes to a vehicle remote from the paint truck. When interfaced with the skip controller, the pattern tracker system must signal the operator of an upcoming pattern change.

42.0 OPERATOR CAB-

An operator cab shall be located over the rear axle of the vehicle consisting of 11 gauge steel sheet metal and tinted safety glass, with a steel roof and sliding windows for air circulation. An angled front glass section shall allow the operator comfortable viewing of the gun carriage and upcoming line patterns. The operator shall be able to sit in a comfortable 'sitting' position while viewing predominately 'ahead' during normal striping operations. Cab must have minimal decibel level, state dBA-80

One rear door shall be provided for operator entry, constructed of 10 gauge steel framework and tinted safety glass with a safety latch, with an entrance width of approximately 28". Approximate dimensions are: width 101", height 80", depth 54".

Within this center shall be two operator's seats, a main console with controls for the paint spraying system, heater thermostat, auxiliary lights and main power system. The two operator seats shall be high back, air suspension, lumbar with (2) two foldable arm rests heavy duty cloth.

All 12-volt switches shall be of the panel-mount type. A removable front plate shall allow access to the interior for service. The panel air manifold shall have a 135-psi safety blow-off valve.

Controls and regulators for the pneumatic operations of all tanks and pumps shall be within easy reach of the operator. Three way valves shall permit venting of pressure tanks and pumps from this position.

A self-contained air conditioner and heat system is included for the rear operator compartment, with approximately 20,000 BTU/hr. cooling, and 46,000 BTU/hr. heating.

A rubber floor mat will be provided in the rear operator cab.

Cab rollover protection required.

43.0 VEHICLE ALIGNMENT SYSTEM-

**OPTIONAL OPTICAL SIGHTS REQUIRED
QUANTITY (1) ONE**

44.0 OPTIONAL CAMERA GUIDANCE SYSTEM-

A system incorporating two laterally adjustable cameras shall be mounted over the rear wheels and shall be moved horizontally. One color monitor with a screen area of minimum 6" diagonally shall be mounted in the driver's compartment. A switch will be supplied to allow viewing of either camera on one monitor. Cameras must be housed in lockable weatherproof enclosures, designed for

easy access.

45.0 ELECTRICAL & LIGHTING

45.1 All lighting is to conform to C.M.V.S.S. and Manitoba Highway Traffic Act.

45.2 The truck is to be equipped with a total of (7) floodlights. (2) Pointing at the gun carriage, (2) lights mounted on the cab to illuminate the platform, and (1) optional light to be mounted on the front pointer if equipped.

45.3 Truck to come equipped with one light bar mounted on the chassis cab, as well as (2) rotators to be located on the operators cab.

45.4 Supplier installed lighting and lighting equipment shall be Truck-Lite (unless otherwise specified) and shall include the following components:

45.5 Combination turn/stop and taillights – P/N 44982R, one (1) per side.

45.6 High mounted combination turn/stop and taillights – P/N 44982R or 60250R oval shaped light w/60700 grommet, one (1) per side.

45.7 Back-up lights – P/N 44206C, one (1) per side.

45.8 Grommets – taillights and back-up lights to be mounted in P/N 40700 grommets.

45.9 All rear lighting shall be fully visible

45.10 3-Light cluster – three (3) P/N 10250R lights with P/N 10700 mounting grommets, protected to avoid damage.

45.11 Clearance lamps – P/N 10250R and P/N 10250Y housed in P/N 10700 mounting grommets.

45.12 Licence plate lamp – P/N 15040, complete with licence plate bracket.

45.13 Junction boxes – necessary compression fittings, required for all vehicle lighting harness connections, located to be protected from damage.

45.14 All plug-in connectors and entire inside of junction boxes shall be coated with Truck-Lite NKY Compound prior to assembly.

45.15 Back-up alarm – STAR 62-097, 97 dB(A), installed at rear of body, located to be protected from damage.

45.16 All wiring for the back-up alarm, warning beacons/strobes and plow lights shall be colour coded, loomed and properly secured.

45.17 All electrical connectors shall be crimped and soldered, then sealed using heat shrink tubing.

45.18 All joining of wires shall be soldered and sealed using heat shrink tubing or approved OEM weathertight connections (crimp on electrical connectors for joining wires are not acceptable).

45.19 All electrical cable supplied shall be shielded, low temperature rated, anti-scuff, industrial type cables, Tectran 742A2 Articflex or equal. _____

45.20 Any holes required to run wires through shall be drilled (not punched), grommetted and sealed as required. _____

46.0 INTERCOM SYSTEM-

46.1 A David Clark or equivalent intercommunication system shall be furnished to provide a means of vocal communications between the driver of the vehicle and the operators of the striping equipment.

This system shall have a transistorized amplifier developed for mobile applications. Three headsets will be supplied; independent control of each headset volume shall be provided. Head seat must be double ear muff. _____

47.0 ARROW BOARD

47.1 An arrow board is required, ArrowStik – Code 3 Inc. P/N AS-847HS c/w 8 segment ArrowStik, 47 in. width, 1156 bulbs, basic controller, 18 ft. of cable. Exact location is to be determined upon pre-production meeting. _____

48.0 PROGRAMABLE LED MESSAGE BOARD-

48.1 Message Board required, state make & model- _____

49.0 DELIVERY-

The unit shall be serviced, ready for operation and delivered F.O.B with the freight prepaid to the City of Winnipeg, Winnipeg Fleet Management Agency, 185 Tecumseh Street, Winnipeg, Manitoba within **thirty (30) calendar weeks** from the date of official notification of award of Contract. The Contractor shall contact the Contract Administrator prior to delivery of the equipment. Equipment Shall be delivered within 8:00 am and 3:00 pm on Business Days. _____

50.0 TRAINING-

50.1 Operator training – the Contractor shall be required to provide **three (3) Business Days** of training, in Winnipeg by qualified staff, for City of Winnipeg operating personnel. All costs associated with the training shall be at the Contractor's expense. The training sessions shall be sufficient in duration and shall provide adequate familiarization and orientation of the equipment to the satisfaction of the Contract Administrator. All particulars surrounding the specified time required to perform the training shall be provided to the Contract Administrator by the Contractor one (1) week prior to the delivery of the completed equipment. The training shall be coordinated through the Contract Administrator. _____

50.2 Mechanical training – the Contractor shall be required to provide **three (3) Business Days** of training, in Winnipeg by qualified staff, for City of Winnipeg mechanical personnel. All costs associated with the training shall be at the Contractor's expense. The training sessions shall be sufficient in duration and shall provide adequate familiarization and

orientation of the equipment to the satisfaction of the Contract Administrator. All particulars surrounding the specified time required to perform the training shall be provided to the Contract Administrator by the Contractor one (1) week prior to the delivery of the completed equipment. The training shall be coordinated through the Contract Administrator.

- 50.3 Additional training aides – state if additional VHS, DVD, or computer based training aides are available. All training aids to be sent to training dept upon award of tender as soon as available.
-

51.0 MANUALS-

The successful bidder shall supply a complete operator's manual, service manual, parts lists, wiring diagrams, and applicable technical information for this particular machine upon delivery of the finished unit. All part numbers for each component shall be the original part number assigned by the manufacturer of that component.

52.0 FINISH-

The complete machine and all necessary components shall have the following minimum protective coatings applied: all metal parts and components, unless stainless, cadmium, chromium plated or galvanized shall have one prime coat and one finish coat of paint. The prime coat material shall be specifically compounded for the respective metals to which it is applied. Finish coat color **Endura Paint Products White.**

53.0 PERFORMANCE RELIABILITY-

- 53.1 The responsibility for the design of the **complete Airless Truck Mounted Pavement Marking Vehicle, its performance, and reliability shall rest upon the Contractor.**
-

- 53.2 The term “*repeated failures*” as used herein is defined to means that the same component, subassembly, or assembly develops repeated defects, breakdowns and/or malfunctions rendering the vehicle inoperative, or requiring repeated shop correction, service, and/or replacement during the Warranty period applicable for said component, subassembly, or assembly. Minor items or ordinary service adjustments are not included, or considered under the scope of “repeated failures”, as well as other factors, such as operational damage due to accidents, misuse or lack of proper maintenance, service and lubrication attention by not following the manufacturer’s preventative maintenance schedules.
-

- 53.2.1 Where the vehicle develops “repeated failures” in service, the Contractor shall make any necessary engineering changes, repairs, alterations or modifications in order to guarantee reliability of performance.
-