FORM N: DETAILED SPECIFICATIONS 20035

CAB & CHASSIS WITH MOUNTED ASPHALT PATCHER

1. INSTRUCTIONS FOR COMPLETION OF SPECIFICATIONS

1.1 All items in these specifications should be answered indicating compliance or non-compliance.

1.2 **Proponents shall state "yes" for compliance or state "deviation"**, or give a reply where requested to do so. Deviations and/or equivalents shall be clearly stated and fully detailed. Deviations and/or equivalents will be considered subject to evaluation. In every instance where a brand name or design specifications is used, the City will also consider deviations and/or equivalents.

1.3 Lengthy explanations of deviations may be included in a separate document and must reference the appropriate Detailed Specification.

1.4 Each Proponent is required to fill in every blank. Failure to do so may be used as a basis for rejection of bid.

1.5 It will be the responsibility of the Proponent to inform the City of any errors or omissions in these Detailed Specifications, for under this Contract, the Contractor shall be held responsible to ensure that the manufacturer will be responsible for the design, performance, reliability and satisfactory operational function of the unit.

2. DESCRIPTION OF EQUIPMENT

2.1 These specifications describe **Cab & Chassis with Mounted Asphalt Patcher** and other equipment and features as specified herein.

2.2 The **Cab & Chassis with Mounted Asphalt Patcher** shall be a new **2021** model year or newer.

2.3 The **Cab & Chassis with Mounted Asphalt Patcher** and all other items/components shall be the manufacturer's latest model. The equipment shall be furnished complete and ready for operation. Any parts or accessories not specifically mentioned, but which are required to complete and place the equipment and associated attachments in successful operation shall be furnished as though specifically mentioned in these specifications. The equipment and associated attachments, and all parts thereof, shall conform in strength and quality of material and workmanship, to the best standards and engineering practice of the industry.

2.4 The ratings specified herein merely state the minimum values acceptable to the City, not implying that those values are sufficient for the design of the particular equipment being bid.

3. OTHER SPECIFICATIONS AND STANDARDS

3.1 All applicable SAE Standards form an integral part of the vehicle specifications and shall have precedence in any conflict concerning minimum acceptable standards.

3.2 Where applicable, the Cab & Chassis with Mounted Asphalt Patcher shall comply with the applicable regulations:

Transport Canada, National Safety Mark, NSM:
http://www.tc.gc.ca/eng/acts-regulations/acts-road.htm

Manitoba Safety and Health Regulation, Parts 12, 16, 22:
https://www.gov.mb.ca/labour/safety/pdf/1_2016_wsh_ar_oc.pdf

Canadian Motor Vehicle Safety Standards C.M.V.S.S.
http://laws-lois.justice.gc.ca/eng/regulations/C.R.C., c. 1038/section-sched3.html

Manitoba Highway Traffic Act regulations and requirements including, but not limited to, a Manitoba Government Inspection with Safety Sticker.
http://web2.gov.mb.ca/laws/regs/index.php?act=h60

Canadian Standards Association, CSA:
http://www.csagroup.org/

Under Writers of Canada, U/L:
http://www.ulc.ca/

Society of Automotive Engineers, SAE:
http://www.sae.org/

City of Winnipeg Lighting Visibility Standard:
http://winnipeg.ca/matmgt/pdfs/PublicWorksEquipLightingVisibility.pdf

Manitoba Building Code:
https://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=31/2011

3.3 The completed unit shall include a Manitoba Government Inspection with Safety Sticker.

3.4 The manufacturer/installer shall affix their National Safety Mark (NSM) certification sticker on each unit.

State NSM number: _____

4. FUEL

4.1 The equipment shall be fully fuelled upon delivery (no exceptions).

5. REFERENCES

5.1 Provide five (5) references where this equipment is used in a working environment where climatic conditions are similar to the City of Winnipeg.

_____
_____
_____
_____
_____

6. MAKE & MODEL

6.1 State year, make and model being bid:

Cab and Chassis: _____

Asphalt Patcher: _____

7. PERFORMANCE RELIABILITY

7.1 Shall be capable of consistent top performance for transporting, heating and dispensing asphalt material, and making permanent asphalt repairs during the spring, summer and fall environments which are normal to the City of Winnipeg.

7.2 The equipment shall be capable of continuously heating both liquid emulsion and asphalt 24-hours per day, 7-days a week if so desired, i.e., capable of heating asphalt material to a temperature of 150°C (300°F) and heating liquid asphalt to a temperature of 121°C (250°F) in both working/transport mode and off-hours/storage model.

7.3 The equipment shall be capable of consistent top performance in City of Winnipeg Environment. **Note: The City of Winnipeg has four seasons with ambient temperatures ranging from approximately 90°F (32°C) to -40°F (-40°C).**

8. WEIGHT DISTRIBUTION

8.1 The completed vehicle shall not exceed the City of Winnipeg's limits gross vehicle weight, axle and tire loads with the unit (including the chassis) fully fuelled and operational, two (2) operators, full liquid asphalt tank, heat transfer oil (if applicable), and including a full payload (struck capacity) of hot asphalt.

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 (single axle) – 9100 kg (20,062 lbs.)**
- **Tire load – 9 kilograms for each millimetre width of tire (approx. 500 lbs. per inch of tire width)**

9. WEIGH SCALE TICKET

9.1 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 fully fuelled and operational including two (2) operators, full liquid asphalt tank, heat transfer oil (if applicable) and full payload (struck capacity) of hot asphalt @ 721 kg/m^3 (1,215 lbs/yd^3)

10. SPECIFICATIONS

10.0 **Cab and Chassis Specifications**

10.1	Make	**State:** make: _____	_____
10.2	Model	**State:** model: _____	_____
	GVWR		_____
10.3	Total	37,000 lbs. **State:** _____	_____
10.4	Front	14,000 lbs. **State:** _____	_____
10.5	Rear	23,000 lbs. **State:** _____	_____
10.6	GCWR	**State:** GCWR: _____	_____
	Dimensions		_____
10.7	Wheelbase	As required for nominal 5 yd^3 Asphalt Patcher Body and equipment **State:** wheelbase: _____	_____
10.8	Cab to Axle (CA)	As required for nominal 5 yd^3 asphalt hopper body and equipment **State:** CA: _____	_____
10.9	After Frame	As required for the Asphalt Patcher Body installation	_____

Engine

10.10	Type	Tier IV Final Diesel, inline 6-cylinder	_____
10.11	Horsepower	Approximately 300 HP gross **State:** HP: _____	_____
10.12	Torque	Approximately 860 lb-ft **State:** torque: _____	_____
10.13	Radiator	• Aluminum • Approximately 1200 square inch **State:** size: _____	_____
10.14	Fan Drive	• Two-speed type • Direct drive • Residual torque device for disengaged fan speed • Complete with dash switch	_____
10.15	Air Cleaner	• Single element, dry type • Suitable for application	_____
10.16	Coolant	• Extended Life Coolant • Freeze protection to -40°C	_____
10.17	Block Heater	• Immersion type • Approximately 1000 Watt • Covered with recessed plug • Mounted below Driver's door	_____
10.18	Engine Shut Down	Low oil pressure / high water temperature	_____
10.19	Air Intake Warmer	**Required:**	_____
10.20	Fuel Shut-Off	Electric solenoid type	_____
10.21	Air Intake	Dual under-hood/outside air intake	_____
10.22	Air Intake Restriction	Dash mounted restriction indicator	_____
10.23	Oil Drain Plug	Magnetic type	_____
10.24	Oil Filter	Full flow, spin-on type	_____
10.25	Fuel Filter	Spin-on type	_____
10.26	Fuel Line Primer Pump	**Required:**	_____
10.27	Coolant Filter	**Required:**	_____
10.28	Coolant Hoses	Silicone type, Gates Blue Stripe or premium type hoses **State:** type: _____	_____
10.29	Air Compressor	• Water cooled • Pressure lubricated • Approximately 15-18 cfm	_____

	Transmission		
10.30	Transmission	• Allison 3500 RDS with 6-speed programming • Ratio shall be as per inter-city application. • Transmission shall come with Load Base Management Programming.	_____
10.31	Allison SCAAN	**Required:** Provided at time of delivery	_____
10.32	Transmission Fluids	Synthetic	_____
10.33	Shift Selector	Column mounted shifter **State:** type: _____	_____
10.34	Cooling Capacity	• Water to oil transmission cooler • Per Manufacturer's recommendation for severe duty cycle	_____
10.35	Oil Level Dipstick	• Bayonet type • High and low level markings	_____
10.36	Transmission Drain Plug	Magnetic type	_____
	Front Axle		
10.37	Front Axle	• Meritor 14,000 lbs. capacity • With synthetic fluid **State:** capacity: _____	_____
	Rear Axle		
10.38	Rear Axle	• Meritor 23,000 lbs. capacity • With synthetic fluid **State:** capacity: _____	_____
10.39	Ratio	For 110 km/hr **State:** ratio: _____	_____
10.40	Inter-Axle Lock	**Required:** with dash mounted switch	_____
10.41	Differential Lock	**Required**: for drive axle with dash mounted switch	_____
10.42	Hub Seals	Oil lubricated front and rear type	_____
	Front Suspension		
10.43	Type	• Taper-leaf spring • 14,000 lbs. capacity	_____

	Rear Suspension		
10.44	Rear Suspension	• Air ride suspension • 23,000 lbs. capacity	_____
10.45	Suspension Control Valve	• Manual dump valve for air suspension Dash mounted switch • Indicator light • Gauge and buzzer	_____
10.46	Auto Refill	**Required**: at 5 km/hr **Exact speed will be determined at a pre-production meeting**	_____
	Cab		
10.47	Type	Conventional with corrosion inhibitor	_____
10.48	Cab Construction	Aluminum or Galvanized Steel **State:** material type: _____	_____
10.49	Cab Mounts	Air suspension	_____
10.50	Grab Handles	Dual exterior **State:** locations: _____	_____
10.51	Grab Handles	Dual Interior	_____
10.52	Entrance Steps	• Dual each side, • Open grate / grip type	_____
10.53	Air Conditioning	**Required:**	_____
10.54	Hood	• High visibility hood • Tilting • Stationary chrome grille **State:** hood type: _____	_____
10.55	Cab Interior / Trim	• Extreme climate insulation • Cloth or vinyl headliner on roof, door panels and rear interior of cab	_____
10.56	Cab Silencer Package	**Required**: for minimal decibel level	_____
10.57	Hood/Firewall/Engine Insulations	**Insulated:** • Hood liner • Engine cover • Firewall • Splash panels	_____
10.58	Floor Covering	Rubber mat with under-padding	_____
10.59	Floor Mats	• Qty two (2) • Rubber	_____

10.60	Driver's Seat	• High back • Air suspension • Foldable armrests • Seatbelt • Heavy-duty cloth upholstery	_____
10.61	Passenger Seat	• High back • Air suspension • Foldable armrests • Seatbelt • Heavy-duty cloth upholstery	_____
10.62	Dashboard	Ergonomic (Wing) Design **State:** design: _____	_____
10.63	Sun Visors	Dual flip-up type	_____
10.64	Cab Interior / Trim	• Extreme climate insulation • Cloth or vinyl headliner on roof, door panels and rear interior of cab	_____
10.65	12-Volt Power Outlet	**Required:** Two (2) with independent circuit	_____
10.66	Radio	• Factory installed • AM/FM/ • Blue Tooth capability • USB input • Auxiliary input	_____
10.67	USB Ports	• Qty two (2) • Located in instrument panel	_____
10.68	Keyless Entry System	Remote with: • Panic alarm and horn beep lock confirmation • Auxiliary buttons for other functions • Include three (3) key Fobs **State:** auxiliary functions that are available: _____ _____	_____
10.69	Dome Light	Dome light with driver and passenger door switches	_____
10.70	Heater / Defroster	• High output • Capable of keeping all windows clear at an outside temperature of -40°C	_____
10.71	Brake, Accelerator, Pedals	Floor or hanging type brake and accelerator pedals **State:** style: _____	_____
10.72	Horn	Dual electric	_____
10.73	Air Horn	• Single trumpet • Lanyard pull cord	_____

10.74	Exterior Mirrors	• Heated • Lighted • 4-way motorized adjustment (with convex mirrors), • Suitable for 102 in. equipment width	_____
10.75	Down-View Mirror	• Over passenger door • Approximately 6 in. x 10.5 in.	_____
10.76	Windows & Windshield	Tinted	_____
10.77	Power Windows	Power driver and passenger side	_____
10.78	Doors	Power door locks	_____
10.79	Windshield Wipers	Electric intermittent	_____
10.80	Wiper Blades	Heavy duty with winter type boot	_____
10.81	Windshield Washers	Electric, with spray nozzles on wiper blades	_____
10.82	Bug Screen	Mounted behind grille	_____
10.83	Winter Front	Heavy-duty vinyl with twist lock or snap type fasteners	_____
10.84	Exterior Sun Visor	**Required:**	_____
	Frame		
10.85	Frame	• Single rail • Heat treated alloy steel	_____
10.86	Rust Inhibitor (Frame/Cross Member)	• Sodium, magnesium and calcium chloride resistant • Semi-permanent, high strength rubberized polymer blended **State:** type and brand: _____ _____	_____
10.87	Chassis Fasteners	Grade-8 threaded hex headed frame fasteners	_____
	Front Bumper		
10.88	Type	• Chrome steel • Full width • License plate bracket	_____

	Towing		
10.89	Tow Hooks	Front and rear	_____
10.90	Rear Frame Towing Provisions	• Wiring routed to end of frame with two (2) extra feet • Air lines routed to end of frame with two (2) extra feet • Separated from main truck lighting • 7-way pin receptacle • Circuit breaker protected	_____
10.91	Trailer Auxiliary Circuit	• Electric trailer brake • Controlled by ignition switch	_____
	Brakes		
10.92	Brakes	• Air • ABS	_____
10.93	Slack Adjusters	• Front and rear • Clearance sensing • Automatic type • Greasable slack adjuster pins	_____
10.94	Parking Brake	**Required:**	_____
10.95	Brake Chambers	• Front and rear • Vented type	_____
10.96	Dust Shields	Front and rear	_____
10.97	Air Tanks	Aluminum tanks	_____
10.98	Tank Straps	• Aluminum or stainless-steel straps • 1/16 in. rubber or neoprene isolators to prevent galvanic corrosion	_____
10.99	Moisture Ejector	**Required:** Wabco, heated in all air tanks	_____
10.100	Drain Valves	**Required:** for each tank • Manual • Chain or cable operated	_____
10.101	Air Dryer	Air dryer with heater **State:** make: _____ **State:** model: _____	_____
	Steering		
10.102	Type	• Power • Tilt and telescopic	_____

Exhaust System

10.103	Configuration	• Stationary extreme outboard single right hand • Chrome vertical discharge on passenger side • Under-frame routing • Vertical portion cab mounted • Discharge tip shall have a backslash type end	_____
10.104	Overall Exhaust Height	Approximately 12 in. higher than Asphalt Patcher Body	_____
10.105	Exhaust Heat Shield	• Chrome • Over exhaust next to cab door	_____

Electrical Systems

10.106	Chassis Wiring	Multiplex wiring	_____
10.107	Electrical Connectors	• Plug-in • Sealed type	_____
10.108	Anti-Corrosion Electrical Package	Controllers and sensitive electrical components (PCM, Harnesses etc.) mounted in cab **State:** location: _____ 	_____
10.109	Alternator	Delco Remy 36SI Heavy Duty, Brushless type 160 -180 Amp Pad Mount Remote Sense **State:** make: _____ **State:** model: _____	_____
10.110	Starter	Delco Remy 39MT Heavy Duty Thermal Over-Crank Protection **State:** make: _____ **State:** model: _____	_____
10.111	Circuit Breakers	• Auto-reset • Readily accessible	_____

10.112	Batteries	• Three (3) batteries • Maintenance free • 12-volt, Group 31 • Approximately 2700-2850 CCA combined • Exposed connectors sealed with dielectric grease	_____
10.113	Batteries Location	• Under cab or frame mounted • Complete with enclosure • Readily accessible Note: Batteries not to impede with the installation of the Asphalt Patcher Body **State:** location: _____	_____
10.114	Battery Disconnect	• In-cab mounted • Lockable with padlock **State:** location: _____	_____
10.115	Battery Boost Terminal	• Remote battery boosts terminal(s) • Protected from road spray **State:** location: _____	_____
10.116	Cab Marker Lights	• Cab or Sun Visor Marker Lights • LED	_____
10.117	2-Way Radio Circuit	• Independent 20 Amp circuit • Ignition powered • Wired under dash loose • Labelled	_____
10.118	Accessory Switches	**Required**: Six (6) • Complete and wired for body installation • Wired through the ignition and Acc circuit • PTO, Beacon and Auxiliary • Labeled • Backlit	_____
10.119	Mega Fuse Box	• Located in-cab or under-cab • Sealed, protected from road spray **State:** location: _____	_____
	Fuel Tanks		
10.120	Fuel Tank	• Aluminum • Approximately 189 L capacity • Mounted left side, under cab **State:** capacity: _____	_____
10.121	Diesel Exhaust Fluid (DEF) Tank	• Approximately 19 L capacity • Frame mounted outside left rail, under cab **State:** capacity: _____	_____

10.122	Tank Straps	• Aluminum or stainless-steel straps • 1/16 in. rubber or neoprene isolators to prevent galvanic corrosion	_____
10.123	Fuel/Water Separator	• Heated • Drainable • Includes water-in-fuel sensor • Mounted under hood, on engine • Protected from road spray	_____
	Rims, Wheels and Hubs		
10.124	Front Wheels	• Aluminum • Hub piloted • Rated for requested GVWR	_____
10.125	Rear Wheels	• Aluminum • Hub piloted • Rated for requested GVWR	_____
10.126	Hub Seals	Oil lubricated	_____
10.127	Wheel Nut Indicators	**Required:** on all wheel nuts	_____
	Tires		
10.128	Front Tires	• 12R 22.5 16 ply • Load Range H • Snow, mud and ice rated	_____
10.129	Rear Tires	• 11R 22.5 16 ply • Load Range H • Snow, mud and ice rated	_____
	Instrumentation		
10.130	Instrumentation	• Oil Pressure Gauge • Coolant Temperature Gauge • Transmission Oil Temperature Gauge • Voltmeter Gauge • Air Reservoir Pressure Gauge with LAP Warning Light and Buzzer • Low Oil Pressure Warning Light and Buzzer • High Water Temperature Warning Light and Buzzer	_____
10.131	Engine Hour-Meter	• Non-Resettable Hobbs Engine Meter • Dedicated • Integrated into the dash • Visible to operators at all times	_____

	Colours		
10.132	Exterior Colour	White	_____
10.133	Interior Colour	Grey	_____
10.134	Frame and Suspension	Primed and finished with Black Imron 5000	_____
	Safety Equipment		
10.135	Flare Kit	Three (3) triangular reflectors, CVSA approved. Kit must be mounted or secured.	_____
10.136	Fire Extinguisher	• 5 lbs. Fire Extinguisher ABC type • Installed and secured **State:** location: _____	_____
10.137	Back-Up Camera	**Required:** Quantity two (2) • Location # 1 - back of vehicle • Location # 2 - top of cab complete with protective guard • Switch provided for second camera  **Locations to be determined at pre-production meeting**	_____
10.138	Back-Up Camera Screen	In-Dash (Ergonomic (Wing) Dashboard)	_____
10.139	Back-Up Alarm	• Approximately 102 dBA • Mounted to be protected from damage	_____
10.140	Pre-Trip Exterior Light Inspection	**Programmed:** When activated, the vehicle lights repeatedly flash in a specific sequence to allow the operator to verify that the exterior lights are functioning. The light test sequence tests: • Park Lights • Headlights (low and high beams) • Right/left front/rear turn lights • Brakes Lights • Beacon(s) • Strobe Lights • Clearance Lights	_____

10.141	Warning Light Over Ride	**Programmed:** Rear strobe lights to be programmed to allow for an over-ride for turn signals and brake lights when strobe lights are on. Other drivers will be able to determine if the truck is stopping or turning when strobe lights are on.	_____

Hydraulic System

10.142	PTO	• Muncie or Chelsea electric/hydraulic power shift • Operable from a normal driving position **State:** make: _____ **State:** model: _____	_____
10.143	PTO Engagement	**Programmed:** • To disengage the PTO when 5 kph is reached • Power take-off engagement switch – truck manufacturer's OEM dash mounted switch c/w warning light, labelled. **Exact speed to be determine at pre-production meeting**	_____
10.144	PTO Hour Meter	• Dash mounted • Energized by engagement of PTO • Labelled with a permanent type, engraved style label	_____
10.145	Hydraulic Pump	Transmission mounted PTO Pump to operate all machine hydraulics **State:** make: _____ **State:** model: _____	_____
10.146	Pump Drive	Close coupled or drive shaft driven	_____
10.147	Warning Light	Warning light to show PTO engaged	_____
10.148	Requirements	Shall be a 3-Line system	_____
10.149	Suction Line Valve	• Easily accessible • Lockable with bolts	_____
10.150	Hydraulic Oil Reservoir	• **Aluminum** or **Stainless Steel** • Chassis frame mounted • Baffled as required • Complete with breather type filler cap with filter, filler strainer and sight gauge **State:** material: _____	_____
10.151	Hydraulic Oil	Univis N15 or equivalent **State:** type: _____	_____

10.152	Capacity	Approximately 25 – 30 gallons **State:** capacity: _____	_____
10.153	Drain Plug and Valve	• ¾ in. diameter • Ball-type shut off	_____
10.154	Suction Strainer	• 100-micron with magnetic suction separator • In-tank mounted • Flow capacity of 2-times pump capacity	_____
10.155	Fittings	**NO:** black steel or cast fittings **State:** type: _____	_____
10.156	Labelling	• Reservoir shall be clearly labelled "Hydraulic Oil" • Permanent type, engraved style label	_____
10.157	Return Filter	• Serviceable without oil loss • Tank mounted • Complete with clogging indicator	_____
10.158	Filter Standard	• Filters shall contain a corrosion resistant coating • Beta rating of 200, 10-micron particle size • Ergonomically located for servicing	_____
10.159	External Hydraulic Filter Pan	• External Hydraulic filter shall have a stainless steel or aluminium pan located directly under the filter in case of a potential hydraulic leak and to avoid hydraulic fluid falling to the road. • Design shall not impede the servicing of the filter • Drain plug included	_____
10.160	Shut-Off Valve	• Ball type • Located between reservoir and pump • Secured in open position with a bracket and bolt	_____
10.161	Relief Valve	Provide hydraulic overload protection to all functions and systems	_____
10.162	Control valve(s)	• Rated for system pressure • Suitable for controlling hydraulic screw conveyor/auger, hydraulic doors, asphalt agitator, and liquid asphalt pump. • Valve shall have an internal safety design that will not allow the screw conveyor or asphalt agitator to operate when the doors are open	_____

10.163	Hydraulic Hoses	• Wire braid reinforced • Routed and secured with plastic tie wraps • Rated for system operating pressure with 4 to 1 safety factor for burst pressure	_____
10.164	Protection	Hydraulic hoses to be protected at wear and scuff location.	_____
10.165	Hose Fittings	Hydraulic full flow, crimp-on (non-reusable) type.	_____

Body Specifications

10.166	Body	• Self-contained • Permanently mounted	_____
	Aggregate Hopper Container		
10.167	Capacity	Approximately 5 cubic yards	_____
10.168	Construction	• Double wall • 3/16 HR steel interior sides • 10 GA HR steel exterior	_____
10.169	Hopper Insulation	• Fully insulated • 2 in. – 6 lbs. density insulation	_____
10.170	Floor	• 10-gauge steel with reinforced bottom • Slope not to be less than 45 deg from horizontal	_____
10.171	Hopper doors	• Top-loading doors • 2 in. double-wall construction • Hydraulically operated	_____
10.172	Hopper Lids	• Top-loading • Expansion corrugations • Flame cut upper pivot arms for top lids • Single-hinged top lids open into a “V” with inside surface acting as a funnel	_____
10.173	Hydraulic System	• System shall operate at 1500 PSI • Controls located at right rear corner of container **State:** location of controls: _____	_____
10.174	Discharge Method	Material shall be discharged by a **dual-auger** conveyor system	_____

10.175	Augers	• Approximately 10 feet in length and 6” in diameter • Auger flights to be constructed of ¼” AR400 • Shafts to be constructed of Schedule 80 pipe • Augers to be supported at each end with sealed bearings • Control levers located at curbside rear **State:** location of controls: _____	_____
10.176	Material Flow	Funneled to centre of container	_____
10.177	Conveyor	• Driven through a gearbox by a variable speed hydraulic motor • Forward and reverse controls **State:** location of controls: _____	_____
	Access to Hopper		
10.178	Cross Frame Work Deck	• Located between cab and body • Allow access to hopper **Design of the cross-frame work deck to be determined at pre-production meeting**	_____
10.179	Railings	Rails must be: • Top rail is at least 900 mm (35.5 in.) high and not more than 1,060 mm (42 in.) above the working surface • Intermediate rail at between 450 and 530 mm (18 and 21 in.) above the working surface	_____
10.180	Construction	1 in. square or round steel tubing construction **State:** material type: _____	_____
10.181	Finish	Galvanized	_____
10.182	Walkway	• Aluminum Grip Strut Safety Grating • Installed to top of side packs • Full length x full width • 4-Diamond + 3-Diamond Grip Strut • Bolt holes sealed as required	_____
	Radiant Heater		
10.183	Key Features	• Designed to keeps asphalt hot for a full shift • Adjustable temperature	_____
10.184	Heat Tubes	Located under the hopper container	_____

10.185	Heat Chamber	• Enclosed inside the hopper container • Interior chamber has passageways to direct heat	_____
10.186	Passageways	Separate from heat chamber	_____
10.187	Manifolds	• Qty two (2) • Propane fueled • Flume adjustment	_____
10.188	Burner Area	• Fully enclosed • Located at front of unit safely away from rear operation	_____
10.189	BTU Rating	67,000 BTU each at pressure of 10 psi	_____
10.190	Thermostat Gauge	Two (2) stainless steel gauges that constantly monitor the temperature of the asphalt hopper and road oil tank	_____
10.191	Thermostat Range	100° F – 300° F	_____
10.192	Igniters	12 Volt electronic	_____
10.193	Shut Off	100% fuel shut-off if burner is extinguished	_____
10.194	Warning System	In the event of a heater system failure: • An audible alarm accompanied with a flashing light to alert operators **Design of the warning system to be determined at pre-production meeting**	_____
	Shoveling Apron		
10.195	Shoveling Apron	• Constructed of 10-GA HR steel • Folding bottom for material to bypass freely • Mounted on rear of container	_____
	Emulsion Spray Unit		
10.196	Description	Emulsified Asphalt spray and storage system mounted on truck chassis for applying tack coat	_____

10.197	Tank	• Two-compartment tank • Emulsion - storage capacity 130-gallons • Solvent -storage capacity 20-gallon • Bottom reinforced • 6” curbside filler cap • Tank dimension approximately 72” W x 16” L x 30”H • 4” clean out on curb side near tank bottom • Tank shall be vented • Removable fill basket strainer • Y-strainer at discharge of tank before material enters pump • Capable of switching from emulsion to solvent with one valve level • Insulated tank • Insulated emulsion lines	_____
10.198	Heater	• Internal serpentines of 1” steel tubing to circulate water from truck engine • Truck engine cooling system as a heat source • Two 5/8” coolant hoses • System will have a temperature control valve at tank with thermometer 0°F - 300°F	_____
10.199	Emulsion Thermostat	• Required for Emulsion Tank • Range 0°F - 300°F • Built-in high limit safety shut down switches	_____
10.200	Pump	• Rotary gear pump • Output of 10 gallons per minute of 600 R.P.M. • Pumps shall be hydraulically driven • All valves shall be high-pressure • Remote mounted for ease of maintenance • Mechanically actuated from right rear of body • Pump shall be reversible to draw material back to tank • Pump shall be driven by a torque motor which has 5.9 CID • Pump shall be insulated	_____
10.201	Spray Wand and Hose	• 3/8” diameter 5 feet long steel application wand • 25 feet of ½” diameter oil resistant hose • Squeeze-handle trigger • Brass changeable nozzle at spray tip • Wand storage brackets • Hot well from emulsion wand storage	_____

10.202	Drip Pan	• 10-gallon drip pan/waste oil combination • Mounted under Patcher body • Valves for draining and cleaning	_____
	Auxiliary (Overnight) Heater System		
10.203	System	• Required for overnight heating of asphalt • Low density electric heat • 240V, 9kW electric heating system • Thermostatically controlled 100° F – 300° F • Weather proof panel • 25-foot power cord	_____
10.204	Control	Overnight heating controlled by temperature sensor	_____
10.205	Heating Elements	• Low-density stainless steel • Extend the full length of the hopper	_____
10.206	Warning System	In the event of a heater system failure: • An audible alarm accompanied with a flashing light to alert operators **Design of the warning system to be determined at pre-production meeting**	_____
	Hydraulic Tool Circuit		
10.207	Hydraulic Tool Circuit	• 25-foot dual hose • Quick couplers • Flow meter • Engine throttle control to be provided by chassis manufacturer • Relief valve • Pressure gauge	_____
10.208	Hydraulic Tool	• Stanley BR45125S Breaker • Asphalt cutter • Detachable shank with pad	_____
10.209	Hydraulic Tool Storage	Required for Stanley BR45125S Breaker	_____
10.210	Hydraulic Hammer Hose Reel	1/2” x 25’ dual hose reel	_____

Miscellaneous Equipment

10.211	Operator Controls	• Ergonomically located for all machine functions • Labelled with permanent type, engraved style labels • Air actuated controls located on curb side rear **State:** details of controls including locations and type of controls: _____ _____ _____ _____	_____
10.212	Tool Basket	• Expanded metal with angle-iron frame • Approximately 15” W x 96” L x 8”H **State:** tool basket size: _____	_____
10.213	Tool Holder(s)	• Shovel holder mounted passenger side rear on rub rail • Lockable hammer hanger located on curb side rear	_____
10.214	Spoils Bin	• Approximately 18” cross frame spoils bin • Constructed of steel doors on each side to discharge material	_____
10.215	Solvent Pump	• Required for cleaning tools • Connected to solvent side of tank	_____
10.216	Solvent Wand and Hose Reel	• Wand • 3/8” x 25’ hose reel	_____
10.217	Water Tank (Compactor)	• Approximately 8-gal poly tank • 10’ hose • Spigot for compactor	_____
10.218	Compactor Lift Platform	• Required for loading or unloading a City owned compactor • The platform shall be c/w a safety latch in the “up” position for use with compactor holding brackets • Controls shall be rear mounted, easily accessible by operator	_____

10.219	LPG Tank	• 35-gallon horizontal (portable) • Undermount on driver's side • Fill gauge • Easily accessible for filling at a cardlock station • Ergonomically positioned so that an empty tank can be removed and replaced with a full tank if needed **Design and location to be determined at pre-production meeting**	_____
10.220	Propane Hand Torch	• Pilot with valve control • Capacity of 200,000 BTU	_____
10.221	Propane Hand Torch Hose Reel	3/8" x 25' hose reel	_____
10.222	Air Compressor	• Hydraulically driven, self-contained, • 40 CFM @ 125 psi • Quick couplers • Blow gun with dead-man control valve • 5-gallon air tank • Relief valve	_____
10.223	Air Blow Gun Hose Reel	3/8" x 25' hose reel	_____
10.224	Pivotable Asphalt Delivery Chute	• Mounted at rear • Designed for ergonomic shovelling of patching mix • Pivots 110° - 180°	_____
10.225	Drip Pan	• Suitable for collecting used waste oil • Approximately 38 L (10-gallon) • Mounted under body • Valves for draining and cleaning	_____
10.226	Diesel Fuel / Releasing Agent Storage Tank	• Approximately 69 L (18-gallon) capacity • Equipped with a pump • 1 in. drain • Hand sprayer for cleaning tools and unit • 25 ft. of hose • Connector valve for flushing road, oil pump and lines	_____
	Liquid Asphalt System		
10.227	Tank Capacity	Approximately 400 L (105 US Gal) **State:** capacity: _____	_____
10.228	Liquid Asphalt Pump and Lines Storage	Liquid asphalt pump and all lines shall be in an insulated, heated area with a hot well for storing spray wand in cold weather	_____

10.229	Liquid Asphalt Hand Sprayer	• 5' x ⅜" wand • Equipped with fan nozzle and dead-man control valve • Reversible pump and diesel flush system for cleaning pump and lines • 1/2" x 15' hose reel	_____
	Safety Equipment		
10.230	Fire Extinguisher	• Ten (10) lb. ABC type • Complete with mounting bracket and cover • Located near rear of body • Readily accessible in an ergonomic location.	_____
10.231	Conspicuity Tape	Red/white conspicuity tape on sides and rear of Patcher	_____
	Additional Lighting		
10.232	Beacon - Amber	• Whelen L31HAF strobe • Protected by Branch Guard – heavy duty construction • Beacon shall be wired through the ignition, wired through a single OEM dash mounted switch or on the control panel enclosure, labelled "Beacon" with a permanent type, engraved style label. • Switch shall be capable of high/low mode. **Location to be determined at pre-production meeting**	_____
10.233	Amber Strobe Lights (Warning)	• Qty four (4) • Whelen 500 series strobes • Mounted at rear of truck **Locations to be determined at pre-production meeting**	_____
10.234	Traffic Arrows	• Whelen model TA165NFI • Complete with backboard • Mounted to back of unit with in-cab controller	_____

10.235	Work Lights	• Four (4) Truck-Lite P/N 80395 • Two (2) rear facing one on each side of front railing • Two (2) front facing one on each side of sign board brackets • Work lights to be wired through the ignition, wired through a single OEM dash mounted switch • Labelled “Work Lights” **Locations to be determined at pre-production meeting**	_____
10.236	Combination Turn/Stop and Taillights	• One (1) per side • Truck-Lite 44302R with P/N 44710 mounting grommets • Flash rate 70 – 90 fpm • Flush mounted • Mounted in rear of body at maximum practicable height	_____
10.237	Back-Up Lights	• One (1) per side • Truck-Lite 44206C with P/N 44710 mounting grommets • Mounted in rear of body	_____
10.238	3-Light Cluster	• Three (3) • Truck-Lite10250R with P/N 10403 mounting grommets **Or** • Truck-Lite 3-Lamp ID Light Assembly 33740R • Located to protect from damage above auxiliary step **Locations to be determined at pre-production meeting**	_____
10.239	Clearance Lights	Truck-Lite10250R and 10250Y with P/N 10403 mounting grommets. **Or** Truck-Lite 33250R and 33250Y with P/N 33720 grommets **Locations to be determined at pre-production meeting**	_____
10.240	License Plate Light	Complete with license plate bracket P/N Truck-Lite 15040 (Light)	_____

Auto Greasing System

10.241 Greasing System: _____

- Parallel NLGI-2 automatic lubrication system
- System layout shall perform under the operating principles of a Parallel injection system
- Progressive systems not acceptable
- Grease system connected to all grease points
- Outfitted with automatic low level shut-off
- In-cab monitor showing system status such as low level, low pressure and/ or fault code display

10.242 Pump Reservoir: _____

- 6kg or larger pump with clear reservoir
- Parameters preprogrammed required to accommodate 500-hour service intervals
- Grease pump - electric driven only, any other pump design or multiple pumps supplied will not be accepted
- Pump must have correct fill adapter fitting for the City of Winnipeg maintenance staff to refill reservoir
- Adapter fitting- Parker # H2-63
- In the event the pump is required to be mounted higher than chassis frame level, for safety reasons, access to refill the pump reservoir must be via remote fill line of min diameter 3/8” hose to accommodate a refill procedure at ground level
- The refill adaptor must be secured with a bulkhead and angle bracket free from sharp edges
- All connected components must be prefilled with grease prior to connection of automated lube system

10.243 Power Input _____

- System power connection 12-Volt to an ignition source with an accessible fuse protection and for greasing system to shut down when the engine is turned off
- No part of the greasing system electrical components shall be on when the ignition switch is off (LED lights supplied by a battery source power not acceptable)

10.244	Grease Lines - Main	Mainline between manifold and pump: • Extreme Low temperature (example: Parker Blue Stripe) steel braided rubber hose with compatibility to accommodate max working pressure of 5000psi. for the system mainline • Hose must be outfitted with #4 JIC crimped ends and must be wrapped with specified heat protection wrap on the hose for areas where extreme heat is produced by asphalt equipment or engine exhaust • Thread sealant for grease lines of each fitting must be applied	_____
10.245	Grease Lines - Secondary	Secondary Lines from Injector to grease point: • 1/8” hydraulic hose with #4 JIC reusable ends secondary grease line or equivalent must be installed and protected from extreme environments such as heat sources • Hose must be wrapped with specified heat protection wrap on the hose for areas where extreme heat is produced by asphalt equipment or engine exhaust as well as components producing vibration • All secondary grease lines must be protected from tree and or branch impact on body higher than 6 feet from ground level • Thread sealant for grease lines of each fitting must be applied	_____
10.246	Greasing Points	**State**: quantity of greasing points: _____	_____

10.247	Greasing Points Not Connected to Automatic Lubrication System	• Grease points that cannot be connected to the automatic lubrication system must be connected with remote grease lines • Where remote lines are used, decals must be applied stating manual greasing is required with recommended grease application intervals **State:** quantity of grease points that cannot be connected to the automatic lubrication system but will be connected with remote lines only: _____	_____
10.248	Injector Manifold	• All manifolds must be fitted with a nylon lock nut hardware and mounted secure in an area away from debris impact and extreme heat sources • Special guards should be fitted for injector manifolds and hoses in areas of consistent debris impact	_____
10.249	Environmental Impact	Features included: • Ensure the automatic lubrication system does not grease while parked should be considered • System layout and grease injector delivery shall be considered to not over grease a connected component to void OEM warranty and/or leave excessive grease on roadway, street etc.	_____

Standards

Welding Standards

10.250	Welds	Continuous welds	_____
10.251	Standard	CSA Standard W47.1-30 and W59-03	_____
10.252	Weld Spatter	Weld spatter to be removed prior to finish	_____

Finish Standards

10.253	Preparation	All steel components unless otherwise noted in these specifications shall be: • Sandblasted • Properly cleaned • Primed and finished with an Epoxy or Polyurethane paint process	_____
10.254	Primer	**Required:** Epoxy or Polyurethane primer Two (2) coats – Dry Film Thickness 3.0 – 4.0 mils	_____
10.255	Paint	**Required:** Polyurethane Two (2) coats: 3 - 5 mils Wet Film Thickness with a total combined overall average Dry Film Thickness of 4 – 6 mils	_____

Installation Standards

10.256	Mounting	Mounting of the body and equipment shall be in accordance with the chassis manufacturer's guidelines for body mounting including, but not limited to, guidelines for tire and suspension clearance	_____
10.257	Not Permitted	• Welding to truck chassis frame • Drilling on chassis frame flanges	_____
10.258	Holes	• Holes in the chassis frame web shall be drilled and reamed to fit bolts • Holes required to run wires through shall be drilled (not punched), grommeted and sealed as required	_____
10.259	Isolators	• All interfaces between aluminium and steel are to be separated by an approximately $^{1}/_{16}$ in. thick rubber or neoprene sheet • Shall be bolted through with stainless steel bolts and non-conductive bushings	_____
10.260	Mounting Brackets	Shall be bolted to chassis frame using Grade-8 fasteners.	_____

10.261	Mounting Standards	Any holes required in chassis frame web must be drilled and reamed to fit bolts	_____
10.262	Mounting Standards	All non-continuous body seams (joints) shall be caulked with an automotive grade elastomeric sealant	_____
10.263	Departure Angle	Departure angle of completed unit **State:** angle: _____	_____
10.264	Overall Height Decal	Engraved type, installed in chassis cab	_____

Lighting and Electrical Standards

10.265 Conformance: _____
- LED Lighting
- C.M.V.S.S.
- Manitoba Highway Traffic Act.
- City of Winnipeg Lighting Visibility Standard
http://winnipeg.ca/matmgt/pdfs/PublicWorksEquipLightingVisibility.pdf

10.266 Lighting: _____
- Supplier installed
- LED
- Stop / turn / tail lights
- Clearance lights
- Back-up lights
- 3-Light cluster

10.267 Visibility: _____
- No clearance light shall protrude beyond the body

10.268 Identification: _____
- All dash mounted warning lights and switches to be identified with permanent, engraved type labels
- No labels to be located on upper surface of dash

10.269 All LED strobe lights: _____
- Shall be wired through the ignition,
- Wired through a single OEM dash mounted switch or on the control panel enclosure
- Labelled “Strobes” with a permanent type, engraved style label

10.270 Connection System: _____
- Weather Pack Sealed Connection System

10.271 Grommets: _____
- Rubber grommets unless otherwise specified

10.272 Harnesses: _____
- Harness system, properly routed and secured.
- All harnesses shall be internally grounded, no exceptions
- Colour coded or numbered

10.273 Junction box: _____

- Complete with necessary compression fittings, required for all vehicle lighting harness connections
- Securely located – inside rear of truck frame
- Readily accessible for servicing
- Protected from road spray

10.274 All Plug-In Connectors: _____

- All plug-in connectors shall be coated with Truck-Lite NYK Corrosion Preventive Compound prior to assembly

10.275 Compartment Lights: _____

- LED continuous “rope” style lighting in all service body compartments, properly secured to prevent damage

10.276 Wiring: _____

- All wiring to be colour coded, loomed and properly secured.
- All LED strobe lights shall be wired through the ignition, wired through a single OEM dash mounted switch or on the control panel enclosure, labelled “Strobes” with a permanent type, engraved style label

10.277 Electrical Connectors: _____

- All electrical connectors to be crimped, soldered and then sealed using heat shrink tubing

10.278 Joining of Wires: _____

- All joining of wires to be soldered and sealed using heat shrink tubing or approved OEM weather tight connections

Note: Crimp on electrical connectors for joining wires are not acceptable

10.279 Wiring Routing: _____

- Any holes required to run wires through shall be drilled (not punched), grommeted and sealed

11.0 **WARRANTY:**

11.1 All warranty information shall be detailed and **include all exclusions**. _____

The Contractor shall provide all published warranty information upon delivery of the equipment.

Bidder shall state all warranty information.

11.2 The warranty for the **Cab & Chassis with Mounted Asphalt Patcher** shall cover the complete equipment, and all parts thereof against any defects of workmanship, construction and materials. _____

Any equipment 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

Cab and Chassis Warranty

11.3	Basic Coverage	**State:** Terms: _____	_____
11.4	Engine Coverage	**State:** Terms: _____	_____
11.5	Axles – Front and Rear	**State:** Terms: _____	_____
11.6	Cab Structure / Corrosion	**State:** Terms: _____	_____
11.7	Drivetrain	**State:** Terms: _____	_____
11.8	Batteries	**State:** Terms: _____	_____
11.9	Frame and Cross Members	**State:** Terms: _____	_____
11.10	Cab Paint	**State:** Terms: _____	_____
11.11	Electrical	**State:** Terms: _____	_____
11.12	Transmission	**State:** Terms: _____	_____

Asphalt Patcher Body Warranty

11.13	Asphalt Patcher Body	**State:** Terms: _____	_____

Miscellaneous Warranty

11.14	Hydraulics	**State:** Terms: _____	_____
11.15	PTO	**State:** Terms: _____	_____

12.0 **DELIVERY:**

12.1 **Delivery Point:** _____

The complete unit shall be serviced, ready for operation and delivered F.O.B. with the freight prepaid, including invoice and N.V.I.S. (if applicable) to the WFMA 185 Tecumseh Street, Winnipeg MB.

12.2 **Delivery Time:** _____

Equipment shall be delivered between 8:00 am and 2:00 pm on Business Days.

State: earliest delivery time from date of award: _____

12.3 **Delivery Contact:** _____

The Contractor shall contact the Contract Administrator prior to delivery of the equipment.

12.4 **P.D.I:** _____

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

13.0 **MANUALS:**

13.1 **Manuals:** _____

The following manuals shall be supplied with the equipment when delivered:

Operator – Two (2) Copies
- One (1) copy shall be sent to the Equipment Operator Training Branch
- One (1) copy to be left with the equipment

Parts and Service
- One (1) complete set including preventative maintenance schedules

Note: CD or USB flash drive is preferred where available

14.0 **PARTS/LABOUR PRICING:**

14.1 Bidder to provide City of Winnipeg Parts Discount % Pricing from retail parts pricing. _____
State: percentage discount

14.2 Bidder to provide City of Winnipeg Labor Discount % Pricing from Retail shop labor rate. _____
State: percentage discount

15.0 **FIRST SERVICE PREVENTATIVE MAINTENANCE KIT:**

15.1 If applicable, in order to assure minimum downtime of the Equipment in future service, the Contractor must provide one (1) complete replacement set of new OEM filters for each unit purchased. The set of required filters shall include (if applicable to the equipment type) air, fuel, oil, transmission, cab and hydraulic, or otherwise all known necessary common replacement filters required for the first preventative maintenance servicing and first transmission service. _____

15.2 The Contractor must provide a list of factory recommended lubricants to be used with the equipment, as well as a complete cross reference guide for all warranty approved lubricants and filters that can be used during Preventative Maintenance servicing. _____

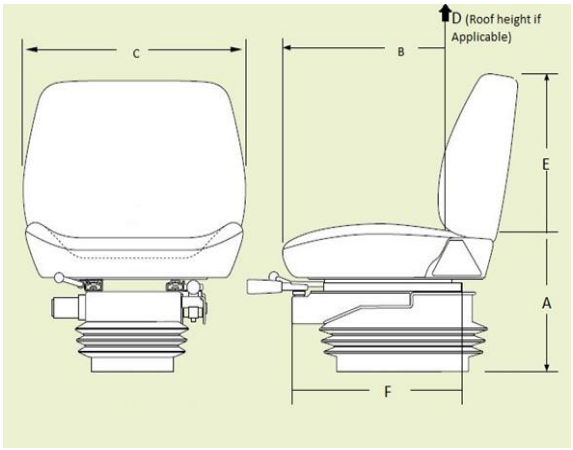
16.0 ERGONOMIC SPECIFICATIONS

Entry/ Exit

16.1	First step entry height	**State:** height of first step in inches: _____	_____
16.2	First handhold entry height	**State:** first handhold entry height in inches: _____	_____
16.3	Access to equipment	**State:** door opening height in inches: _____	_____
16.4	Access to equipment	**State:** door opening width in inches _____	_____
16.5	Designed to prevent slipping	Anti-slip steps/handholds **(Y or N)?** _____	_____

Seat

16.6 Use diagram to answer questions.



16.7	Sitting Height Range (from floor (where feet rest) (A))	**State:** seat height range in inches: _____	_____
16.8	Seat Length/Depth (B)	**State:** seat length/depth in inches: _____	_____
16.9	Seat Width (C)	**State:** seat width in inches: _____	_____
16.10	Cab Height (from seat to roof (if applicable) (D))	**State:** cab height range in inches: _____	_____
16.11	Back Rest Height (E)	**State:** back rest height in inches: _____	_____
16.12	Seat Travel Range (F)	**State:** seat travel in inches: _____	_____
16.13	Lumbar Support	Is lumbar support provided **(Y or N)?** _____	_____

16.14	Head Rest	Is head rest provided **(Y or N)?** _____	_____
16.15	Seat is made of breathable material	**State:** type of seat material: _____	_____

Operation

16.16	Reaching Distance (to usual work)	**State:** reaching distance in inches: _____	_____
16.17	Maximum Reaching Distance	**State:** maximum reach distance in inches: _____	_____
16.18	Adjustable Pedals (accelerator/brake/clutch)	Are pedals adjustable **(Y or N)?** _____	_____
16.19	Adjustable Steering Wheel	Is steering wheel adjustable **(Y or N)?** _____	_____
16.20	Adjustable Shoulder Belt	Is belt adjustable and anchored **(Y or N)?** ____	_____

Cargo Area

16.21	Lid opens to provide adequate space	Adequate space provided **(Y or N)?** _____	_____
16.22	Loading Height	**State:** trunk height in inches: _____	_____

Environment

16.23	Operator compartment is insulated from equipment noise (while operating)	**State:** dB inside cab while operating: _____	_____
16.24	Operator insulated from equipment vibration	Is operator insulated from vibration (Y or N)? _____	_____
16.25	Heating/Cooling Systems	**State:** cab temperature range: _____	_____
16.26	Cab Lighting	**State:** lumens inside cab: _____	_____

Maintenance/ Inspection

16.27	Lift Assistance (when necessary)	Is lift assistance provided **(Y or N)?** _____	_____
16.28	Easy Access (to compartment doors)	Is easy access provided **(Y or N)?** _____	_____
16.29	Include any other relevant ergonomic specifications and applicable range of adjustment: _____ _____		_____