

Patching Machine
P R O P O S A L F O R M - MITN#75500

Due Date: April 13, 2018 - 9:00 am

To: Grand Traverse County Road Commissioners
1881 LaFranier Road
Traverse City MI 49696

The undersigned hereby certifies that they have examined the Specifications and are fully informed as to the nature of the equipment, material and labor to be furnished.

The undersigned agrees that, if awarded this proposal for services, they will deliver the proposed equipment, material and labor as required by June 1, 2018 at the bid prices. This bid, by mutual agreement of each party, may be extended for an additional one (1) year period. Contractor/supplier agrees to the GTCRC terms/conditions and insurance requirements as attached. A current Certificate of Insurance that meets the minimum coverage requirements of the Road Commission shall be furnished to the Road Commission prior to commencing work.

Bidder understands and agrees that all necessary permits, licenses and insurances must be obtained and that all applicable federal, state and local codes, laws and regulations must be complied with.

GTCRC reserves the right to accept or reject any or all bids, waive irregularities, increase or reduce quantities and delete bid items in the Proposal form, and to accept the bids either on an entire or individual basis that is in the best interest of the GTCRC. The GTCRC accepts no responsibility for any expense incurred by the bidder in the preparation and presentation of a bid. Such expenses shall be borne exclusively by the bidder.

The Undersigned further states that they have not directly or indirectly entered into any combination collusion, undertaking or agreement with any other bidder or bidders to maintain the price or bid on this work, or to prevent any bidder or bidders to refrain from bidding, and that this proposal is without reference or regard to any other proposal or proposals, and without agreement, understanding or combination with any other bidder or prospective bidder or agent thereof in any way or manner whatsoever.

Having carefully examined the specifications and any other applicable information, the undersigned proposes to furnish all items necessary for and reasonably incidental to the proper completion of this bid. Bidder submits this bid and agrees to meet or exceed all requirements and specifications unless otherwise indicated in writing and attached hereto. Bidder agrees to accept a purchase order with the Terms and Conditions as attached hereto and made a part hereof from the Road Commission if selected as the successful bidder.

Bidder certifies that as of the date of this bid, the company or he/she is not in arrears to the Road Commission for debt or contract. Bidder understands that the Road Commission reserves the right to accept any or all bids in whole or part and to waive irregularities in any bid in the interest of the Road Commission. The bid will be evaluated and awarded on the basis of the best value to the Road Commission. Criteria used will include, but not be limited to price, quality, and overall capability meeting the needs of the Road Commission.

The above signed hereby proposes to furnish all equipment, material and labor to meet the specifications and requirements of the Grand Traverse County Road Commission in accordance with state and federal safety standards, provide liability, automotive and workers' compensation insurance coverage.

Having read and clearly understanding the instructions and specifications for PATCHING MACHINE quantity

estimated and being thoroughly familiar with the work to be performed, we hereby submit the following bid for PATCHING MACHINE.

The above signed hereby proposes to furnish all materials to meet the current MDOT Specifications, f.o.b. Grand Traverse County, as specified to-wit:

Company Name:	Submitted By:
_____	Signature
Address:	Name (Typed/Printed)
_____	_____
City, State, Zip	Title (Typed/Printed)
_____	_____
Telephone (_____) _____	Proposal Date _____
FAX # (_____) _____	Email: _____

Proposal Acceptance

Items No. _____ are hereby accepted by the Grand Traverse County Road Commission.

Date _____ By _____
Signature _____ Title _____

Proposal Extension

Item(s) No. _____ are hereby offered for a one-year extension of the proposal and agreement.

Date _____ By _____
Signature _____ Title _____

The Grand Traverse County Road Commission hereby accepts the offer to extend this proposal and agreement for an additional one year period of time.

Date _____ By _____
Signature _____ Title _____

ITEM	QTY	UNIT PRICE	BID PRICE
1. Patching Machine per attached specifications.	- 1 -		
Manufacturer _____			
Year & Model _____			
Delivery Date _____			

Detailed Specification for:
Spray Injection Patching Machine Cab Operated, Chassis Mounted

1.0 Purpose:		Yes	No
1.1	Unit shall be truck mounted with a forward mounted boom and use the Spray Injection method to repair cracks, potholes, broad distressed areas and shoulders at a minimum. For operator visibility and safety, the boom must fold horizontally and store at height below windshield. Units with vertical storing booms will not be accepted. All patching operations must be controlled from the safety of the truck cab. The unit shall be capable of blowing water, dust or debris from the pothole or surface to be repaired. A tack coat of hot emulsion shall be applied by the unit on the cleaned area. Emulsion-coated aggregate must be injected into the repair area. The machine shall be capable of operating in temperatures below 32 degrees Fahrenheit.		
1.2	The equipment being bid must be new and meet the needs of this specification without modification. The model must be currently advertised, have been in production for a min. of two years and have a working volume of not less than called for in this specification. Hybrid, one-off or prototype equipment is unacceptable.		
1.3	These specifications are not intended to be restrictive, but are meant to describe the kind and size of unit desired to be purchased in detail. If bidder is basing the proposal on equipment other than what is specified in these bid documents and wishes the equipment to be considered as an "approved equal" they shall submit on a separate sheet, an item by item description of that which is proposed. The bidder's specifications must be complete and of sufficient detail to cover all items included in this bid specification and in a manner that allows a direct comparison. Any item not covered will be deemed as not meeting specifications.		

2.0 Basic Machine Requirements:		Yes	No
2.1	Spray Injection design with aggregate supplied from hopper by gravity feed.		
2.2	Chassis mounted and rated for highway class use.		
2.3	Horizontal folding forward boom operated from cab.		
2.4	Electric blanket heated emulsion tank.		
2.5	Emulsion tank capacity of 300 gallons.		
2.6	Overnight electric heating for maintaining emulsion temp.		

3.0 Emulsion Heating and Storage System Minimum Requirements:		Yes	No
3.1	Tank construction must be an ASME certified pressure vessel and include a contents gauge.		
3.2	Tank with 300 gallon capacity, tested to 195 psi at ambient temperature.		
3.3	Minimum R15 rated fiberglass insulation.		
3.4	Waterproof fire retardant fiberglass tank wrap over insulation.		
3.5	12" minimum loading hatch equipped with "T" bolt closures.		
3.6	Minimum 3" drain valve installed on bottom of tank.		

3.7 In operation emulsion shall be heated by an alternate heat source provided to maintain heat on work site, regulated automatically to prevent over or under heating of materials.

3.8 Overnight heating shall be done with two electric heat blankets wrapped under the tank (1500W minimum each). A thermostat and overnight heating extension cord will be included. Heating probes will not be considered for alternate as they do not allow tank pre heating and 100% use of emulsion tank volume.

3.9 Heating system must be capable of operating continuously whether tank is empty or full without damage to the heating system and controls.

3.10 Must have thermostatic control switch.

3.11 Empty tank must be capable of being pre-heated prior to filling without damage to tank heating system or shock to emulsion.

3.12 System must be capable of maintaining heat so as to allow operation of patcher in ambient temperatures below 32 degrees F.

4.0 Patcher Frame Minimum Requirements:

4.1 The frame is to be constructed of minimum 10" gusseted steel channel for safety and strength.

4.2 Aggregate hopper of 5 yard min. capacity with min. 9 ft. x 7 ft. rectangular top opening to allow easy loading from a front end loader bucket.

4.3 A hopper vibrator will be included and wired to operate from joystick via a momentary push button switch.

4.4 Steel round fenders shall be included and equipped with mud flaps and anti-sail brackets.

4.5 The Patcher frame shall be secured to the truck chassis with eight square U-bolts and two additional side straps.

4.6 A 10 lamp LED directional arrow board will be mounted at the back of the machine and be selectable for left/right or both traffic control.

4.7 The Patcher frame shall incorporate amber and red LED marker lights along its frame according to federal highway standards

4.8 The Patcher frame shall contain two LED rear tail lights. Lights shall be wired in conjunction with truck tail lights for running, braking, and turning.

4.9 Patcher will feature two separate Class 2 LED amber 360 degree strobe lights mounted at top of Patcher for 360 degree visibility.

4.10 Patcher is designed to be mounted on a 33,000 GVW cab over chassis

Yes	No

5.0 Aggregate Delivery System Minimum Requirements:

5.1 The pothole patching machine shall receive aggregate from the integrated hopper. It must have the ability to pass aggregate up to 2-1/2" in size without clogging or manual adjustment. No machine will be considered without demonstrating this capability. The aggregate feed system must be capable of reliably delivering 1/4" - 3/8" aggregate within an engine RPM range of 1200 - 1800.

5.2 Integrated 5 yd Hopper, rectangular in shape with 9ft x 7ft. Opening.

Yes	No

5.3	Hopper equipped with dual slide gates. Upper gate is service gate valve to shut hopper from aggregate delivery. Second slide gate used in patching operation to open and close aggregate hopper to air stream.		
5.4	Venturi designed to draw aggregate into the air stream. Must have access panel.		
5.5	Must be able to clean or replace venturi safely.		
5.6	Aggregate hose will be a minimum 3.5" ID. Non-kinking, wire reinforced rubber hose with neoprene liner.		
5.7	Emulsion Hose Heated by A 12 volt pump shall circulate heat transfer oil through a pipe inside the emulsion tank and min. 3/8" diameter lines the full length of the hose to the emulsion nozzle, then back. All parts including emulsion valves, hose, and nozzle will be heated by this hot fluid heating system.		
5.8	Equipped with Vent-Flow nozzle. The nozzle shall be designed so it diffuses/slow down the air stream at the tip to minimize overspray. The emulsion nozzle will be slotted to create a single fan of emulsion to properly coat the aggregate. The nozzle may be warmed with an optional separate low voltage DC heating blanket to prevent material build up during cold weather operation.		
5.9	The hopper to be equipped with a roll tarp system to prevent spillage while in transport		

6	Front Mounted Patching Boom Minimum Requirements:	Yes	No
6.1	The pothole patching machine will be equipped with a heavy duty, hydraulically manipulated boom arm assembly used to position the Vent-Flo nozzle. The arm and control must prevent the nozzle from moving beyond the side of the vehicle into the traffic lane. Boom designs that stow for travel and obstruct driver view will not be considered.		
6.2	Boom range of motion must allow repair a minimum of 36" beyond the side of the vehicle on the passenger and 24" on the driver's side without repositioning the truck chassis.		
6.3	The front discharge nozzle must be vertically adjustable to compensate for vehicle height variations. Vertical adjustment must be controlled by joystick inside cab.		
6.4	In storage and transport the boom must fold against the bumper of the vehicle and in no way obstruct the driver's vision when locked in the transport position. This is a safety issue! Nor shall it interfere with the factory mounting and use of the truck headlights in order to maintain compliance with NHTSA standards.		
6.5	The boom must have a stow support for traveling to eliminate bushing fatigue at all pivots.		
6.6	All boom pivot points must be lubricated and fully replaceable in the field.		
6.7	The boom must have a minimum reach of 120" from the bumper.		
6.8	The emulsion control valve must be mounted near the emulsion nozzle and be electronically controlled via a CANBUS communication cable or similar system.		
6.9	The nozzle must rotate through a 36 inch radius and 180 degrees of rotation and have a vertical range of motion no less than 8 inches at the nozzle tip.		

7.0 Control System Minimum Requirements:		Yes	No
7.1	The control system shall be located in the truck cab and be a modular unit that includes mounting base. The console will be fully adjustable in design with a cushioned armrest and operator interface panel located at the operator's fingertips. The console must include a color display for function indicators and engine information. The Joystick will control all movement of the boom and patching operation.		
7.2	The control system shall be located in the truck cab and be a modular unit that attaches to driver's seat. Console will be adjustable fore & aft and for height. Console will move with any driver's seat adjustments.		
7.3	The console will feature a key switch to control rear auxiliary engine, an illuminated rocker switch to control emulsion override valve, a full function joystick, and a color Human Machine Interface to program and monitor Patcher functions.		
7.4	All switches are to be illuminated with function. Color HMI screen will be self-illuminating. Buttons on HMI screen will be backlit.		
7.5	The fully proportional joystick will have color coded push buttons to select operation mode and activate vibrator.		
7.6	Joystick shall be a right handed unit mounted to console. Joystick shall use proportional position inputs to control boom speed. Joystick shall connect to controller using CANBUS communication or similar system.		
7.7	Human Machine Interface, HMI, will feature a 4.3" color display and utilize four push buttons and a cursor button mounted below the screen. HMI shall be on an adjustable mount for operator comfort.		
7.8	Control shall maintain a count of patches performed over the lifetime of the machine as well as patches performed this shift (within the last 12 hours).		
7.9	Boom speed shall be adjustable on HMI screen. Control will also feature a "Feather" mode activated by a momentary push button on the joystick that will decrease the speed of the boom movement by an adjustable amount. Emulsion & rock volume shall decrease proportionally when "Feather" mode is activated.		
7.10	Control shall notify operator of fault using HMI screen. Control shall display active faults on HMI screen. Control shall archive old faults to aid in troubleshooting.		
8.0 Engine, Fuel, and Clean-Out Minimum Requirements:		Yes	No
8.1	The unit will be equipped with a diesel engine with spin-on type oil and fuel filters. It will be joined to the frame with rubber engine mounts to prevent vibration transfer. A management system will be located on the engine enclosure for ease of operation and maintenance.		
8.2	Auxiliary engine will feature an integrated water drain and 5 micron rated filter system.		
8.3	The engine will be protected with an engine enclosure that is certified by the manufacturer. It will be lockable for security and provide noise reduction for operator safety.		

8.4	Auto shutdown protection will be provided for oil pressure and coolant temperature.		
8.5	The Tier IV I compliant engine will be rated at no more than 74HP and be able to operate the delivery system to fill a patch with 1/4" stone @ 1100 RPM and 1 ½ " stone at no more than 1800 RPM.		
8.6	Engine cover will enclose engine, battery and hydraulic pump.		
8.7	Engine controller must be accessible without having to open engine cover and contain the hour meter, tachometer and shutdown for engine oil pressure and coolant temperature.		
8.8	The unit will include a min. 18 gallon Diesel fuel tank.		
8.9	Auxiliary engine will have horizontal muffler mounted above the engine with a vertical exhaust and rain cap.		
8.10	A minimum 13 gallon pressurized vessel will be included for flushing of emulsion lines and nozzle after use. It shall be equipped with a pressure relief valve set at 110 PSI.		

9.0 Blower and Air Compressor Minimum Requirements:		Yes	No
9.1	The unit will incorporate a direct driven high volume low pressure roots type blower to operate the delivery system. An air compressor driven off the engine will also be required to pressurize the emulsion system. No pumps for emulsion delivery will be accepted.		
9.2	Spring loaded relief valve shall be set to 12 psi for aggregate blower protection.		
9.3	Blower shall be driven directly off of engine flywheel using a coupling producing a minimum of 400 CFM@7 PSI designed for use with mobile internal combustion engines. Coupling shall have sacrificial rubber element.		
9.4	Blower shall use a 45 ft ² air filter mounted directly above blower. Air filter shall utilize foam prefilter. Filter change shall be accomplished without tools. No part of the patcher should be over the filter housing so as to make access easy.		
9.5	System will incorporate silencer to reduce noise associated with high volume blower airflow.		
9.6	Air compressor shall have 8.5 CFM capacity and be driven off of rear auxiliary engine. No use of high pressure air from the braking system of the truck chassis shall be permitted due to potential safety issues.		
9.7	All pneumatic rams, valves, and air dryer shall be name brand and come with a 5 year product replacement warranty.		

10.0 Paint and Safety Decals Minimum Requirements:		Yes	No
10.1	It will be equipped with required safety decals and signage.		

11.0 Truck Chassis Minimum Requirements:		Yes	No
11.1	The Patcher will be delivered mounted on the specified chassis. See attachment B for detailed requirements for truck chassis.		

12.0 Warranty:		Yes	No
12.1	The manufacturer shall warranty the equipment for a period of one year. Auxiliary engine must be covered for major components for a period of 2 years or 2000 hours. All pneumatic rams, valves, and air dryer shall be name brand and come with a 5 year product replacement warranty. Bidder warranty policy must be included with bid submittal.		

13.0	Included Options: (if box is "X" items must be included)	Yes	No
13.1	Aggergate Hopper Heater		
13.2	12 Volt Nozzle Heater		
13.3	Rear View Camera		
13.4	Toolbox Side Mount Frame		
13.5	30 x 60 LED Arrowboard in lieu of standard		
14.0	Cab Chassis Minimum Requirements:	Yes	No
14.1	Will be of cab over engine (COE) design		
14.2	Will have a GVW of 33,000 lbs		
14.3	Shall be the manufacturer's latest model, furnished and delivered new, complete, and ready for use		
14.4	Will feature a 107 decibel backup alarm		
15.0	Engine Minimum Requirements:	Yes	No
15.1	Will be a turbocharged, and intercooled diesel engine		
15.2	Will produce 250 horsepower		
15.3	Will achieve 600 ft. lbs. of torque		
15.4	Will include a 120V engine block heater		
15.5	Will have alarm for low oil pressure, high coolant temperature, and low coolant level or equal		
15.6	Will include dry type air, spin-on fuel, oil, and water filters		
15.7	Will have a horizontal exhaust system, exiting behind the cab and below the frame		
15.8	Will have heavy duty, thermostatically controlled cooling system with maximum radiator frontal area from the manufacturer. Fan drive will be matched to cooling system requirements. System will be protected with permanent type anti-freeze.		
16.0	Transmission Minimum Requirements:	Yes	No
16.1	Will be an Allison 3000 Series 6 speed transmission		
16.2	Will have a console mounted push button shifter		
17.0	Rear Axle Minimum Requirements:	Yes	No
17.1	Will be a heavy duty single drive rated at 21,000 lb. minimum		
17.2	Will have a 5.29 rear axle ratio		
17.3	Will have multi-leaf heavy duty Reyco mechanical suspension rated at 21,000 lb. minimum (or other approved suspension).		
17.4	Will include a rear axle stabilizer bar		
18.0	Front Axle Minimum Requirements:	Yes	No
18.1	Will be a heavy duty forged I beam axle rated at 12,000 lb. minimum		
18.2	Will have parabolic leaf spring suspension rated at 12,000 lb. minimum		
19.0	Brakes Minimum Requirements:	Yes	No
19.1	Will have air brakes with reservoirs, warning devices, and gauges meeting all D.O.T. regulations		
19.2	Will have drum brakes on front axle to be Meritor 16.5x5 QP		
19.3	Will have drum brakes on rear axle to be Meritor 16.5x7 Q Plus		
19.4	Will feature a Bendix air dryer with coalescing filter		
19.5	Will have an engine mounted air compressor capable of achieving a minimum of 18.7 CFM		

20.0	Wheels and Tires Minimum Requirements:	Yes	No
20.1	Will have hub piloted aluminum rims		
20.2	Will use 11R22.5 size tires		
21.0	Frame Minimum Requirements:	Yes	No
21.1	Will use standard 10" steel rails with 34" frame spacing		
21.2	Will feature a section modulus RMB of 1.4 million lb/in		
21.3	Will have a 158" wheelbase		
21.4	Will have a 108" overhang from rear axle		
22.0	Fluids Minimum Requirements:	Yes	No
22.1	Will have a 45 gallon minimum fuel tank located on driver side frame rail		
22.2	Will have a 7.5 gallon DEF tank mounted on driver side frame		
23.0	Electrical Minimal Requirements:	Yes	No
23.1	Will be a 12 volt negative ground system		
23.2	Will be powered by a 160 amp brushed alternator		
23.3	Will use three batteries to provide 2400 CCA		
23.4	Will include a battery box mounted on right hand frame rail Will feature a Flaming River Switch battery disconnect switch located at or near battery box		
23.5			
24.0	Cab Minimum Requirements	Yes	No
24.1	Will use a factory built cab with left hand drive configuration		
24.2	Will hydraulically tilt forward 55 degrees for engine service		
24.3	Will include two power west coast heated mirrors with power tilt		
24.4	Will include intermittent windshield wipers and washer system		
24.5	Will include directional lights and four way flashers		
24.6	Will include door activated interior courtesy light		
24.7	Will feature a minimum 5" LCD productivity screen		
24.8	Will have cruise control		
24.9	Will have power windows		
24.10	Will have heating and air conditioning with radiator mounted condenser, dedicated side window defrosters, bi-level heater/defroster controls, and capable of producing 54,500 BTU/hour		
24.11	Will feature premium air suspension high back fabric driver seat		
24.12	Will feature an air suspension high back fabric passenger seat		
24.13	Will include all I.C.C. required marker lights		
24.14	Will feature an AM/FM radio with WeatherBand frequency, USB input, and BlueTooth equipped		
24.15	Will feature a center console with two cup holders and a lockable storage compartment.		
24.16	Pre-wired cab for light bar with switch.		
24.17	Cab pre-wired with two way radio, power & antenna leads with external antenna.		
24.18	Will have electrical city horn and roof mounted air horn.		
25.0	Paint Minimum Requirements:	Yes	No
25.1	Will have first quality paint or coating for appearance and protection		
25.2	Cab will be flat red in color-color matched at time of order		
25.3	Frame & supporting components will be black		

26.0 Warranty Chassis Minimum Requirements:		Yes	No
26.1	Basic vehicle will be 12 month, unlimited mile		
26.2	Engine will be 24 month, unlimited mile		
26.3	Automatic transmission will be 36 month, unlimited mile		
26.4	Axles and suspension will be 24 month, unlimited mile		
26.5	Structural elements of frame & cab will have a 36 month, unlimited mile warranty		
26.6	Cab will have a 36 month, unlimited mile warranty against corrosion		
26.7	Will include hard copy parts and operator manuals.		