

FORM A: BID
(See B8)

1. Contract Title SUPPLY AND DELIVERY OF A HAZMAT VEHICLE

2. Bidder

Name of Bidder

Usual Business Name of Bidder as it appears on Invoice (if different from above)

Street

City

Province

Postal Code

Email Address of Bidder

Facsimile Number

(Mailing address if different)

Street or P.O. Box

City

Province

Postal Code

GST Registration Number (if applicable)

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

Email 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/she is in receipt of a notice of award from the Award Authority authorizing the commencement of the Work.

7. Contract By submitting a bid in response to this Tender, the Bidder certifies that it has read, understands, and agrees to the terms and conditions of this Tender and that the Tender, 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. Indigenous Self-Declaration The City is requesting that Bidders identify if their business is at least 51% owned by one or more Indigenous persons of Canada.

YES, 51% or more Indigenous ownership

NO, it is not

This information is being gathered for statistical purposes only and will not be used for purposes of evaluation.

11. Signatures

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 B9)

SUPPLY AND DELIVERY OF A HAZMAT VEHICLE

UNIT PRICES

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	QUANTITY	UNIT PRICE
1.	Hazmat Vehicle	18041	Each	1	

Name of Bidder

FORM N: DETAILED SPECIFICATIONS 18041

1.0 DESCRIPTION OF EQUIPMENT/APPLICATION

- 1.1 These specifications describe **Hazardous Material (Hazmat) Vehicle** and other equipment and features as specified herein. The Winnipeg Fire Paramedic Service (WFPS) wishes to acquire a hazardous material vehicle which is a specialized piece of equipment used by hazmat responders responding to calls involving potentially hazardous materials. Due to the nature of dangerous goods, this vehicle is customized to fit the needs of the WFPS. The vehicle must incorporate the highest level of safety components to effectively protect WFPS personnel when travelling in and subsequently when operating this unit.
- 1.2 The **Hazmat Vehicle** shall be a new 2019 model year or newer.
- 1.3 The **Hazmat Vehicle** 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.
- 1.4 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 equipment.

2.0 OTHER SPECIFICATIONS AND STANDARDS

- 2.1 All applicable SAE standards form an integral part of these specifications and shall have precedence in any conflict concerning minimum acceptable standards.
- 2.2 The shall comply with the applicable regulations:

(NFPA) National Fire Protection Association Standard latest revisions

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:
<http://web2.gov.mb.ca/laws/reg/current/217.06.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

PART B - 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/reg/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/matmgmt/pdfs/PublicWorksEquipLightingVisibility.pdf>.

- 2.3 In Canada, Modification to new vehicles can only be done at facilities that are recognized by Transport Canada. All of these facilities must have a National Safety Mark from Transport Canada. Transport Canada National Safety Mark is a label that indicates that the modifications are compliant with all current Canadian Motor Vehicle Safety Standards (CMVSS).

STATE (NSM) # _____

- 2.4 The vehicle shall be complete with a current Manitoba Safety Sticker affixed to the driver's side window.

- 2.5 It will be the responsibility of the Bidder to inform the City of any deficiencies in these specifications, for under this Contract the Contractor shall be held responsible for the design, performance, reliability and satisfactory operational function of the units.

3.0 SERVICE FACILITY

- 3.1 For the purpose of warranty repairs, the Bidder shall have an authorized service facility located within 10 km 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 9.1, 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.

4.0 REFERENCES

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

5.0 MAKE & MODEL

- 5.1 **State** make, year and model of the equipment bid- _____

6.0 INSTRUCTIONS FOR COMPLETION OF SPECIFICATIONS

- 6.1 Each bid will be evaluated based on adherence to all terms, conditions and requirements outlined in the Bid Opportunity package.

- 6.2 All items in these specifications must be answered indicating compliance or non-compliance. **BIDDERS SHALL STATE "YES" FOR COMPLIANCE OR STATE DEVIATION**, or give 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 specification is used, the City will also consider deviations and/or equivalents.

- 6.3 **EACH BIDDER IS REQUIRED TO FILL IN EVERY BLANK. FAILURE TO DO SO MAY BE USED AS A BASIS FOR REJECTION OF BID**

7.0 PERFORMANCE RELIABILITY

- 7.1 The responsibility for the design of the **Hazmat Vehicle**, its performance and reliability shall rest upon the Contractor.

- 7.2 The term "repeated failures" as used herein is defined to mean 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, of 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 schedule.

7.3 Where the **Hazmat 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.

7.4 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)

8.0 **FUEL**

8.1 Where applicable, all equipment must be fully fueled upon delivery (**no exceptions**).

9.0 **QUALIFICATIONS OF MANUFACTURER & CONTRACTOR**

9.1 The manufacturer of the **Hazmat Vehicle** shall have five (5) years continuous experience manufacturing the equipment.

9.2 The manufacturer shall have in effect a documented quality control program ensuring that the quality of materials and workmanship, including welding, conforms to the best standards and engineering practice of the industry.

9.3 The Contractor shall have five (5) years continuous experience servicing, repairing and maintaining **Hazmat Vehicle** of the type being offered.

10.0 **CHASSIS SPECIFICATIONS**

CHASSIS:

10.1 Weights: _____

The Truck shall not exceed the City of Winnipeg's limit for gross vehicle weight, axle and tire loads

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

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

10.2 Weigh Scale Ticket: _____

The Contractor shall provide a certified weigh scale ticket upon delivery of the completed unit. The scale ticket shall include front and rear axle weights including four (4) operators, all attachments and full of fuel.

10.3 GVWR as required for this application _____

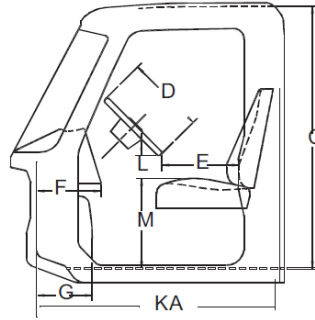
- GVWR Total 66,000 lbs.
- GVWR Front 23,000 lbs.
- GVWR Rear 44,000 to 48,000 lbs.

10.4 Dimensions: _____

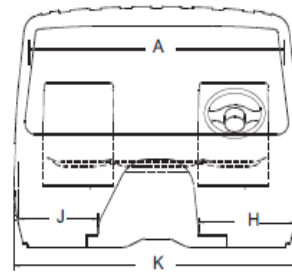
All Dimensions are Approximate

Dimensions are in inches

- A Shoulder Room 70.6
- C Inside Height 56.8
- D Steering Wheel Diameter 18.0
- E Steering Wheel to Seat Back (Maximum) 18.2
- F Bottom of Instrument Panel to Dash 13.9
- G Engine Cover Width
- H Lateral Foot Room – Driver 20.2
- J Lateral Foot Room – Passenger 18.8
- K Outside Cab Width 82.2
- L Steering Wheel to Top of Seat Cushion 5.8
- M Top of Front Seat Cushion to Floor 19.6
- KA Inside Length 52.4
- Driver Seat Track Travel Fixed Seat: 7.9 in. fore/aft — Air Suspension Seat: 7.4 in. fore/aft



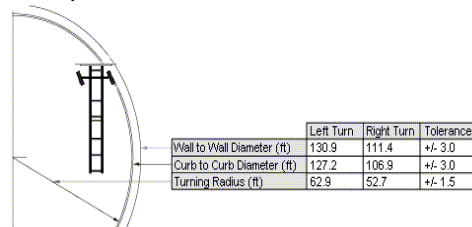
STANDARD CAB



FRONT VIEW

- 10.5 Cab to Axle As required for Hazmat Body: _____
State:
- 10.6 Wheelbase As required for Hazmat Body: _____
State:
- 10.7 After-Frame As required for Hazmat Body: _____
State:
- 10.8 Bumper To Back of Cab BBC Approximately 106 in. _____
State:
- 10.9 Turning Radius Turning Radius _____
State: vehicle turning radius

Example:



- a) Wall to Wall (ft.)
- b) Curb to Curb(ft.)
- c) Turning Radius (ft.)

ENGINE:

10.10	Type	Six cylinder Cummins L9 diesel or equivalent. Must meet current EPA Standards. Cummins diesel Tier IV Final (Emergency Service Vehicle) rated.	_____
10.11	Horsepower	Approximately 380 HP gross	_____
10.12	Torque	Approximately 1000 lb-ft	_____
10.13	Engine Shut Down	Low oil pressure / high water temperature.	_____
10.14	Air Intake Warmer	For air intake.	_____
10.15	Fuel Shut-Off	Electric solenoid type.	_____
10.16	Air Intake	Side of hood air intake with NFPA compliant ember screen and fire retardant.	_____
10.17	Air Cleaner	Single under-hood/outside air intake.	_____
10.18	Air Intake Restriction	Dash mounted restriction indicator.	_____
10.19	Oil Drain Plug	Magnetic type.	_____
10.20	Oil Filter	Full flow, spin-on type.	_____
10.21	Fuel Filter	Spin-on type.	_____
10.22	Fuel/Water Separator	Heated, drainable under hood.	_____
10.23	Fuel Line Primer Pump	State:	_____
10.24	Block Heater	Immersion type, Approximately 1000 Watt with covered recessed male plug, located under driver's side door.	_____
10.25	Radiator	Aluminum approx.1200 square inch. State: size.	_____
10.26	Coolant	Extended Life coolant, antifreeze to -35°F (-37°C).	_____
10.27	Coolant Filter	State:	_____
10.28	Coolant Hoses	Silicone type or Gates Blue Stripe.	_____
10.29	Fan Drive	Thermostatically controlled, automatic type with dash switch.	_____
10.30	Air Compressor	Water cooled; pressure lubricated, approx. 18 cfm at 1200 rpm .	_____
10.31	Diesel Exhaust Fluid (DEF) Tank	Approximately 19 – 36 Litres or largest size per application. Located Driver's side. State: size and location.	_____

ELECTRICAL SYSTEM:

10.32 Electrical Connector's Plug-in, sealed type _____
VMUX Multiplexed electrical system

10.33 Anti-Corrosion Electrical Package Controllers and sensitive electrical _____
components (PCM, Harnesses etc.)
mounted in cab.

State: locations.



10.34 Alternator Delco Remy or Leece Neville Heavy _____
Duty, Brushless type- approx. 325 Amp
Pad Mount Remote Sense.
State: make and model.

10.35 Starter Delco Remy 38MT with Over-Crank _____
Protection.

10.36 Circuit Breakers Auto-reset, readily accessible. _____

10.37 Batteries/Battery Location Three (3) batteries, 12-volt, group 31, _____
approximately 2700-2850 CCA
combined. Located forward curb side
compartment on slide-out tray. If battery
storage boxes are provided with
cab/chassis they will be removed and
holes in frame filled with appropriate
sized bolts and nuts.

The battery compartment shall have _____
additional vents for proper ventilation.
Batteries shall be mounted on black
DriDek plastic matting material with a
heavy duty clamp device. The battery
connectors shall be heavy duty type with
cables terminating in heat shrink loom.

Heavy duty battery cables shall provide _____
maximum power to the electrical system.
The cables shall be shielded from
exhaust and mufflers. Large rubber
grommets shall be used where cable
enters battery compartment.

10.38 Battery Disconnect In-cab mounted outboard of driver's seat. _____
State: location.

10.39 Battery Boost Terminal Remote battery boosts terminal(s), _____
protected from road spray, state:
location.

10.40	Cab Marker Lights	LED Cab or Sun Visor Marker Lights.	_____
10.41	2-Way Radio Circuit	Independent 20 Amp circuit, ignition powered, wired under dash loose, labelled.	_____
10.42	Accessory Switches	As required for body installation. All switches complete and wired for body installation, labeled and backlit. State the number of accessory switches required.	_____
10.43	Mega Fuse Box	Located in-cab or under-cab and shall be sealed. State: location and method of sealing.	_____

EXHAUST SYSTEM:

10.44	Configuration	The tailpipe configuration must be compatible for use with a "Plymovent" automatic exhaust disconnection system and shall include the installation of the appropriate adapter. Must be on passenger side. Exhaust shall be outboard, under step mounted horizontal after-treatment system with right hand horizontal tailpipe exiting forward of the rear tires at 90 degrees.	_____
10.45	Exhaust type	Plymovent capable.	_____
10.46	Exhaust Heat Shield	State:	_____

TRANSMISSION/DRIVE LINE:

10.47	Transmission	<ul style="list-style-type: none">• Allison EVS 4000 with 6-speed programming.• Ratio shall be as per inter-city application.• Transmission shall come with load base Management Programming.	_____
10.48	Driveline	Tandem rear axle.	_____
10.49	Allison SCAAN	The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator, the Allison SCAAN.	_____
10.50	Transmission Fluids	Synthetic.	_____
10.51	Shift Selector	Digital push-button type, dash mounted.	_____
10.52	Cooling Capacity	Water to oil transmission cooler, as per manufacturer's recommendation for	_____

severe duty cycle.

10.53 Oil Level Dipstick Bayonet type with high and low level markings. _____

10.54 Transmission Drain Plug Magnetic type. _____

FRONT AXLE:

10.55 Front Axle Drop single front axle approx. 23,000 lbs. capacity. _____

REAR AXLES:

10.56 Tandem Rear Axles Approx. 48,000 lbs. capacity, with synthetic fluid. _____

10.57 Ratio For 110 km/hr
State: ratio. _____

10.58 Inter-Axle Lock With dash mounted switch. _____

10.59 Differential Lock For drive axles with dash mounted switch. _____

10.60 Hub Seals Oil lubricated front and rear type. _____

FRONT SUSPENSION:

10.61 Type Tapered-leaf spring suspension, 23,000 lbs. capacity. _____

REAR SUSPENSION:

10.62 Rear Suspension Hendrickson Firemaax™ air suspension
Air ride suspension 44,000 to 48,000 lbs. capacity. _____

10.63 Suspension Control Valve Dual air suspension leveling valves. _____

10.64 Auto Refill At approx. 5 km/hr _____

RIMS, WHEELS AND HUBS:

10.65 Front Wheels Polished Aluminum, hub piloted, rated for requested GVWR _____

10.66 Rear Wheels Polished Aluminum, hub piloted, rated for requested GVWR _____

10.67 Hubs Aluminum material. _____

10.68 Wheel Nut Indicators On all wheel nuts. _____

TIRES:

10.69 Front Tires 315/80/R22.5, 20ply snow, mud and ice rated for requested GVWR and application. Michelin XZY. _____

10.70 Rear Tires 11R22.5, 14 ply snow, mud and ice rated for requested GVWR and application. Michelin XDE. _____

10.71 Mud flaps 0.25" rubber mudflaps provided and installed at front and rear of body directly behind the axle tires. _____

FRAME:

10.72 Galvanized frame and components Galvanized steel frame rail(s) designed and constructed to match the GVWR and application of the vehicle as a triple combination fire pumper apparatus. The frame shall be hot dip galvanized prior to assembly and attachment of any components. The components that shall be galvanized shall include: _____

- Main frame "C" channel or channels
- Front splayed rails and fish plates
- Cross members (excluding suspension cross members)
- Cross member gussets
- Fuel tank mounting brackets
- Fuel tank straps
- Air tank mounting brackets
- Exhaust mounting brackets
- Air cleaner skid plate
- Radiator skid plate
- Battery supports, battery trays and battery covers

10.73 Chassis Fasteners Grade-8 threaded hex headed frame fasteners. _____

10.74 Rear Frame Towing Provisions Towing provisions with 7-way pin receptacle to end of frame with two (2) extra feet of wiring and air lines to for ease of body installation. _____

STEERING:

10.75 Type Tilt and telescopic, power, rated for front GVWR rating. Reservoir approximately 2 quart with see through tank. _____

BRAKES:

10.76	Brakes	Fire and Emergency Rated Non Asbestos Air Brakes, ABS, front & rear brakes with Traction control, with Electronic Stability Program (6-Channel) (Roll Stability Control).	_____
10.77	Slack Adjusters	(Clearance sensing), automatic type.	_____
10.78	Parking Brake	Push-pull valve in cab, state .	_____
10.79	Brake Pots	Vented type.	_____
10.80	Dust Shields	Front and rear.	_____
10.81	Air Tanks	Aluminum tanks with aluminum or stainless steel straps with approximately 1/16 in. rubber or neoprene isolators to prevent galvanic corrosion.	_____
10.82	External Air Inlet	Milton A style air fitting installed on left side of chassis so the WFPS can plug their shop air lines into the truck. Shall be plumbed to the outlet side of the air dryer for the option to put alcohol into the air system without going through the dryer.	_____
10.83	Moisture Ejector	Heated in all air tanks.	_____
10.84	Drain Valves	Manual, chain or cable operated, on each air tank.	_____
10.85	Air Dryer	Heated Wabco System Saver 1200 or Bendix AD-9 State:	_____

FUEL TANK:

10.86	Fuel Tank	Dual 50 gallon fuel tanks polished aluminum. Shall not impede in the installation of the body. State: fuel capacity	_____
10.87	Fuel Water Separator	Heated	_____
10.88	Tank Straps	Aluminum or Stainless Steel straps with approximately 1/16 in. rubber or neoprene isolators to prevent galvanic corrosion. State:	_____

CAB:

10.89	Type	Conventional 2-door crew cab, with corrosion inhibitor.	_____
			
10.90	Cab Construction	Aluminum or Galvanized Steel. State:	_____
10.91	Cab Mounts	Air suspension.	_____
10.92	Hood	High visibility hood.	_____
10.93	Hood Fender Extensions	2-3 in. front fender extensions.	_____
10.94	Front Grille	Stationary mounted to hood.	_____
10.95	Cab Interior / Trim	Extreme climate insulation including grey vinyl headliner on roof, molded plastic door panels and rear interior of cab.	_____
10.96	Cab Silencer Package	For minimal decibel level.	_____
10.97	Hood/Firewall/Engine Insulations	Insulated hood liner, engine cover and firewall.	_____
10.98	Floor Covering	Rubber mat with under-padding.	_____
10.99	Floor Mats	Two (2), rubber.	_____
10.100	Driver's Seat	Driver Seat: Seats Inc. 911 Universal, NFPA 1901 Compliant, Air Suspension, High Back, Vinyl with Covered Back.	_____
10.101	Front Passenger	Passenger Seat: Seats Inc. 911 Universal, NFPA 1901 Compliant, Air Suspension, High Back, Vinyl with Covered Back.	_____
10.102	Seat covers	Gray vinyl seat covers with gray cordura cloth bolsters and headrests.	_____
10.103	Seat belts	3 point high visibility orange retractor driver and right hand front passenger seat belts with NFPA1901 Compliant vdr & seat belt sensor.	_____
10.104	Arm rests	Inboard driver and passenger seat armrests.	_____
10.105	Advanced Protection System™ (APS)	The system shall include the following components: a) Driver steering wheel airbag.	_____

- b) Driver dual knee air bags (patent pending) with energy management mounting (patent pending) and officer knee airbag. _____
- c) Large driver, officer, and crew area side curtain airbags. _____
- d) APS advanced seat belt system - retractor pre-tensioners tighten the seat belts around the occupants, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries. _____
- e) Heavy truck Restraints Control Module (RCM) - receives inputs from the outboard sensors, selectively deploys APS systems, and records sensory inputs immediately before and during a detected qualifying event. _____
- f) Integrated outboard crash sensors mounted at the perimeter of the vehicle - detects a qualifying front or side impact event and monitors and communicates vehicle status and real time diagnostics of all critical subsystems to the RCM. _____
- g) Fault-indicating Supplemental Restraint System (SRS) light on the driver's instrument panel. _____

10.106 Dashboard

Ergonomic (Wing) Design. _____



10.107 Sun Visors

Dual flip-up type. _____

10.108 Steering Wheel

Tilt and telescopic type. _____

10.109 12-Volt Power Outlet

Two (2) with independent circuit. _____

10.110 Radio

Factory installed AM/FM/WB/ with blue tooth, Microphone, USB port, (2) auxiliary inputs J1939. _____

10.111 Starter Switch

Key operated complete with three (3) sets of keys. _____

10.112	Anti-theft Device	Vehicle Anti-theft switch to cut power to the transmission.	
10.113	Interior Light	LED Dome light with driver and passenger door switches.	_____
10.114	Heater / Defroster	High output, capable of keeping all windows clear at an outside temperature of (-40°C).	_____
10.115	Air Conditioning	Capable of keeping cab area cool.	_____
10.116	Brake, Accelerator, Pedals	Floor or hanging type brake and accelerator pedal. State:	_____
10.117	Cruise control	Electronic.	_____
10.118	Electric Horn	Dual electric.	_____
10.119	Air Horn	Dual 25 inch round stutter tone hood mounted air horns.	_____
10.120	Exterior Mirrors	Westcoast style, bright finish, heated, 2-way motorized adjustment, exterior mirrors to include 8" convex mirrors, suitable for 102 in. equipment width.	_____
10.121	Down-View Mirror	Over passenger door Approximately 5 in. x 4 in.	_____
10.122	Windows & Windshield	Tinted.	_____
10.123	Power Windows	Power driver and passenger side.	_____
10.124	Doors	Power door locks.	_____
10.125	Windshield Wipers	Electric intermittent.	_____
10.126	Wiper Blades	Heavy duty with winter type boot.	_____
10.127	Windshield Washers	Electric, with spray nozzles on wiper blades.	_____
10.128	Grab Handles	Dual exterior State: locations.	_____
10.129	Grab Handles	Dual Interior.	_____
10.130	Entrance Steps	0.125" aluminum checker-plate trim installed at the chassis steps. The checker-plate shall be easily removable for ease of service and maintenance if required.	_____
10.131	Winter Front	Heavy-duty vinyl with twist lock or snap type fasteners.	_____
10.132	Exterior Sun Visor	Over cab windshield.	_____

10.133 No rear window _____

INSTRUMENTATION:

10.134 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.
- Non-Resettable Type Engine Hour-Meter.

10.135 Communications _____

Factory Overhead console CB Radio Provision.

TOW HOOKS:

10.136 Front tow hooks _____

Heavy duty, front mounted.

10.137 Rear tow hooks _____

Heavy duty ¾" thick plate, rear mounted.

COLOURS:

10.138 Exterior Colour _____

Painted two tone, with bottom half Red (SIKKENS Brand Code 911662 and top half Black (SIKKENS Brand Code 910788) using a polyurethane enamel paint. Must match WFD brand image.

10.139 Interior Colour _____

Grey.

ACCESSORIES:

10.140 Flare Kit _____

Three (3) triangular reflectors, CVSA approved. Kit must be mounted or secured.

10.141 Fire Extinguisher _____

5 lbs. Fire Extinguisher ABC type installed and secured
State: location.

10.142 Back-Up Camera _____

One (1) ASA Voyager rear observation camera system provided and installed on completed unit.
One (1) model VCC150 high resolution CCD colour camera installed on rear of the body.
One (1) model VCMS36R high resolution super CMOS camera on the right side of the cab.

- 10.143 Monitor One (1) model AOM713, 7" color flat panel display (up to 3 camera inputs) located within the driver's range of view. _____
- 10.144 360° Cameras Camera package that will allow for 360° view of the scene. _____
- 10.145 Back-Up Camera Screen In-Dash (Ergonomic (Wing) Dashboard) _____

OR

Dash mounted if standard dashboard is specified.



Back-Up Camera Screen location to be determined at a pre-production meeting.

11.0 **BODY SPECIFICATIONS:**

11.1 **Body Specifications** _____

The below are general specifications. The compartments are to be designed to maximize the space available. Contractor shall supply their proposed layout schematic during a preproduction meeting.

11.2 **Automatic vehicle leveling system** _____

Designed for large heavy duty vehicles with a GVWR over 23,000 pounds. Four (4) mounting brackets bolted to the chassis frame rails, two (2) front and two (2) rear. Each jack shall bolt to the bracket attached to the chassis frame. Jacks shall be rated for lifting 17,000 pounds (each).

Drive-off safety feature. If the vehicle ignition switch is on, or park brake is released and any legs are not fully retracted, a warning alarm shall sound with the Deluxe-Touch Pad, fully automatic panel with sensor. The vehicle leveling control panel located in cab near driver's area. _____

11.3 **Support Pads** _____

Four (4) Super Dolly 15" x 17" x 1" support pads for use with vehicle leveling system. Location for storage to be determined by Winnipeg Fire Paramedic Service.

11.4 **Body design** _____

The importance of public safety associated with emergency vehicles requires that the construction of this vehicle meet the following specifications. These

specifications are written to establish the minimum level of quality and design. All Bidders shall be required to meet these minimum requirements.

The sheet metal material requirements, including alloy and material thickness, throughout the specifications are considered to be a minimum. Since such materials are available to all Manufacturers, the material specifications shall be adhered to.

The fabrication of the body shall be formed sheet metal. Formed components shall allow the Winnipeg Fire Paramedic Service to have the body repaired locally in the case where any object has struck the body and caused damage.

Following construction of the subframe, which supports the apparatus body, the sheet metal portion of the body shall be built directly on the subframe. The joining of the subframe and body shall be of a welded integral construction.

The sheet metal fabrication of the body shall be performed using inert gas continuous feed welders only. The entire body shall be welded construction. Pop rivets shall NOT be used in the construction of the structural portions of the body. This includes side body sheets, inner panels of compartment doors, and any other structural portions of the body.

11.5 Exterior Aluminum Body

The fabrication of the body shall be constructed from aluminum 3003H-14 alloy smooth plate. Including the compartment front panel, vertical side sheets, side upper rollover panels, rear panels and compartment door frames.

The body compartment floors and exterior panels shall be constructed with 3/16" (.187) aluminum 3003H-14 smooth plate. Interior compartment dividing walls shall be constructed with 1/8" (.125) aluminum 3003H-14 smooth plate. Lighter gauge sheet metal will not be acceptable in these areas.

Door side frame openings to be formed "C" channel design. An electrical wiring conduit raceway running the full length of exterior compartments shall be provided. This raceway to contain all 12 volt wiring running to the rear of the apparatus, permitting easy accessibility to wiring.

Individual compartment modules, with dead air space voids between compartments, shall not be an acceptable method of compartment construction.

The compartments shall be an integral part of the body construction. Compartment floors from front of body to ahead of rear axle, also from rear axle to rear of body shall be single one-piece sections. Compartment floors shall be pre-formed, then positioned in body and welded into final position.

Compartment floors shall have a "sweep-out" design with door opening threshold positioned lower than compartment floor, permitting easy cleaning of compartments. Angles, lips, or door moldings are not acceptable in the base of compartment door opening. One-way rubber drain valves shall be provided in compartment floors so that a water hose may be used to flush-out compartment area.

All exterior seams in sheet metal below frame, and around the rear wheel well area shall be welded and caulked to prevent moisture from entering the compartments. All other interior seams and corners shall be sealed with silicone based caulk prior to painting.

Stainless steel bolts, nuts, sheet metal screws and/or aluminum screws shall be used in mounting exterior trim, hardware and equipment.

Exterior compartments shall have louvers in lower back wall of compartment for ventilation.

11.6 Roof Construction

Integral with the body and shall be all welded construction. The roof of the body shall not be less than 3/16" aluminum 3003H-14 alloy NFPA nonskid compliant tread plate, continuously welded. Reinforced with 2" x 2" x 1/4" aluminum tubing running the full width of the body.

All seams in the roof area shall be welded to the radius and supports prior to paint to prevent entry of moisture. All roof seams shall be continuously welded.

A 2" formed radius shall be provided along the body sides. The use of extruded radius will not be acceptable.

11.7 Body Subframe

The chassis frame rails shall be fitted with 1/4" custom extruded UHMW polyethylene rail cap to isolate the body frame members from direct contact with chassis frame rails.

The body subframe shall be constructed from 6061T6 aluminum alloy tubing. Subframe shall consist of two (2) 2" x 6" x 1/4" aluminum tubes, the same width as the chassis frame rails, no exception. Welded to this tubing shall be cross members of 2" x 6" x 1/4" aluminum. These cross members shall extend the full width of the body to support the compartments. Cross members shall be located at front and rear of the body, below compartment divider walls, and in front and rear of wheel well opening. Additional aluminum cross members shall be located on 16" centers, or as necessary to support walkway or heavy equipment. To form the frame, the tubing shall be beveled and welded at each joint using 5356 aluminum alloy welding wire.

11.8 Body Mounting

The body subframe shall be fastened to the chassis frame with approx. eight (8) spring loaded body mounts. Each mount shall be configured using a two-piece encapsulated slide bracket. The two (2) brackets shall be fabricated of heavy duty 1/4" thick steel and shall have a powder coat finish to prevent any corrosion. Each mounting assembly shall utilize two (2) 3/4" diameter x 6" long grade 8 bolts and two (2) heavy duty springs. The assembly design shall allow the body and subframe to act as one (1) component, separate from the chassis. As the chassis frame twists under driving conditions, the spring mounting system shall eliminate any stress from being transferred into the body. The spring loaded body mounts shall also prevent frame side rail or body damage caused by unevenly distributed stress and strains due to load and chassis movement.

11.9 Rear step bumper

Full width rear bumper constructed from 2" x 2" x 1/4" aluminum tubing frame and covered with 3/16" NFPA compliant aluminum tread plate. The bumper shall extend from the rear vertical body panel 10" and provide a rear step with approx. 1/2" space at body for water drainage.

11.10 Ground lights

Two (2) OnScene 9" Night Axe LED lights installed below bumper capable of providing illumination at approx. level of 2 fc (20 lx) on ground areas within 30 in. (800 mm) of the edge of the vehicle in areas designed for personnel to climb onto or descend from the vehicle to the ground level. Lighting shall be switchable but activated automatically when the vehicle park brake is set.

11.11 **Wheel well exterior panel**

The exterior panel of the body wheel well enclosure constructed from 3/16" smooth aluminum panels.

11.12 **Stainless steel body fenders**

The body wheel well openings provided with round radius, polished stainless steel fenderettes. The fenderettes bolted and easily replaceable if damaged. The fenderettes shall be installed using nylon washers to space them slightly away from the body to reduce buildup of moisture and/or debris.

11.13 **Wheel well liners**

The wheel wells provided with an easily removable polymer, circular inner fender liner. The inner liner shall be bolted to the wheel well with stainless steel bolts and spaced away from the wheel well so the liner will not accumulate dirt or water.

11.14 **Exterior Compartment Doors-Hinged Door Construction**

The compartment doors shall be all aluminum 3003H-14 alloy construction. The exterior panel shall be of 1/8" thickness smooth plate aluminum and the interior panel shall be of 1/8" thickness smooth plate aluminum. The double panel doors shall be 1-3/4" thick to completely enclose the door latching assembly. Doors shall have drain hole openings for drainage and ventilation.

The doors shall be flush mounted so that the outer surface is in line with the side body surface.

Compartment door openings shall be sealed with closed cell automotive type rubber molding to provide a weather resistant seal around door. In addition, rubber molding shall be provided along hinge to prevent moisture entry..

Hinged compartment doors shall have 14 gauge stainless steel hinge, with 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws. A polyester barrier film gasket shall be placed between stainless steel hinge and any dissimilar metals as necessary.

Drip rails shall be installed above all compartment door openings. Drip rails shall be completely removable for easy replacement.

Each door shall be capable of being opened or closed without unlatching. Door checks shall be bolted to the upper compartment door header and the box pan of the door.

The door handle type and door check type of hinged compartment doors shall be as specified with each door.

11.15 **Body Height Measurements**

Approximate vertical body dimensions as follows:

AHEAD OF REAR AXLE

	<u>Description</u>	<u>Dimension</u>
A	Bottom of Subframe to Top of Body	102.5"
B	Bottom of Subframe to Bottom of Body	22.5"
C	Total Body Height	125.0"
D	Compartment Height Below Frame	28.0"
E	Vertical Door Opening (Below Frame Compartment): -with hinged door	25.5"

BEHIND REAR AXLE

	<u>Description</u>	<u>Dimension</u>
F	Bottom of Subframe to Bottom of Body	20.0"
G	Compartment Height Below Frame	22.5"
H	Vertical Door Opening - (Below Frame Compartment):	
I	-with hinged door	21.5"

GENERAL

	<u>Description</u>	<u>Dimension</u>
J	Walk-in Interior Height	83.0" (min.)

11.16 Body Width Dimensions

The body shall be 100.0" wide, not including drip rail or non-permanent fixtures. Interior compartment depth dimensions shall be approximately:

<u>Area Description</u>	<u>Dimension</u>
Transverse Area above Subframe	95.0"
Compartment Depth below Subframe	24.5"

11.17 StreetSide Compartment-Front, Behind Cab (1st)

The interior useable compartment width shall be approximately 59.0" wide.

The compartment door opening shall be approximately 52.0" wide.

- This compartment shall have a horizontally hinged, drop-down style box pan door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.
- The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

11.18 StreetSide Compartment- Front, Behind Cab Layout (1st)

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be one (1) adjustable shelf/shelves approximately 24" deep located on right side of vertical partition. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edge.
- There shall be one (1) bolt-in vertical compartment partition(s) provided dividing the chassis batteries from remainder of compartment area. The vertical partition(s) shall be 3/16" (.188) 3003H-14 alloy smooth aluminum

sheet.

- One (1) OnScene 36" Access LED compartment light, horizontally mounted at the top of the compartment toward the door opening. _____
- Location for chassis batteries. _____
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment. _____

11.19 **StreetSide Compartment-Ahead of Rear Wheels (2nd)**

The interior useable compartment width shall be approximately 59.0" wide. _____

The compartment door opening shall be approximately 52.0" wide. _____

- This compartment shall have a horizontally hinged, drop-down style box pan door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color. _____
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track. _____
- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate. _____
- The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching. _____

11.20 **StreetSide Compartment Layout Ahead of Rear Wheels(2nd)**

- There shall be one (1) 400 lbs. slide-out tray(s) approximately 16" deep and as wide as the compartment layout or door opening permits. The tray top shall be fabricated from 3/16" 3003 aluminum sheet with a 3" vertical lip and welded corners to form a box type tray surface. The sliding tracks shall extend 100% of the slide length. The tray assembly shall utilize a pneumatic cylinder mounted on underside to hold the tray in both the extended and closed positions. _____
- One (1) OnScene 36" Access LED compartment light, horizontally mounted at the top of the compartment toward the door opening. _____
- The 12 volt electrical distribution panel shall be located in the lower compartment. _____

11.21 **StreetSide Compartment Directly Ahead of Rear Wheels (3rd)**

The interior useable compartment width shall be approximately 59.0" wide. _____

The compartment door opening shall be approximately 52.0" wide. _____

- This compartment shall have a horizontally hinged, drop-down style box pan door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color. _____
- The door shall be equipped with a CPI harsh environment mechanical type _____

door ajar switch located inside compartment interior lower door track.

- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate. _____
- The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching. _____

11.22 StreetSide Compartment Layout Directly Ahead of Rear Wheels (3rd)

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. _____
- There shall be one (1) adjustable shelf/shelves approximately 24" deep located on right side of vertical partition. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edge. _____
- There shall be one (1) bolt-in vertical compartment partition(s) provided dividing the electric cable reel from remainder of compartment area. The vertical partition(s) shall be 3/16" (.188) 3003H-14 alloy smooth aluminum sheet. _____
- One (1) Hannay ECR1616-17-18 electric cable reel(s) capable of storing 150' of 10/3 electric cable. Reel(s) shall be designed to hold 110% of the capacity of cord length, with fully enclosed 45 amp, three (3) conductor collector rings. Reel(s) shall be mounted to channel structure that allows for side-to-side adjustment of reel position. _____
 - Power rewind control(s) shall be in a position where the operator can observe the rewinding operation and not be more than 72 in. (1830 mm) above the operator's standing position, and shall be marked with a label indicating its function.
 - A label shall be provided in a visible location adjacent to reel with following information: Current rating, Current type, Phase, Voltage, and Total cord length.
 - The cable reel shall equipped with 150' of 10/3 SEOW yellow cable, a molded plastic ball clamp, and a single heavy duty L5-30 twist-lock female plug at the end.
- One (1) Akron model EJB series, cast aluminum electrical power distribution box with yellow powder coat painted finish shall be provided. The power distribution box shall meet all requirements described in NFPA 1901. The power distribution box shall include the following outlets mounted on a backlit face plate; _____
 - A 12" pigtail that terminates in an L5-30 configuration to match the cable on the cord reel. The outlet configuration shall include:
 - One (1) 120 VAC, L5-15 dual twist lock receptacles
 - One (1) 120 VAC, L5-15 dual twist lock receptacles
 - One (1) 120 VAC, 5-15 duplex straight-blade receptacle.

- One (1) 120 VAC, 5-20 GFCI duplex straight-blade receptacle wired to protect all outlets in box.

- One (1) Akron formed aluminum treadplate vertical mounting bracket shall be provided for specified power distribution box. _____
- The fairlead roller shall be mounted directly to the reel. _____
- One (1) OnScene 36" Access LED compartment light, horizontally mounted at the top of the compartment toward the door opening. _____
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment. _____
- _____

11.23 StreetSide Compartment- Behind Rear Wheels

The interior useable compartment space shall be approximately 70.0" wide. _____

The compartment door opening shall be approximately 63.0" wide. _____

- This compartment shall have a horizontally hinged, drop-down style box pan door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color. _____
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track. _____
- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate. _____
- The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching. _____

11.24 StreetSide Compartment Layout- Behind Rear Wheels

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. _____
- There shall be one (1) adjustable shelf/shelves approximately 24" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edge. _____
- One (1) OnScene 36" Access LED compartment light, horizontally mounted at the top of the compartment toward the door opening. _____
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment. _____

11.25 Curbside Compartment-Front Behind Cab (1st)

The interior useable compartment width shall be approximately 47.0" wide. _____

The compartment door opening shall be approximately 40.0" wide. _____

- This compartment shall have a horizontally hinged, drop-down style box pan door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color. _____
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track. _____
- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate. _____
- The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching. _____

11.26 **Curbside Compartment Layout-Front Behind Cab (1st)**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. _____
- One (1) OnScene 36" Access LED compartment light, horizontally mounted at the top of the compartment toward the door opening. _____

11.27 **Curbside Compartment-Ahead of Rear Wheels (2nd)**

The interior useable compartment width shall be approximately 47.0" wide. _____

The compartment door opening shall be approximately 40.0" wide. _____

- This compartment shall have a horizontally hinged, drop-down style box pan door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color. _____
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track. _____
- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate. _____
- The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching. _____

11.28 **Curbside Compartment Layout-Ahead of Rear Wheels (2nd)**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. _____
- One (1) OnScene 36" Access LED compartment light, horizontally mounted at the top of the compartment toward the door opening. _____
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the _____

lower compartment.

11.29 Curbside Compartment-Directly Ahead of Rear Wheel (3rd)

The interior useable compartment width shall be approximately 50.0" wide. _____

The compartment door opening shall be approximately 43.0" wide. _____

- This compartment shall have a horizontally hinged, drop-down style box pan door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color. _____
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track. _____
- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate. _____
- The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching. _____

11.30 Curbside Compartment Layout-Directly Ahead of Rear Wheel (3rd)

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. _____
- One (1) OnScene 36" Access LED compartment light, horizontally mounted at the top of the compartment toward the door opening. _____
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment. _____

11.31 Curbside Compartment- Behind Rear Wheels

The interior useable compartment width shall be approximately 35.0" wide. _____

The compartment door opening shall be approximately 28.0" wide. _____

- This compartment shall have a horizontally hinged, drop-down style box pan door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color. _____
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track. _____
- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate. _____
- The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching. _____

11.32 **Curbside Compartment Layout- Behind Rear Wheels**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. _____
- One (1) OnScene 36" Access LED compartment light, horizontally mounted at the top of the compartment toward the door opening. _____
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment. _____

11.33 **Side Entry Door (Curbside Front)**

Access to the interior body compartment shall be provided through a side entry door. The door opening shall be approximately 29" wide x 75" high. _____

Construction of the side entry door shall be with 1/8" aluminum exterior smooth plate, the interior door pan being constructed from 1/8" aluminum tread plate. _____

The door shall be hung on full height 14 gauge stainless steel hinge, with a 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws at offset 5" centers. The hinge shall be slotted horizontally and vertically for ease of adjustment. A polyester barrier film gasket shall be placed between the stainless steel hinge and door. _____

The latch mechanism shall include a paddle handle on inside and a locking offset bent "D"-ring handle on exterior. A polyester barrier film gasket shall be placed between the stainless steel handles and the aluminum door panels. The door latch shall be a double catch two-point safety slam latch recessed inside the double panel door with strike plate mounted top and bottom of door frame. _____

- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate. _____
- One (1) OnScene 8" Access LED ground light(s) shall be provided below the body. _____

11.34 **Entry Handrails (Curbside Front Door)**

There shall be two (2) handrails provided at entry door, one (1) 24" vertical on exterior of body on door handle side, and one (1) 48" on inside of door. The interior handrail shall be angled for optimum use when entering or exiting the walk-in portion of the body. Handrails shall be NFPA compliant 1-1/4" knurled 304 stainless steel with welded end stanchions. _____

11.35 **Windows (Entry Door Curbside Front)**

There shall be one (1) 18"wide x 22" high, double-paned insulated, vertical sliding window(s) installed in the entrance door. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish. _____

11.36 **Exterior Compartment Pull-Out Entry Steps (Curbside Front)**

Located below the entry door shall be a compartment for storage of pull-out entry steps for ingress/egress into interior body. _____

Entry steps shall be enclosed behind a drop-down hinged compartment door. The compartment door must be able to withstand years of rugged service and wear.

11.37 Side Entry Door (Curbside Rear)

Access to the interior body compartment shall be provided through a side entry door. The door opening shall be approximately 29" wide x 75" high.

Construction of the side entry door shall be with 1/8" aluminum exterior smooth plate, the interior door pan being constructed from 1/8" aluminum tread plate.

The door shall be hung on full height 14 gauge stainless steel hinge, with a 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws at offset 5" centers. The hinge shall be slotted horizontally and vertically for ease of adjustment. A polyester barrier film gasket shall be placed between the stainless steel hinge and door.

The latch mechanism shall include a paddle handle on inside and a locking offset bent "D"-ring handle on exterior. A polyester barrier film gasket shall be placed between the stainless steel handles and the aluminum door panels. The door latch shall be a double catch two-point safety slam latch recessed inside the double panel door with strike plate mounted top and bottom of door frame.

- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.
- One (1) OnScene 8" Access LED ground light(s) shall be provided below the body.

11.38 Entry Handrails (Curbside Rear Door)

There shall be two (2) handrails provided at entry door, one (1) 24" vertical on exterior of body on door handle side, and one (1) 48" on inside of door. The interior handrail shall be angled for optimum use when entering or exiting the walk-in portion of the body.

Handrails shall be NFPA compliant 1-1/4" knurled 304 stainless steel with welded end stanchions.

11.39 Windows (Entry Door Curbside Rear)

There shall be one (1) 18"wide x 22" high, double-paned insulated, vertical sliding window(s) installed in the entrance door. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

11.40 Exterior Compartment Pull-Out Entry Steps(Curbside Rear)

Located below the entry door shall be a compartment for storage of pull-out entry steps for ingress/egress into interior body.

Entry steps shall be enclosed behind a drop-down hinged compartment door. The compartment door must be able to withstand years of rugged service and wear.

11.41 Door Construction Specifications (Curbside Front and Rear)

The flush mounted compartment door shall be all aluminum 3003H-14 alloy construction. The exterior panel shall be of 1/8" thickness smooth plate aluminum and the interior panel shall be of 1/8" thickness smooth plate aluminum.. The double panel doors shall be 1-3/4" thick to completely enclose the door latching assembly. Doors shall have drain hole openings for drainage and ventilation. The door openings shall be sealed with closed cell automotive type rubber molding to

provide a weather resistant seal around door. Open cell foam type rubber moldings are not acceptable.

Compartment door shall have 14 gauge stainless steel hinge, with 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws. A polyester barrier film gasket shall be placed between stainless steel hinge and any dissimilar metals as necessary.

A drip rail shall be installed above compartment door opening and shall be completely removable for easy replacement if necessary.

The latching mechanism of hinged compartment doors shall include stainless steel 6" offset bent D-ring keyed handles. A gasket shall be placed between stainless steel handle and door. Door latches shall be a double catching two-point rotary slam latch, recessed inside the double panel door with striker plate.

A pair of pneumatic cylinder door checks shall hold door in the open and closed position and capable of being closed without unlatching. Door checks shall be bolted to body and box pan of door. Door checks that require unlatching by hand will not be acceptable.

11.42 Step Construction Specifications (Curbside Front and Rear)

There shall be two (2) fixed steps with 10" tread depth. Steps shall be fabricated from 3/16" thickness 3003H-14 alloy aluminum with NFPA compliant step surface and adequately reinforced to withstand a 350 lb. person standing on step.

There shall be one (1) fold-down step located on the bottom tread surface to reduce the distance from the ground to the first step. This lower step shall manually fold up onto other steps for travel.

The step shall be mounted on an On Scene Solutions slide-out tray frame constructed of anodized aluminum extrusions. The frame shall be assembled using stainless steel fasteners (no welds). Each slide shall use a three extrusion rail design utilizing twelve to sixteen (12 - 16) urethane rollers. Each roller shall contain two (2) precision roller bearings mounted in an aluminum hub with a molded on urethane cover. The rollers shall not lose contact with the rail extrusion during operation of the slide unit. Each slide shall have a cable operated, spring loaded latch complimented by a large hand opening and red pull handle (Pull to Release). The slide shall lock in the closed and full extension positions. The slide shall be rated for a maximum distributed load of 1,000 lbs. and a 500 lb. end load.

The drop-down door shall activate the "Hazard Warning Light" in the cab when not in the closed position.

11.43 Plastic Floor and Shelf Tile

All compartment floors, shelves, and trays shall be covered with Dri-Dek plastic interlocking grating. The plastic floor tile and the plastic edge trim shall be black.

11.44 Side Body Protection-Rub Rail

OnScene Solutions rub rails shall be provided below the compartment door openings on both the streetside and curbside.

The rub rail shall be fabricated from 6063 extruded aluminum, measuring approximately 2-3/4" high x 1-3/8" thick with tapered aluminum end caps. The rub rail shall be bolted to the body using stainless steel bolts and 1-1/2" diameter x 5/8" thick rubber mount isolators to prevent damage to the body.

The rails shall incorporate LED clearance marker lighting recessed into the rail

fascia to avoid damage to the light in case of impact. The rub rail shall have an accessory mounting track integrated into the backside of the rail to allow mounting of accessories such as ground lighting.

3M™ Diamond Grade™ Conspicuity striping shall be provided in the rub rail. The striping shall be red/white in color.

11.45 Front Gravel Guards

Gravel guards shall be provided on front lower body corners. Guards shall be 12" high, extend from behind cab or step and wrap around to the front compartment door opening fabricated from 20 gauge brushed stainless steel.

11.46 Access Ladder

The top of the body shall be accessible from the ground by a folding ladder. The ladder design shall have a main ladder section, bolt on upper hand rail section and a folding lower step section for better angle of departure. Ladder stores in a folded position and then pulls out to a comfortable climbing angle. The ladder shall be parallel to the body when in the stored position.

Each cast aluminum step shall be 4-1/2" deep x 16" wide. Hand railing shall be 2-1/8" oval shaped aluminum tubing with a ribbed gripping surface.

The ladder shall be wired to the door ajar warning light in cab to warn the driver that the ladder is in the down position. Ladder shall be mounted to body with stainless steel bolts.

Ladder shall be located on rear curbside of the body.

INTERIOR FINISH DETAILS

11.47 Desk, Cabinet and Console Finish

All specified interior desks, cabinets, overhead cabinets, or consoles shall be fabricated from formed 1/8" 3003 H14 alloy smooth aluminum. After fabrication is completed they shall be painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. The use of wood materials or laminated surfaces in the construction of desks, cabinets, overhead cabinets, or consoles will not be allowed.

11.48 Magnetic Whiteboard

There shall be two (2) magnetic whiteboard(s), approximately 30" wide x 36" tall located on wall, location per Winnipeg Fire Paramedic Service.

11.49 Cab/Body Walk Through Connection

The front center of rescue body shall be interconnected with the commercial cab through a flexible weather-tight walk-through connection. The opening shall be approximately 28" wide x 40" high.

The back of the cab shall be cut out to match the body opening. The cab opening shall be heavily reinforced with metal angle or tubing on all sides so that the rear of cab is not weakened with the walk-through connection. The back of cab shall be re-painted, as necessary.

The connection shall be completely weatherproof, yet provide the cab and body to move independent of each other. A flexible rubber bellowed collar shall be mounted to the metal angle and tubing framework of the body and cab. The edges of the opening shall be protected with aluminum angle moldings with stainless steel sheet metal screws. The collar and rubber liner shall be easily

replaceable in future years if necessary. A drip rail shall be provided on front of body above the opening to channel water to both sides of opening.

The base of the opening shall be covered with two (2) 3/16" aluminum tread plate full width panels, which will overlap from the cab and body so that the rubber liner cannot be damaged.

Full width padded foam cushion head bumpers shall be provided on both sides of opening. Head bumpers shall be covered with matching interior vinyl and bolted to each side of walk.

11.50 Sliding Pocket Door

There shall be one (1) sliding pocket door(s) provided on interior of walk-in body area. Pocket door shall be fabricated from 1/8" smooth aluminum and be approximately 1-1/2" thick and hang on adjustable pocket door hardware. The door shall be painted to match the interior wall color. A stainless steel handle shall be provided on each side of door. The door shall be equipped with a pneumatic cylinder which will "over-center" to hold the door in open and closed positions.

11.51 Interior Body Window Covers

An interior window cover shall be provided on six (6) windows in the apparatus body.

The window covers shall be of Cover Lite Select, 22 oz material. Snap type fasteners shall be installed around each window in the body to allow each window to be covered.

INTERIOR SPECIFICATIONS

11.52 Interior Insulation

Following the sheet metal fabrication the roof area, upper exterior walls and the entry door of the apparatus body shall be insulated with Dow Thermax, or equal 1-1/2" glass-fiber reinforced polyisocyanurate foam core laminated between 1.0 mil smooth, reflective aluminum foil facers on both sides, with an R9.8 value. The reinforcement, along with chemical modifications, contributes to fire resistance and dimensional stability. This insulation shall be the type that will not absorb moisture, move once in place or deteriorate.

11.53 Interior Finish

The interior of the apparatus body shall have carpeted walls. The interior finish shall be installed on the ceiling, front wall, and interior side walls from top of exterior compartments to ceiling height.

The interior plywood panels shall be installed with sheet metal screws and the carpet will be glued to it using high bond adhesive.

The interior finish shall be medium texture gray.

11.54 Interior Walkway Floor

There shall be Lonseal, Loncoin-II Flecks installed on the floor substrate. Loncoin II Flecks is a heterogeneous resilient sheet vinyl with a raised coin texture. The material shall be black in color (Loncoin-II Flecks - Onyx).

11.55 Interior Sub-Floor

Above the body subframe shall be an isolation sheet that shall prevent outside elements from permeating the full length sound and thermal barrier of 3/4" thick grade plywood. The sheet shall be fabricated from the same type of material as is

used in the subframe. The isolation sheet shall be flanged on both sides with a 1" high vertical break.

11.56 Under Floor Insulation

The under floor area between the frame rails shall have 3" foam insulation applied from the underside of the body.

11.57 Air Conditioner/Heater

Three (3) Dometic Penguin, model 641835 low profile, 120 VAC, 60 cycle, single phase air conditioner(s) shall be provided and installed on the body roof. Integral evaporator/condenser type with built-in heating elements.

Each unit shall be rated at approx. 13,500 BTU cooling capacity with a heating element rated at approx. 5,600 BTU.

11.58 Heaters

The interior body or compartments shall be heated with two (2) Espar D5LC air heaters with up to 18,800 BTU. The heater(s) shall be connected to the chassis diesel fuel tank with a thermostat controlled 12 volt blower.

If the heater unit(s) are located to heat compartments, high temperature flexible ducting shall be used from both return air and the outlet through upper compartment walls. In addition, each upper compartment dividing wall shall have large openings to allow ducting and/or air to circulate through all compartments.

11.59 Front Interior Area

There shall be one (1) 32" wide x 16" high, double-paned insulated, non-sliding window(s) installed on the completed apparatus. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

11.60 StreetSide Interior Desk Area

There shall be one (1) 32" wide x 16" high, double-paned insulated, horizontal sliding window(s) installed. The window shall slide open towards the front of the vehicle such that wind pressure would tend to shut the window. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish. Sliding style windows shall be complete with a sliding screen.

There shall be one (1) 34" wide x 14" high x 14" deep overhead cabinet(s) provided on front wall of body. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray.

The above cabinet(s) shall have lift-up type door(s) with dry-erase outer surface.

One (1) OnScene Solution model #70152, 10" x 6" x 7/8", 10-30 VDC, surface mount dual red and white LED light(s) with clear lens shall be provided under cabinet. Each light shall be individually switched with a high/low intensity setting. In addition light(s) will be capable of a five (5) second delay after switching off.

The interior of body shall be provided with a desk top which shall be 24" deep and located approximately 30" from floor on front wall of body.

The desk top surface shall be fabricated of 3/16" smooth finish aluminum. There shall be 2-1/2" diameter holes with plastic edge grommet provided at each rear corner for wiring of future equipment located on the desk top. The desk top shall be painted dark gray with a hammer tone powder coat paint finish for a hard and durable surface.

11.61 Communication and Electronics Console

There shall be one (1) 34" wide communication and electronics console(s) provided at back of specified desk or counter top. The console(s) shall provide mounting locations for any specified radios, phones, network jacks, 120 VAC outlets, 12 VDC power points, or any required control switches. A six (6) circuit 12 VDC fuse block with cover shall be provided inside console for wiring needs.

Each console shall be rectangular in shape with a sloped hinged access cover constructed of 1/8" smooth finish aluminum and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray.

A hinged access cover shall be provided on front to access equipment mounting and wiring with ¼ turn knobs to secure cover closed. Two (2) 12 VDC cooling fans shall be provided on ends for proper ventilation of radio and electrical equipment.

The following communications and/or electrical equipment shall be provided for;

There shall be one (1) two-gang 12 VDC outlet(s) with faceplate provided in the front vertical face of the console.

There shall be one (1) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided in the front vertical face of the console.

11.62 Interior Pedestal Seat

One (1) Bostrom Sierra high back Duraware fabric pedestal type seat(s) with 6" fore/aft adjustment shall be provided on the completed apparatus. Each seat shall be mounted on a swivel style pedestal base and securely bolted to the reinforced floor structure. The seat shall closely match the driver and officer seat colors.

There shall be a lap-belt style seat belt for each position. The seatbelt(s) shall be red in color and comply with NFPA 1901 requirements. Seat(s) shall be connected into seat belt Occupant Restraint Indicator (ORI) and Vehicle Data Recorder (VDR).

The above specified seat(s) shall be provided with an automotive type lap seat belt. The seat belt(s) shall be secured to the attachment point provided on the seat. The seatbelt(s) shall be red in color and comply with NFPA 1901 requirements. Seat(s) shall be connected into seat belt Occupant Restraint Indicator (ORI) and Vehicle Data Recorder (VDR).

11.63 StreetSide Interior Area (Aft of Desk)

There shall be one (1) full height cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. Each cabinet shall be approximately 42" wide x 75" high x 24" deep.

Cabinet shall be provided with vertically mounted shallow aluminum Shelf-Trac for specified component installation.

There shall be one (1) SCBA cylinder storage module for 8" OD (maximum) SCBA bottles. The maximum length of the SCBA cylinder shall be 24.75". The module shall have an exterior shell fabricated from 1/8" (.125) 3003H-14 aluminum alloy sheet. The module shall have a 2" slope, front to back to prevent cylinders from sliding out. The SCBA cylinder storage tubing shall be fabricated from PVC pipe to prevent damage or abrasion to cylinders. In addition there shall be rubber matting provided in the base of each storage tube for bottle protection

and to prevent slipping. The SCBA cylinder module shall be capable of storing five (5) SCBA cylinders up to 7.5" diameter.

One (1) OnScene 64" Access LED compartment light, vertically mounted. _____

Cargo netting of 2" nylon webbing shall be provided over cabinet opening with easy release automotive style latches at top and/or sides. _____

There shall be two (2) vertically adjustable shelves in each of the above cabinets. It shall have a 1.25" lip to contain items while minimizing space used. Upper shelf shall be located 10" from top of cabinet with a full width closet on under side for hanging suits. _____

There shall be one (1) 120 VAC outlet(s) located inside cabinet against the back wall. The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R). _____

There shall be one (1) approximate 4' long 120 VAC outlet strip(s) with straight blade household type outlets provided mounted vertically in back of cabinet. Outlet(s) shall be powered by both the on-board generator and shore power system through a relay system. _____

11.64 StreetSide Interior Area (Aft of Desk)

There shall be one (1) full height cabinet provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. Each cabinet shall be approximately 60" wide x 75" high x 24" deep. _____

Cabinet shall be provided with vertically mounted shallow aluminum Shelf-Trac for specified component installation. _____

One (1) OnScene 64" Access LED compartment light, vertically mounted. _____

The above cabinet(s) shall have two (2) sets of double, vertically hinged aluminum doors that shall be painted with a hammer tone powder coat paint finish to match cabinet color choice. _____

There shall be four (4) vertically adjustable shelves in each of the above cabinets. _____

11.65 StreetSide Rear Slide-Out Room Extension

A Power Gear slide-out room extension shall be provided on the streetside which shall extend approximately 32" as measured from the outside of the body. The extendable module shall be approximately 94.5" in length (86.5" interior usable space) and the interior height shall be approximately 9" less than the interior height of the body walkway. The installed module shall provide a water tight seal in both the fully extended and the retracted positions. _____

The slide-out section shall utilize a smooth operating, quiet gear and rack system. There shall be only two (2) serviceable items - the 12 vdc motor and the electric control switch. The system shall use a heavy duty, positive, 100% synchronized gear and rack system to prevent binding during the extend or retract cycle. The rack system shall be rated for up to 1,500 pounds. A three-position, momentary type rocker switch shall be used to operate the slide-out wall system. A manual override shall be provided in the event of a system failure. _____

The slide-out section shall be framed with 2" x 2" x 1/4" 6061-T6 alloy aluminum. The frame structure shall be covered with no less than 1/8" thick 3003-H14 smooth aluminum. _____

Full width padded foam cushion head bumpers shall be provided in the slide-out. _____

Head bumpers shall be covered with matching interior vinyl.

There shall be two (2) flashing LED warning lights with red lenses, one (1) at each end of the slide-out section. The lights shall activate and be visible when the unit is extended.

All electrical wiring installed in the slide-out wall shall run through a boxed type conduit at the lower corner of the system. All wiring shall be enclosed in a flexible, moisture resistant, reinforced conduit, with proper seal tight connectors and hardware. Access shall be provided for inspection of all wiring and the slide-out mechanisms.

11.66 Slide-Out Awning

A Carefree SlideOut Kover III shall be provided and work automatically with slide-out for increased protection of the slide-out from the elements. The SlideOut Kover III comes with a built-in wind deflector to prevent the billowing of the slide out fabric. The awning fabric color shall be red.

11.67 Slide-Out Kover

The SlideOut Kovers standard white housing color shall be re-painted to match upper body color.

11.68 Window(s)

There shall be two (2) 18" wide x 22" high, double-paned insulated, high non-sliding window(s) installed, one (1) on each side of the slide-out. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

There shall be two (2) 42" wide x 14" high x 14" deep overhead cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. The above cabinet(s) shall have lift-up type door(s) with dry-erase outer surface.

11.69 Interior Under Cabinet LED Lights

Two (2) OnScene Solution model #70152, 10" x 6" x 7/8", 10-30 VDC, surface mount dual red and white LED light(s) with clear lens shall be provided under cabinet. Each light shall be individually switched with a high/low intensity setting. In addition light(s) will be capable of a five (5) second delay after switching off.

One (1) Hon 3-drawer Efficiency Pedestal cabinet(s) with "K" type pull handle shall be provided and installed. Each cabinet shall have a keyed lock and shall be painted charcoal. Each filing cabinet shall be 15" wide x 27" high x 20" deep. The bottom drawer of the cabinet shall be capable of storing 8-1/2" x 11" file folders.

11.70 Interior Seat Base

A full body width seat base shall be provided for specified seating. The seat base shall be fabricated of 1/8" aluminum treadplate to form an under seat storage compartment. Two (2) front hinged drop-down doors with single point "D"-ring handle and latch shall be provided to hold doors closed.

11.71 Interior SCBA Seat

Three (3) Bostrom Tanker SCBA style high back Duraware fabric seat(s) shall be provided on the completed unit. Each seat shall be securely bolted to the reinforced structure. The seat(s) shall closely match the driver and officer seat colors. The above specified seat(s) shall not be provided with automotive seat belts and therefore will not be considered a riding position.

11.72 **SCBA Brackets**

There shall be three (3) Zico ULLH walkaway type SCBA air pack bracket(s) provided with strap assembly mounted in cab area.

11.73 **StreetSide Interior Area (Rear)**

There shall be one (1) cabinet(s) provided on upper interior wall. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. Cabinet shall be approximately 36" wide x 54" high x 25" deep.

Cabinet shall be provided with vertically mounted shallow aluminum Shelf-Trac for specified component installation.

One (1) OnScene 64" Access LED compartment light, vertically mounted.

The above cabinet(s) shall have two (2) sets of double, vertically hinged aluminum doors that shall be painted with a hammer tone powder coat paint finish to match cabinet color choice.

There shall be three (3) vertically adjustable shelves in each of the above cabinets.

There shall be one (1) Norcold DE-0041R 120 VAC/12 VDC refrigerator/freezer(s) furnished and installed below specified cabinet. The unit shall be a flush mount style box with body manufacturer fabricated custom enclosure. Refrigerator shall operate from both 12 VDC and 120 VAC power. The built-in dimensions are 30-7/8" high x 23-1/4" wide x 23-1/2" deep.

11.74 **Exhaust Fan**

One (1) Fantastic model 6000RBTA, 12 VDC, 3-speed ventilation fan(s) shall be provided for air circulation. Each fan shall be wired to a wall switch located near fan location..

11.75 **Curbside Interior Area Slide-Out Extension (Front)**

A Power Gear slide-out room extension shall be provided on the curbside which shall extend approximately 32" as measured from the outside of the body. The extendable module shall be approximately 78" in length (70" interior usable space) and the interior height shall be approximately 9" less than the interior height of the body walkway. The installed module shall provide a water tight seal in both the fully extended and the retracted positions.

The slide-out section shall utilize a smooth operating, quiet gear and rack system. There shall be only two (2) serviceable items - the 12 vdc motor and the electric control switch. The system shall use a heavy duty, positive, 100% synchronized gear and rack system to prevent binding during the extend or retract cycle. The rack system shall be rated for up to 1,500 pounds. A three-position, momentary type rocker switch shall be used to operate the slide-out wall system. A manual override shall be provided in the event of a system failure.

The slide-out section shall be framed with 2" x 2" x 1/4" 6061-T6 alloy aluminum. The frame structure shall be covered with no less than 1/8" thick 3003-H14 smooth aluminum.

Full width padded foam cushion head bumpers shall be provided in the slide-out. Head bumpers shall be covered with matching interior vinyl.

There shall be two (2) flashing LED warning lights with red lenses, one (1) at each end of the slide-out section. The lights shall activate and be visible when the unit is extended.

All electrical wiring installed in the slide-out wall shall run through a boxed type conduit at the lower corner of the system. All wiring shall be enclosed in a flexible, moisture resistant, reinforced conduit, with proper seal tight connectors and hardware. Access shall be provided for inspection of all wiring and the slide-out mechanisms.

11.76 **Slide-Out Awning (Front)**

A Carefree SlideOut Kover III shall be provided and work automatically with slide-out for increased protection of the slide-out from the elements.

The SlideOut Kover III comes with a built-in wind deflector to prevent the billowing of the slide out fabric. The awning fabric color shall be red.

11.77 **Slide-Out Kover (Front)**

The SlideOut Kovers standard white housing color shall be re-painted to match upper body color.

11.78 **Window(s)**

There shall be two (2) 32" wide x 16" high, double-paned insulated, horizontal sliding window(s) installed. The window shall slide open towards the front of the vehicle such that wind pressure would tend to shut the window. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish. Sliding style windows shall be complete with a sliding screen.

There shall be two (2) 18" wide x 22" high, double-paned insulated, high non-sliding window(s) installed, one (1) on each side of the slide-out. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

There shall be two (2) 34" wide x 14" high x 14" deep overhead cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray.

The above cabinet(s) shall have lift-up type door(s) with dry-erase outer surface.

11.79 **Interior Under Cabinet LED Lights**

Two (2) OnScene Solution model #70152, 10" x 6" x 7/8", 10-30 VDC, surface mount dual red and white LED light(s) with clear lens shall be provided under cabinet. Each light shall be individually switched with a high/low intensity setting. In addition light(s) will be capable of a five (5) second delay after switching off.

One (1) Hon 3-drawer Efficiency Pedestal cabinet(s) with "K" type pull handle shall be provided and installed. Each cabinet shall have a keyed lock and shall be painted charcoal. Each filing cabinet shall be 15" wide x 27" high x 20" deep. The bottom drawer of the cabinet shall be capable of storing 8-1/2" x 11" file folders.

11.80 **Slide-Out Area- Full Desk (Front)**

The slide-out area shall be provided with a full width desk which shall be 24" deep and located approximately 30" from floor.

The desk top surface shall be fabricated of 3/16" smooth finish aluminum. There shall be 2-1/2" diameter holes with plastic edge grommet provided at each rear corner for wiring of future equipment located on the desk top. The desk shall be painted with a dark gray hammer tone powder coat paint finish for a hard and durable surface.

11.81 Communication and Electronics Console

There shall be two (2) 34" wide communication and electronics console(s) provided at back of specified desk or counter top. The console(s) shall provide mounting locations for any specified radios, phones, network jacks, 120 VAC outlets, 12 VDC power points, or any required control switches. A six (6) circuit 12 VDC fuse block with cover shall be provided inside console for wiring needs.

Each console shall be rectangular in shape with a sloped hinged access cover constructed of 1/8" smooth finish aluminum and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray.

A hinged access cover shall be provided on front to access equipment mounting and wiring with 1/4 turn knobs to secure cover closed. Two (2) 12 VDC cooling fans shall be provided on ends for proper ventilation of radio and electrical equipment.

The following communications and/or electrical equipment shall be provided for;

There shall be two (2) two-gang 12 VDC outlet(s) with faceplate provided in the front vertical face of the console.

There shall be two (2) 120 VAC, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided in the front vertical face of the console.

11.82 Interior Pedestal Seat

Two (2) Bostrom Sierra high back Duraware fabric pedestal type seat(s) with 6" fore/aft adjustment shall be provided on the completed apparatus. Each seat shall be mounted on a swivel style pedestal base and securely bolted to the reinforced floor structure. The seat shall closely match the driver and officer seat colors.

There shall be a lap-belt style seat belt for each position. The seatbelt(s) shall be red in color and comply with NFPA 1901 requirements. Seat(s) shall be connected into seat belt Occupant Restraint Indicator (ORI) and Vehicle Data Recorder (VDR).

The above specified seat(s) shall be provided with an automotive type lap seat belt. The seat belt(s) shall be secured to the attachment point provided on the seat. The seatbelt(s) shall be red in color and comply with NFPA 1901 requirements. Seat(s) shall be connected into seat belt Occupant Restraint Indicator (ORI) and Vehicle Data Recorder (VDR).

11.83 Curbside Interior Area (Side Entry Door Behind Rear Slide-Out)

There shall be a side entry door located in this area.

11.84 Curbside Interior Area (Rear)

There shall be one (1) full height cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. Each cabinet shall be approximately 42" wide x 75" high x 25" deep.

Cabinet shall be provided with vertically mounted shallow aluminum Shelf-Trac for specified component installation.

There shall be one (1) SCBA cylinder storage module for 8" OD (maximum) SCBA bottles. The maximum length of the SCBA cylinder shall be 24.75". The module shall have an exterior shell fabricated from 1/8" (.125) 3003H-14 aluminum alloy sheet. The module shall have a 2" slope, front to back to prevent cylinders from sliding out. The SCBA cylinder storage tubing shall be fabricated from PVC pipe to prevent damage or abrasion to cylinders. In addition there shall

be rubber matting provided in the base of each storage tube for bottle protection and to prevent slipping. The SCBA cylinder module shall be capable of storing five (5) SCBA cylinders up to 7.5" diameter.

One (1) OnScene 64" Access LED compartment light, vertically mounted. _____

Cargo netting of 2" nylon webbing shall be provided over cabinet opening with easy release automotive style latches at top and/or sides. _____

There shall be one (1) vertically adjustable shelf in each of the above cabinets. It shall have a 1.25" lip to contain items while minimizing space used. Shelf shall be located 10" from top of cabinet with a full width closet on under side for hanging suits. _____

11.85 Curbside Slide-Out Room Extension (Rear)

A Power Gear slide-out room extension shall be provided on the curbside which shall extend approximately 32" as measured from the outside of the body. The extendable module shall be approximately 94.5" in length (86.5" interior usable space) and the interior height shall be approximately 9" less than the interior height of the body walkway. The installed module shall provide a water tight seal in both the fully extended and the retracted positions. _____

The slide-out section shall utilize a smooth operating, quiet gear and rack system. There shall be only two (2) serviceable items - the 12 vdc motor and the electric control switch. The system shall use a heavy duty, positive, 100% synchronized gear and rack system to prevent binding during the extend or retract cycle. The rack system shall be rated for up to 1,500 pounds. A three-position, momentary type rocker switch shall be used to operate the slide-out wall system. A manual override shall be provided in the event of a system failure. _____

The slide-out section shall be framed with 2" x 2" x 1/4" 6061-T6 alloy aluminum. The frame structure shall be covered with no less than 1/8" thick 3003-H14 smooth aluminum. _____

Full width padded foam cushion head bumpers shall be provided in the slide-out. Head bumpers shall be covered with matching interior vinyl. _____

There shall be two (2) flashing LED warning lights with red lenses, one (1) at each end of the slide-out section. The lights shall activate and be visible when the unit is extended. _____

All electrical wiring installed in the slide-out wall shall run through a boxed type conduit at the lower corner of the system. All wiring shall be enclosed in a flexible, moisture resistant, reinforced conduit, with proper seal tight connectors and hardware. Access shall be provided for inspection of all wiring and the slide-out mechanisms. _____

11.86 Slide-Out Awning (Rear)

A Carefree SlideOut Kover III shall be provided and work automatically with slide-out for increased protection of the slide-out from the elements. _____

The SlideOut Kover III comes with a built-in wind deflector to prevent the billowing of the slide out fabric. The awning fabric color shall be red. _____

11.87 Slid-Out Kover (Rear)

The SlideOut Kovers standard white housing color shall be re-painted to match upper body color. _____

11.88 Windows

There shall be two (2) 18" wide x 22" high, double-paned insulated, high non-sliding window(s) installed, one (1) on each side of the slide-out. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

There shall be two (2) 42" wide x 14" high x 14" deep overhead cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. The above cabinet(s) shall have lift-up type door(s) with dry-erase outer surface.

11.89 Interior Under Cabinet LED Lights

Two (2) OnScene Solution model #70152, 10" x 6" x 7/8", 10-30 VDC, surface mount dual red and white LED light(s) with clear lens shall be provided under cabinet. Each light shall be individually switched with a high/low intensity setting. In addition light(s) will be capable of a five (5) second delay after switching off.

11.90 Interior Seat Base (Curbside Rear)

A full width seat base shall be provided for specified seating. The seat base shall be fabricated of 1/8" aluminum treadplate to form an under seat storage compartment. Two (2) front hinged drop-down doors with single point "D"-ring handle and latch shall be provided to hold doors closed.

11.91 Interior SCBA Seats (Curbside Rear)

Three (3) Bostrom Tanker SCBA style high back Duraware fabric seat(s) shall be provided on the completed unit. Each seat shall be securely bolted to the reinforced structure. The seat(s) shall closely match the driver and officer seat colors. The above specified seat(s) shall not be provided with automotive seat belts and therefore will not be considered a riding position.

11.92 SCBA Brackets (Curbside Rear)

There shall be three (3) Zico ULLH walkaway type SCBA air pack bracket(s) provided with strap assembly mounted in cab area.

11.93 Curbside Side Entry Door (Rear)

There shall be a side entry door located in this area.

There shall be one (1) full height cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. Each cabinet shall be approximately 26" wide x 75" high x 30" deep.

Cabinet shall be provided with vertically mounted shallow aluminum Shelf-Trac for specified component installation.

One (1) OnScene 64" Access LED compartment light, vertically mounted.

The above cabinet(s) shall have a vertical hinged aluminum door(s) and painted with a hammer tone powder coat paint finish to match cabinet color choice.

There shall be four (4) vertically adjustable shelves in each of the above cabinets.

Low Voltage Electrical System 12VDC

11.94 General Specifications

Any low voltage electrical systems or warning devices installed on the fire apparatus shall be appropriate for the mounting location and intended electrical load.

Where wire passes through sheet metal, grommets shall be used to protect wire and wire looms. Electrical connections shall be with double crimp water-tight heat shrink connectors.

All 12 VDC wiring running from front to back of vehicle body shall be run in full length electrical wiring raceway down each side of body.

11.95 Wiring

All electrical circuit feeder wiring supplied and installed by the fire apparatus manufacturer shall meet the requirements of NFPA Chapter 13. The circuit feeder wire shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 % of the maximum current for which the circuit is protected. Voltage drops in all wiring from the power source to the using device shall not exceed 10 %. The use of star washers for circuit ground connections shall not be permitted. All circuits shall otherwise be wired in conformance with SAE J1292, *Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring*.

11.96 Wiring and Wire Harness Construction

All insulated wire and cable shall conform to SAE J1127, *Low Voltage Battery Cable*, or SAE J1128, *Low Voltage Primary Cable*, type SXL, GXL, or TXL.

All conductors shall be constructed in accordance with SAE J1127 or SAE J1128, except where good engineering practice dictates special strand construction.

Circuits shall be provided with properly rated low voltage overcurrent protective devices. Such devices shall be readily accessible and protected against heat in excess of the overcurrent device's design range, mechanical damage, and water spray. Circuit protection shall be accomplished by utilizing fuses, circuit breakers, fusible links, or solid state equivalent devices.

If a mechanical-type device is used, it shall conform to one of the following SAE standards:

- 1) SAE J156, *Fusible Links*
- 2) SAE J553, *Circuit Breakers*
- 3) SAE J554, *Electric Fuses (Cartridge Type)*
- 4) SAE J1888, *High Current Time Lag Electric Fuses*
- 5) SAE J2077, *Miniature Blade Type Electrical Fuses*

Switches, relays, terminals, and connectors shall have a direct current (dc) rating of 125 % of maximum current for which the circuit is protected.

11.97 Power Supply

A 12Volt or greater electrical alternator shall be provided. The alternator shall have a minimum output at idle to meet the minimum continuous electrical load of the vehicle, at 200°F (93°C) ambient temperature within the engine compartment, and shall be provided with full automatic regulation.

11.98 Minimum Continuous Electrical Load

The minimum continuous electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode during emergency operations:

- 1) The propulsion engine and transmission
- 2) All legally required clearance and marker lights, headlights, and other electrical devices except windshield wipers and four-way hazard flashers
- 3) The radio(s) at a duty cycle of 10 percent transmit and 90 % receive (for calculation and testing purposes, a default value of 5 A continuous)
- 4) The lighting necessary to produce 2 fc (20 lx) of illumination on all walking surfaces on the apparatus and on the ground at all egress points onto and off

- the apparatus, 5 fc (50 lx) of illumination on all control and instrument panels, and 50 percent of the total compartment lighting loads
- 5) The minimum optical warning system, where the apparatus is blocking the right-of way
 - 6) The continuous electrical current required to simultaneously operate any fire pumps, aerial devices, and hydraulic pumps
 - 7) Other warning devices and electrical loads defined by the purchaser as critical to the mission of the apparatus

A voltmeter shall be mounted on the driver's instrument panel to allow direct observation of the system voltage. _____

11.99 **Electromagnetic Interference**

Electromagnetic interference suppression shall be provided, as required, to satisfy the radiation limits specified in SAE J551/1, *Performance Levels and Methods of Measurement of Electromagnetic Compatibility of Vehicles, Boats (up to 15 m), and Machines (16.6 Hz to 18 GHz)*. _____

11.100 **Wiring Diagram**

A complete electrical wiring schematic of actual system shall be provided with finished apparatus. _____

11.101 **12 Volt Multiplex Control Center**

The apparatus shall be equipped with a Weldon V-MUX multiplexed 12 volt electrical system that will provide complete diagnostic capability. The system shall have the capability of delivering multiple signals via a CAN bus, utilizing specifications set forth by SAE J1939. The system shall be node based to maximize stability so that failure of one node does not affect the operation of the other nodes. The system shall use shielded twisted-pair wire for transmission of system function signals. The shielded wire shall provide protection against EMI and RFI noise interruptions. _____

The multiplex system shall be responsible for providing power management functions as well as load shedding. The warning light system shall be controlled by the multiplex system. The system shall be capable of displaying text and/or graphic messages on a display module. The system shall be based on solid-state technology and shall include self-contained diagnostic indicators. _____

11.102 **Auto-Throttle**

The multiplex system shall be able to perform automatic high idle via a network gateway or by using an existing output on a module to provide the proper signals to an OEM Engine ECU. This task should be handled with existing inputs and outputs. _____

11.103 **Displays**

Displays shall be able to provide real time information regarding load shedding and system status, such as network traffic/errors or shorts and open circuits. _____

11.104 **System Network**

The multiplex system shall contain a Peer-to-Peer network. _____

11.105 **System Reliability**

The multiplex system shall be able to perform in extreme temperature conditions, from 40° to +85° C (-40° to +185° F.) The system shall be sealed against the environment, moisture, humidity, salt or fluids such as diesel fuel, motor oil or brake fluid. The enclosures shall be rugged to withstand being mounted in various locations or compartments around the vehicle. The modules shall be protected from over voltage and reverse polarity. _____

11.106 **Weldon Certification**

A letter shall be provided with bid submittal that the Contractor has successfully completed the Weldon training requirements for Level 1 of the V-MUX Certified Supplier Program and is authorized to design, build, and service V-MUX electrical systems.

11.107 **Multiplex System Vista Colour Display**

One (1) Weldon V-MUX Vista IV shall be provided. The Vista IV shall have seven switches with custom legends and a wide temperature operating range. The four wires shall control all lighting and HVAC. The Vista IV shall have color changes for button status. The display shall be pre-programmable (OEM Level) and be colored. The auto climate control shall display temperature set point and outside temperatures. The Vista IV shall be ready for back-up camera, thermal cameras and DVDs. Virtual switches, GPS, on-board diagnostics, 6" and 9" Pana Vise options and large font size shall also be included. The V-Mux display shall be located in the cab center console for control of all master and emergency lights.

11.108 **Cab Console**

A center cab console shall be provided between the Driver's and Officer's seats. Console shall be as large as possible and fabricated of 1/8" smooth aluminum with a textured powder coat paint finish.

The rear portion of the console shall be provided with open top storage for notebooks or maps. Two (2) adjustable dividers shall be provided in the storage area. The forward portion of console shall be slanted for easy viewing of the V-Mux display screen, and any siren or radio equipment. The area shall be within easy access to both Driver and Officer.

The final design of console shall be determined by the Winnipeg Fire Paramedic Service at the **pre-production meeting**.

11.109 **Battery System**

The battery connectors shall be heavy duty type with cables terminating in heat shrink loom. Heavy duty battery cables shall provide maximum power to the electrical system. Where required, the cables shall be shielded from exhaust tubing and the muffler. Large rubber grommets shall be provided where cables enter the battery compartment.

11.110 **Battery Switch**

One (1) battery "On/Off" switch in cab located within easy reach of Driver with green "BATTERY ON" pilot light that is visible from the driver's position shall be provided.

11.111 **Battery Solenoid**

Battery switch shall consist of a 200 ampere, constant duty solenoid to feed from positive side of battery.

11.112 **Battery Charger**

Kussmaul Auto Charge 1200 Pump Plus, Part #091-193-12 required, this system includes a smart battery charger and air compressor capable of keeping the chassis air brake system topped up.

11.113 **Shore Power Inlet**

One (1) Kussmaul 120 VAC, 30 amp Super Auto-Eject shore power inlet(s) shall be provided. The shore power connection shall automatically disengage from vehicle when chassis ignition is engaged.

The protective ground from the shoreline inlet shall be bonded to the vehicle frame.

- The outlet cover shall be red.
- The shore power inlet shall be located on the street side front of body, outboard of the cab.

11.114 Engine Compartment Light

There shall be one (1) light(s) mounted in the engine compartment with integral switch with a light output of at least 20 candlepower (250 lumens). The engine compartment light(s) shall operate only when the master battery switch is turned "On".

11.115 Map Light

There shall be one (1) 24" goose neck 12 volt map light(s) provided and installed on the officer side dash area.

11.116 Cab Hazard Warning Light

A red flashing or rotating light, located in the driving compartment, illuminated automatically whenever the vehicle's parking brake is not fully engaged and any of the following conditions exist:

- Any passenger or equipment compartment door is not closed.
- Any ladder or equipment rack is not in the stowed position.
- Stabilizer system is not in its stowed position.
- Powered light tower is not stowed.
- Any other device permanently attached to the apparatus is open, extended, or deployed in a manner that is likely to cause damage to the apparatus if the apparatus is moved.

Compartments and equipment meeting all of the following conditions shall be permitted to be exempt from being wired to the hazard light:

- The volume is less than or equal to 4 ft³ (0.1 m³).
- The compartment has an opening less than or equal to 144 in.² (92,900 mm²).
- The open door does not extend sideways beyond the mirrors or up above the top of the fire apparatus.
- All equipment in the compartment is restrained so that nothing can fall out if the door is open while the apparatus is moving.
- Manually raised pole lights with an extension of less than 5 ft (1.5 m).

The hazard light shall be labeled "DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

An audible alarm shall be provided for the door ajar light.

11.117 Backup Alarm

Install one (1) 97 dB(A) electronic back-up alarm. Back-up alarm to actuate automatically when the transmission gear selector is placed in reverse.

11.118 Interior LED Lights

Thirteen (13) OnScene Solution model #70154, 10" x 10" x 7/8", 10-30 VDC, surface white LED light(s) with clear lens shall be provided throughout the vehicle. Each light shall be individually switched with a high/low intensity setting switchable at the entry door(s). In addition light(s) will be capable of a five (5) second delay after switching off.

11.119 Tail Lights

Rear body tail lights shall be vertically mounted and located per Federal Motor Vehicle Safety Standards, FMVSS and Canadian Motor Vehicle Safety Standards CMVSS. The following lights shall be furnished; _____

- Two (2) Whelen M9 Series M9T amber LED turn signal lights
- Two (2) Whelen M9 Series M9BTTX red LED stop/tail lights
- Two (2) Whelen M9 Series M(BUW LED halogen back-up lights with clear lens

Each of the lights above shall be mounted in a M9FC, chrome finish bezel. _____

11.120 Mid Ship Marker/Turn Signal

Two (2) Whelen model T0A00MAR 2" round amber LED midship body clearance marker/turn signal lights shall be provided and installed, one (1) light on each side of the body, in forward wheel well of rear axle. Midship marker/turn lights shall be wired to the headlight circuit of the chassis. _____

11.121 Marker Lights

The body shall be equipped with all necessary clearance lights and reflectors in accordance with Federal Motor Vehicle Safety Standards (FMVSS) and Canadian Motor Vehicle Safety Standards (CMVSS) regulations. All body clearance lights shall be Truck-Lite Model 18 LED. Clearance lights shall be wired to the headlight circuit of the chassis. _____

11.122 Rear Bumper Marker Lights

Two (2) Britax style dual face flexible mounted rear bumper markers shall be located, one (1) each side lower rear corner of body visible from driver mirrors. _____

11.123 Cab Step Lights/Ground Lights

There shall be two (2) OnScene 9" Night Axe LED light(s) installed on the vehicle capable of providing illumination at a approx. level of 2 fc (20 lx) on ground areas within 30 in. (800 mm) of the edge of the vehicle in areas designed for personnel to climb onto or descend from the vehicle to the ground level. _____

Lighting designed to provide illumination on areas under the driver and crew riding area exits shall be switchable but activated automatically when the exit doors are opened. _____

11.124 License Plate Light

One (1) Arrow #437 chrome plated LED license plate light shall be installed on the rear of the body. License plate light shall be wired to the headlight circuit of chassis. A fastener system shall be provided for license plate installation. _____

11.125 Electronic Siren

One (1) Whelen model 295HFSC9 electronic siren control 200 watt with selectable mono or dual function, with removable microphone shall be provided and installed in cab within easy reach of Driver. Siren power shall be wired through the master warning light switch. _____

11.126 Siren Speaker

Two (2) Cast Products Inc. model SA4311, 100 watt siren speaker shall be provided, recessed in the front bumper. The siren speaker shall be located on the streetside of front bumper. _____

11.127 Side Scene Lights

There shall be four (4) Whelen M9 series flush mounted scene lights (M9LZC) provided on the upper body. Light quantity shall be divided equally per side. The light shall be an 8-32 degree gradient lens and chrome flange. Output approx. 6,500 lumens. _____

Two (2) switches shall be provided, one (1) for the streetside scene lights, and one (1) for the curbside scene lights. _____

The lights shall be switched at the Vista display in the cab. _____

11.128 Rear Scene Lights

Two (2) Whelen Super M9 series flush mounted scene lights (M9LZC) shall be provided on the upper rear body to light the work area immediately behind the vehicle to a level of at least 3 fc (30 lx) within a 10 ft x 10 ft (3 m x 3 m) square. The light shall be an 8-32 degree gradient lens and chrome flange. Output approx. 6,500 lumens. _____

The lights shall be switched at the Vista display in the cab. _____

The rear scene lights shall also be activated when the apparatus is in reverse. _____

11.129 Warning Lights

Each apparatus shall have a system of optical warning devices that meets or exceeds the requirements of this section. _____

11.130 Upper Level Warning Lights

The upper-level warning lights shall be mounted as high and as close to the corner points of the apparatus as is practical to define the clearance lines of the apparatus. The upper-level optical warning devices shall not be mounted above the maximum height, specified by the device manufacturer. _____

FRONT WARNING LIGHTS

One (1) Whelen freedom F4N0VLED 60" lightbar permanently mounted to the cab roof. _____

The lightbar configuration (streetside to curbside) shall be:

<u>SECTION</u>	<u>INTERNAL COMPONENTS</u>	<u>LENS COLOR</u>
1	Red Rear Corner Linear LED	Clear
2	Streetside Alley Scene LED	Clear
3	Red Front Corner Linear LED	Clear
4	Red Linear LED	Clear
5	White Linear LED	Clear
6	Red Linear LED	Clear
7	White Linear LED	Clear
8	PFH1B Pioneer	Clear
9	PFH1B Pioneer	Clear
10	White Linear LED	Clear
11	Red Linear LED	Clear
12	White Linear LED	Clear
13	Red Linear LED	Clear
14	Red Front Corner Linear LED	Clear
15	Curbside Alley Scene LED	Clear

16 Red Rear Corner Linear LED

All clear lights shall shut down when the parking brake is set to comply with "Blocking" mode requirements as outlined in NFPA 1901. _____

The lightbar shall be separately switched at the vista display in the cab. _____

UPPER REAR CORNER WARNING LIGHTS

Two (2) Whelen Whelen M9 Series Red LED lights (M9R) provided, one (1) each side. Each light shall have a red lens and chrome flange. The lights shall be switched at the Vista display in the cab. _____

UPPER FORWARD CORNER WARNING LIGHTS

Two (2) Whelen M9 Series Red LED lights (M9R) provided, one (1) each side. Each light shall have a red lens and chrome flange. The lights shall be switched at the Vista display in the cab. _____

REAR WARNING LIGHTS

Two (2) Whelen M9 Series Red LED lights (M9R) provided, one (1) each side. Each light shall have a red lens and chrome flange. The lights shall be switched at the Vista display in the cab. _____

11.131 **Lower Level Warning Lights**

To define the clearance lines of the apparatus, the optical center of the lower-level warning lights in the front of the vehicle shall be mounted on or forward of the front axle centerline and as close to the front corner points of the apparatus as is practical. _____

The optical center of the lower-level optical warning devices at the rear of the vehicle shall be mounted on or behind the rear axle centerline and as close to the rear corners of the apparatus as is practical. The optical center of any lower-level device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground for large apparatus, and 18 in. and 48 in. (460 mm and 1220 mm) above level ground for small apparatus. _____

A midship optical warning device shall be mounted right and the left sides of the apparatus if the distance between the front and rear lower-level optical devices exceeds 25 ft (7.6 m) at the optical center. Additional midship optical warning devices shall be required, where necessary, to maintain a horizontal distance between the centers of adjacent lower-level optical warning devices of 25 ft (7.6 m) or less. The optical center of any midship mounted optical warning device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground. _____

FRONT WARNING LIGHTS

Two (2) Whelen M6 Series Red LED lights (M6R) provided, one (1) each side. Each light shall have a red lens and chrome flange. The lights shall be switched at the Vista display in the cab. _____

CAB INTERSECTOR LIGHT (CAB FRONT CORNERS)

Two (2) Whelen M6 Series Red LED lights (M6R) provided, one (1) each side. Each light shall have a red lens and chrome flange. The lights shall be switched at the Vista display in the cab. _____

BODY INTERSECTOR LIGHT (BODY WHEELWELL AREA)

Two (2) Whelen M6 Series Red LED lights (M6R) provided, one (1) each side. Each light shall have a red lens and chrome flange. The lights shall be switched at the Vista display in the cab. _____

BODY INTERSECTOR LIGHT (BODY REAR CORNERS)

Two (2) Whelen M6 Series Red LED lights (M6R) provided, one (1) each side. Each light shall have a red lens and chrome flange. The lights shall be switched at the Vista display in the cab.

REAR WARNING LIGHTS (LOWER REAR CORNERS)

Two (2) Whelen M6 Series Red LED lights (M6R) provided, one (1) each side. Each light shall have a red lens and chrome flange. The lights shall be switched at the Vista display in the cab.

LINE VOLTAGE ELECTRICAL SYSTEM

11.132 Auxiliary Power Unit (APU)

The vehicle shall be equipped with an APU system with a capacity of 20,000 watts (20kw) at 120/240 VAC, 166/83 amps, single phase. Current frequency shall be stable at 60 hertz. The engine shall be allowed to idle for ten (10) minutes and then the chassis engine will shut off and the APU shall start and allow for full heating and cooling of the cab and rear body walk in area command center and simultaneous use of all the electronic components on the apparatus when main chassis engine not in use. The APU shall have an uninterrupted power supply (UPS) and shall provide power to all 12v and 120v power accessories. The APU will be a three or four cylinder diesel engine. It will allow for easy servicing. The APU will run off the onboard diesel fuel tank

11.133 Load Center

The load center shall be a Cutler Hammer, BR Series, specifically designed for protection and distribution of 120/240 volt AC, such as lighting and small motor branch circuits. The load center enclosure shall be made of 16 gauge galvanized sheet steel. The galvanized coating provides corrosion protection and as such does not require paint. All trims used on the BR Load center shall be chromate sealed and finished with electro disposition epoxy paint (ASA61) which exceeds requirements for outdoor and indoor applications. A combination surface/flush cover with integral door shall be supplied. The load center shall be UL/CSA listed.

11.134 APU Monitoring Panel

APU voltage and monitoring shall be done through the Vmux vista VI Display.

11.135 Shore Power Inlet-Specified Circuits

A transfer switch shall be required to isolate one power source from the other where a circuit(s) is intended to be supplied from more than one power source. To protect both the generator and external power source from back feed, two (2) 120 volt, 30 ampere, 4PST auxiliary contact with safety interlock relay shall be installed. Relay shall cut-off the connection between the generator supply circuit and device circuits when shore power is connected.

Transfer equipment, including transfer switches, shall operate such that all ungrounded conductors of one power source are disconnected before any ungrounded conductors of the second power source are connected. The neutral conductor shall be switched through the transfer switch. The apparatus shall have a label permanently affixed at the power inlet that indicates the line voltage, and amperage.

11.136 Shore Power Inlet

One (1) Kussmaul 120 VAC, 30 amp Super Auto-Eject shore power inlet(s) shall be provided. The shore power connection shall automatically disengage from vehicle when chassis ignition is engaged.

The protective ground from the shoreline inlet shall be bonded to the vehicle frame.

- The outlet cover shall be yellow. _____
- The shore power inlet shall be located on the streetside front of body, outboard of the cab. _____

Shore power inlet shall be wired to the following specified 120 VAC circuits; _____

Shore power shall be wired to all primary 120 VAC, 20 ampere electrical outlets on apparatus (maximum of two (2) circuits). Circuits shall be provided with circuit breaker protection with either generator or shore power providing power. _____

11.137 Outlets and Circuits

The APU and or shore power shall supply the 120/240 volt electrical equipment and outlets outlined below. Proper circuit protection shall be installed as noted: _____

- Two (2) 120 volt exterior outlets shall be provided on center roof area. The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R). _____
- Two (2) 120 volt exterior outlets, one (1) each side near rear wheel well area. The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R). _____
- Two (2) 120 volt exterior outlets, one (1) each side rear of body. The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R). _____

General Requirements: Line Voltage Electrical System

11.138 Stability

Any fixed line voltage power source producing alternating current (ac) shall produce electric power at 60 Hz, ± 3 Hz when producing power at all levels between no load and full rated power. Any fixed line voltage power source shall produce electric power at the rated voltage ± 10 percent when producing power at all levels between no load and full rated power. The maximum voltage supplied to portable equipment shall not exceed 275 volts to ground. Higher voltage shall be permitted only when used to operate fixed wired, permanently mounted equipment on the apparatus. _____

11.139 Conformance with National Electrical Code

All components, equipment, and installation procedures shall conform to *NFPA 70, National Electrical Code*, except where superseded by the requirements of this chapter. Where the requirements of this chapter differ from those in *NFPA 70*, the requirements in this chapter shall apply. _____

Where available, line voltage electrical system equipment and materials included on the apparatus shall be listed and used only in the manner for which they have been listed. All equipment and materials shall be installed in accordance with the manufacturer's instructions. _____

11.140 Location Ratings

Any equipment used in a dry location shall be listed for dry locations. Any equipment used in a wet location shall be listed for wet locations. _____

Any equipment, used in an underbody or under chassis location that is subject to road spray shall be either listed as Type 4 or mounted in an enclosure that is listed as Type 4. _____

11.141 Grounding

Grounding shall be in accordance with 250.34(A) and 250.34(B) of *NFPA 70*. Ungrounded systems shall not be used. _____

The neutral conductor shall be colored white or gray in accordance with 200.6, "Means of Identifying Grounded Conductors," of *NFPA 70*. _____

11.142 Bonding

The neutral conductor of the power source shall be bonded to the vehicle frame. The neutral bonding connection shall occur only at the power source. In addition to the bonding required for the low voltage return current, each body and each driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. _____

The conductor shall have an amperage rating, as defined in 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of *NFPA 70*, of 115 percent of the rated amperage on the power source specification label. _____

11.143 Power Source General Requirements

All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source. The power source shall be shielded from contamination that would prevent the power source from operating within its design specifications. _____

11.144 Power Source Rating

For power sources of 8 kW or larger, the power source manufacturer shall declare the continuous duty rating that the power source can provide when installed on fire apparatus according to the manufacturer's instructions and run at 120°F (49°C) air intake temperature at 2000 ft (600 m) above sea level. The rating on the power source specification label shall not exceed the declared rating from the power source manufacturer. _____

11.145 Instrumentation

If the power source is rated at less than 3 kW, a "Power On" indicator shall be provided. If the power source is rated at 3 kW or more but less than 8 kW, a voltmeter shall be provided. _____

If the power source is rated at 8 kW or more, the following instrumentation shall be provided at an operator's panel: _____

- 1) Voltmeter
- 2) Current meters for each ungrounded leg
- 3) Frequency (Hz) meter
- 4) Power source hour meter

11.146 Power Supply Assembly

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 12 ft (4 m) in length. _____

All power supply assembly conductors, including neutral and grounding conductors, shall have an equivalent amperage rating and shall be sized to carry not less than 115 percent of the amperage of the nameplate current rating of the power source. _____

If the power supply assembly connects to the vibrating part of a generator (not a connection on the base), the conductors shall be flexible cord or other fine-stranded conductors enclosed in metallic or nonmetallic liquid tight flexible conduit rated for wet locations and temperatures not less than 194°F (90°C). _____

11.147 Overcurrent Protection

Manually resettable over current devices shall be installed to protect the line voltage electrical system components. _____

11.148 Power Source Protection

A main over current protection device shall be provided that is either incorporated in the power source or connected to the power source by a power supply assembly. _____

The size of the main over current protection device shall not exceed 100 percent of the rated amperage stated on the power source specification label or the rating of the next larger available size over current protection device, where so recommended by the power source manufacturer. _____

If the main over current protection device is subject to road spray, the unit shall be housed in a Type 4-rated enclosure. _____

11.149 Branch Circuit Overcurrent Protection

Over current protection devices shall be provided for each individual circuit and shall be sized at not less than 15 amps in accordance with 240.4, "Protection of Conductors," of *NFPA 70*. _____

11.150 Panelboards

All fixed power sources shall be hardwired to a permanently mounted panel board unless one of the following conditions exists: _____

- 1) All line voltage power connections are made through receptacles on the power source and the receptacles are protected by integrated over current devices. _____
- 2) Only one circuit is hardwired to the power source, which is protected by an integrated over current device. _____

The panel shall be visible and located so that there is unimpeded access to the panel board controls. All panel boards shall be designed for use in their intended location. The panel(s) shall be protected from mechanical damage, tool mounting, and equipment storage. _____

11.151 Wiring Methods

Fixed wiring systems shall be limited to the following: _____

- 1) Metallic or nonmetallic liquid tight flexible conduit rated at temperatures not less than 194°F (90°C) with stranded copper wire rated for wet locations and temperatures not less than 194°F (90°C)
- 2) Type SOW, SOOW, SEOW, or SEOOW flexible cord rated at 600 V and at temperatures not less than 194°F (90°C)

Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring and shall be arranged as follows: _____

- 1) Separated by a distance of 12 in. (300 mm) from exhaust piping or shielded from such piping
- 2) Separated from fuel lines by an approx. distance of 6 in. (150 mm)

11.152 Additional Requirements for Flexible Cord Installations

Where flexible cord is used in any location where it could be damaged, it shall be protected by installation in conduit, enclosures, or guards. Where flexible cord penetrates a metal surface, rubber or plastic grommets or bushings shall be installed. _____

11.153 Wiring Identification

Each line voltage circuit originating from the main panel board shall be identified. The wire or circuit identification either shall reference a wiring diagram or wire list or shall indicate the final termination point of the circuit. Where prewiring for future power sources or devices exists, the un-terminated ends shall be marked with a label showing their wire size and intended function.

11.154 Wiring System Components

Only stranded copper conductors with an insulation rated for temperatures of at least 194°F (90°C) and wet locations shall be used. Conductors in flexible cord shall be sized in accordance with Table 400.5(A) of *NFPA 70*. Conductors used in conduit shall be sized in accordance with 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of *NFPA 70*. Aluminum or copper-clad aluminum conductors shall not be used.

All boxes shall conform to and be mounted in accordance with Article 314, "Outlet, Device, Pull, and Junction Boxes; Conduit Bodies; Fittings; and Manholes," of *NFPA 70*. All boxes shall be accessible using ordinary hand tools. Boxes shall not be permitted behind welded or pop-riveted panels.

The maximum number of conductors permitted in any box shall be in accordance with 314.16, "Number of Conductors in Outlet, Device, and Junction Boxes, and Conduit Bodies," of *NFPA 70*.

All wiring connections and terminations shall provide a positive mechanical and electrical connection. Connectors shall be installed in accordance with the manufacturer's instructions. Wire nuts or insulation displacement and insulation piercing connectors shall not be used.

Each switch shall indicate the position of its contact points (i.e., open or closed) and shall be rated for the continuous operation of the load being controlled. All switches shall be marked with a label indicating the function of the switch. Circuit breakers used as switches shall be "switch rated" (SWD) or better. Switches shall simultaneously open all associated line voltage conductors. Switching of the neutral conductor alone shall not be permitted.

Line voltage circuits controlled by low voltage circuits shall be wired through properly rated relays in listed enclosures that control all non-grounded current-carrying conductors.

Receptacles and Inlet Devices

11.155 Wet and Dry Locations

All wet location receptacle outlets and inlet devices, including those on hardwired, remote power distribution boxes, shall be of the grounding type, provided with a wet location cover, and installed in accordance with Section 406.8, "Receptacles in Damp or Wet Locations," of *NFPA 70*.

11.156 Receptacle Label

Each receptacle shall be marked with a label indicating the nominal line voltage (120 volts or 240 volts) and the current rating in amps of the circuit. If the receptacle is DC or other than single phase, that information shall also be marked on the label.

All receptacles and electrical inlet devices shall be listed to UL 498, *Standard for Safety Attachment Plugs and Receptacles*, or other recognized performance

standards.

Receptacles used for DC voltages shall be rated for DC service. _____

11.157 Wiring Schematics

An "As-Built" Wiring diagrams for line voltage systems shall be provided to include the following information; _____

- (a) Pictorial representations of circuit logic for all electrical components and wiring
- (b) Circuit identification
- (c) Connector pin identification
- (d) Zone location of electrical components
- (e) Safety interlocks
- (f) Alternator–battery power distribution circuits
- (g) Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems

120/240 VAC Scene Lighting

11.158 Light Tower

One (1) Command Light, CL Series light tower(s) with six Whelen Pioneer LED light heads shall be provided and installed on the completed unit. A flashing warning light shall be provided in cab, indicating when a light tower is not in nested position as required by NFPA 1901. _____

The light tower shall extend 131" above the mounting surface and shall extend to full upright position in less than 15 seconds. The overall size of nested light tower shall be approximately 42" wide x 74" long x 12" high and weigh approximately 300 pounds. 90,000 lumens output. _____

11.159 Information Technology (IT) Systems

All information technology systems specified below shall be supplied, installed, and supported by the contractor including, but not limited to the design, inter-connecting wiring, and integration of all specified systems. _____

11.160 Data Router Cellular

Sierra Wireless AirLink MG90 (Band 16 capable) _____

11.161 Exterior Video System

One (1) Voyager VCMS series (or equal) fixed antenna mounted camera shall be provided and located to monitor a 360 degree perimeter of the vehicle. _____

If a video recording system is specified, the camera(s) shall be wired into recording system. _____

11.162 Broadcast TV Antenna

One (1) Winegard Sensar III, RV-3095 broadcast TV antenna w/ amplified multi-switch shall be provided on roof of completed unit. _____

11.163 LCD Video Displays

Two (2) Samsung 22", Series 5 (or equal) LED commercial grade, multiple input, flat panel multi-function display(s) shall be provided and installed one (1) in front body area, and one (1) in area over rear wheels, location to be determined at pre-construction meeting. Display(s) shall be complete and fully operational, including all miscellaneous coax cable, 120 volt AC wiring, and cable connections. _____

Specified monitor shall be mounted using a Ram Mount mounting system which consists of a heavy duty universal assembly that will attach a flat surface to _____

another flat surface. Includes a universal base piece to mount heavy devices to a flat surface and a 4.75" x 4.75" face plate recommended for mounting heavy devices such as monitors and flat screen electronics. Features a hole pattern for 100mm and 75mm VESA standards.

11.164 **DVR Audio/Video Recorder**

There shall be one (1) Gatekeeper mobile high definition digital video recorder and 2 TB storage provided and installed on completed vehicle. P#G4-508HD4a 1080P

11.165 **Multiple control methods**

- Bosch's IntuiKey keyboard
- Bosch 600 series front panel control buttons
- PC based Divar MR Control Center software
- The Bosch 600 series Control Center

11.166 **Entrylink System Prewire**

A Con-Space EntryLink system pre-wire shall be required on completed unit. Pre-wire shall include all cabling from desk area where system will be used to exterior of vehicle where antenna will plug into vehicle.

11.167 **Weather System**

A Columbia Orion™ weather system shall be supplied and installed on completed unit. With **WeatherMaster™** professional monitoring and database software which automatically interfaces with **CAMEO/ALOHA** software for HazMat applications such as plume modeling.

Includes:

- Sensor Module Orion Transmitter housed in a Self-Aspirating Radiation Shield with:
 - Temperature Sensor
 - Relative Humidity Sensor
 - Digital Barometer
 - Ultrasonic Wind Direction/Speed Sensor
 - Impact Rain Sensor
- Interface Module with Dual Communication Ports
- Data Manager Software
- Comprehensive User Manual
- Telescoping Sensor Mast (8-foot) and Truck Mount Brackets
- RS-232 Computer Cable, 6 feet

Unit shall be complete and fully operational; including all required cabling, 120 volt AC wiring, and cable connections. All paperwork and software provided with purchased unit shall be provided in a plastic sleeve attached to unit when delivered.

11.168 **Command Camera System**

There shall be one (1) Bosch MIC-550-ALB36N with Pan-Tilt-Zoom (PTZ), NTSC with integrated wiper and heater provided and installed on the specified mast. The unit shall require a MIC-115PSU-2 MIC 120 VAC, 50/60HZ, power supply. The camera has an industry-leading 36X optical zoom lens, and offers a full 12X digital zoom, with 550 TVL of horizontal resolution for outstanding clarity and image detail.

11.169 **Telescoping Pneumatic Mast**

The vehicle shall be equipped with one (1) Will-Burt 7-42 heavy duty pneumatic powered telescoping mast(s). The mast shall utilize air from the chassis brake system. Air to operate the telescoping mast must be drawn from a drier system

and be regulated to 20 psig and shall have a back pressure protection valve.

Mast shall be wired to a red flashing warning light in cab visible to the driver to warn when the mast is out of the nested position.

A pneumatic kit to raise and lower the mast shall include air control valve, 0-160 psig air valve, regulator, 0-30 psig air gauge.

A 70' Nycoil conduit measuring 1" ID x 16-1/2" OD coil shall be provided for the 7-42 telescopic mast.

One (1) maintenance and instruction manual shall be provided for the towers on delivery. Wiring schematic, air piping schematic and installation diagrams shall be provided with the manual. Manufacturer's blueprint of tower, complete parts list and bill of materials for towers provided with manuals.

The operational envelope of the mast shall be automatically illuminated by a lookup light whenever the mast assembly is being raised as required by NFPA.

11.170 External Mast Mount

The above telescoping mast shall be mounted using an external mounting kit attached to the rear body panel. The mast shall be enclosed with a removable 3/16" smooth aluminum enclosure located on the rear of the body extending from bumper level upward to enclose mast. 2" x 2" x 1/4" angles shall be welded to rear body panel for attachment of enclosure to body. The mast enclosure shall be provided to protect the control cables, air hoses, and the mast from the elements. The specified camera system shall extend above the enclosure, but still be lower than body height.

Controls for the mast shall be recessed into mast enclosure in a Cast Products aluminum box with hinged door. A removable panel shall be provided on side for access to lower section of mast for maintenance purposes.

A stainless steel scuff plate shall be provided on upper section of rear body panel to prevent scuffing of Nycoil cable on body surface.

11.171 Mast Cover

The mast enclosure shall be approximately 18" x 18" x full body height. Enclosure shall be fabricated from 1/8" 3003 H14 alloy aluminum and painted same as body color(s).

11.172 Camera Enclosure Door

The top of the mast enclosure shall have an electrically actuated door. The door will automatically rise with the mast raise controls.

11.173 Communications Radio

The Apparatus shall be equipped with a Harris Radio and Status head. Specific make and models to be provided by WFPS at the **preproduction meeting**.

11.174 Phone and Network Cabling Standards

If a telephone or fax machine is specified it will be connected to the central phone system from the RJ-11 wall jacks and wired through to the data rack or technical cabinet using yellow Category 6, 4 pair twisted copper cabling with yellow boot ends.

If a computer network is specified it will be connected to the network switch location, if specified from the RJ-45 wall jacks wired through to the data rack or technical cabinet using blue Category 6, 4 pair twisted copper cabling with blue boot ends. The pin pair assignments will be based on the T568B standard configuration. The termination ends in shall be RJ-45 male ends and connected

to the network switch.

Only Category 6, 4 pair twisted copper cable shall be used for all computer cabling. All wiring shall be installed to Institute of Electrical and Electronics Engineers (IEEE) 802 standards.

All Category 6 cable must be properly installed and terminated to meet specifications. The cable bend radius should be no less than 4 times the outer diameter of the cable.. When used for 10/100/1000 BASE-T, the maximum allowed length of a Category 6 cable is 100 meters (330 ft). All cabling shall be properly labeled at both termination ends for proper identification in future.

11.175 Wiring Channels

4" x 4" wiring channels shall be provided directly below the desk tops along the outside walls for computer, radio, and communications wiring. The top of desk tops shall have 3" diameter openings that drop directly into wiring channel. The wiring channels shall have openings for future wiring installation and access. The wiring channels shall run as direct as possible to the data rack or technical cabinet location with several cross overs provided in roof structure for running wiring across body.

11.176 Equipment Payload Weight Allowance

In compliance with NFPA 1901 standards, the special service vehicle shall be designed for an equipment loading allowance of 6,000 lbs. of Winnipeg Fire Paramedic Service provided equipment based on a 40,001 - 50,000 pound gross vehicle weight rating.

11.177 Equipment

The following equipment shall be furnished with the completed special service vehicle;

- One (1) container of assorted stainless steel nuts, bolts, screws and washers used in the construction of the apparatus shall be provided with the completed apparatus.
- There shall be two (2) Zico AC-44 NFPA approved aluminum wheel chocks provided for 44" diameter tires that together will hold the vehicle when loaded to its GVWR or GCWR, on a hard surface with a 20 % grade, with the transmission in neutral, and the parking brake released. The wheel chock(s) shall be mounted behind rear wheels, below body on streetside.
- Two (2) Streamlight FireBox halogen flashlight(s) shall be provided. Each flashlight shall be orange in color and have a 12 volt DC charger and vehicle mount kit. Each flashlight shall have a 8 watt halogen spotlight style bulb and reflector with 2 ultra-bright LED taillights. The flashlight(s) shall be wired to battery direct unless otherwise specified by Winnipeg Fire Paramedic Service. The flashlight(s) shall be mounted on the completed unit in the lower area of compartment S1.

11.178 AreaRAE

AreaRAE Pro System – Including Optional Gamma Sensor and meteorological sensor and ProRae Guardian for detector integration.

BODY PAINT AND DECALING

11.179 Body Paint Preparations

After the body and components have been fabricated they shall be disassembled

prior to painting so when the vehicle is complete there shall be finish paint beneath the removable components. The body shall be totally removed from chassis during the paint process to insure the entire unit is covered. The body and components shall be metal finished as follows to provide a superior substrate for painting.

The exterior body shall undergo a thorough cleaning process starting with a biodegradable phosphoric acid solution to begin the etching process followed by a complete clear water rinse. The next step shall consist of a chemical conversion coating applied to seal the metal substrate and become part of the metal surface for greater film adhesion. If the compartment interior is to be painted the interior shall be acid etched as described above then primed with an epoxy primer and all seams caulked.

All bright metal fittings, if unavailable in stainless steel or polished aluminum, shall be chrome plated. Iron fittings shall be copper under plated prior to chrome plating.

11.180 **Body Paint Specifications**

Painted two tone, with bottom half Red (SIKKENS Brand Code 911662 and top half Black (SIKKENS Brand Code 910788) using a polyurethane enamel paint. Must match WFD brand image.

11.181 **Chassis Frame, Axles, & Undercarriage**

Painted using smooth black corrosion resistant paint. Paint Application - All paint shall be applied in accordance with the paint manufacturer's recommendations. All surfaces shall be properly cleaned, prepared and primed with a suitable primer prior to painting. Painting shall have been performed in an atmosphere controlled spray booth. The cab and body shall have been painted with all trim and hardware removed. All mounting holes shall have been drilled and deburred and nutserts shall be installed in blind holes prior to painting. Any caulking of body seams shall be performed prior to painting. Caulking material shall be of the highest industry standards.

11.182 **Fasteners**

Prior to the assembly and reinstallation of exterior components; i.e. warning and DOT lights, handrails, steps, door hardware, and miscellaneous items, an isolation tape, or gasket shall be used to prevent damage to the finish painted surfaces. These components shall be fastened to body using either a plastic insert into body metal with stainless steel screws or zinc coated nutserts into body surface using stainless steel bolts to prevent corrosion from dissimilar metals.

11.183 **Electrolysis Corrosion Control**

The apparatus shall be assembled using ECK or similar corrosion control on all high corrosion potential areas.

ECK protects aluminum and stainless steel against electrolytic reaction, isolates dissimilar metals and gives bedding protection for hardware and fasteners. ECK contains anti-seizing lubricant for threads. ECK is dielectric and perfect for use with electrical connectors.

11.184 **Compartment Interior Finish**

The compartment interiors shall be treated with phosphoric acid and then sprayed with an epoxy primer applied 1.0 mil thick. All body seams will be caulked with urethane seam sealer and painted with two (2) coats of Multicolor Specialties Inc. polyurethane waterborne multicolor finish. The Multicolor paint shall be solvent and oil resistant, impact and abrasion resistant, stain and household chemical resistant, as well as mildew and fungus resistant. Paint color shall be silver gray.

**11.185 Reflective Striping
Material**

All retroreflective materials shall conform to the requirements of ASTM D 4956, Standard Specification for Retroreflective Sheeting for Traffic Control, Section 6.1.1 for Type I Sheeting.

All retroreflective materials used that are colors not listed in ASTM D 4956, Section 6.1.1, shall have a coefficient of retroreflection of 10 with observation angle of 0.2 degrees and entrance angle of -4 degrees.

Any printed or processed retroreflective film construction used shall conform to the standards required of an integral colored film as specified in ASTM D 4956, Section 6.1.1.

Requirements

A retroreflective stripe(s) shall be affixed to at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of the apparatus.

The stripe or combination of stripes shall be at least of 4 in. (100 mm) in total width.

The 4 in. (100 mm) wide stripe or combination of stripes shall be permitted to be interrupted by objects (i.e., receptacles, cracks between slats in roll up doors) provided the full stripe is seen as conspicuous when approaching the apparatus.

11.186 Graphics Proof

A color graphics proof of the reflective striping layout shall be provided for approval by Winnipeg Fire Paramedic Service prior to installation. The graphics proof shall be submitted to Winnipeg Fire Paramedic Service on 8.5" x 11" sheets with front, sides, rear and plan views, each on one (1) sheet. In addition if there is any special art work an additional sheet shall be provided showing all details.

11.187 Reflective Stripe-Cab Front

The reflective stripe material: 4" wide, 3M Scotchcal 680 series.black in colour. There shall be a 1" Scotchcal reflective stripe located 1" above and a second 1" Scotchcal reflective stripe located 1" below the main stripe black in color.

11.188 Reflective Stripe-Cab Door Interior

Any door of the apparatus designed to allow persons to enter or exit the apparatus shall have at least 96 in.² (62,000 mm²) of retroreflective material affixed to the inside of the door. Stripe material 3M Scotchlite 680.reflective stripe shall be white in color.

11.189 Reflective Stripe-Body Sides

The reflective stripe material: 4" wide, 3M Scotchcal 680 series. This reflective stripe shall be black in color.

There shall be a 1" Scotchcal reflective stripe located 1" above and a second 1" Scotchcal reflective stripe located 1" below the main stripe.

This top and bottom reflective stripe shall be black in color, and space between main stripe and top and bottom stripe shall be red.

The stripe shall extend from the front of cab in a straight line, then just ahead of

the rear wheels the stripe shall angle up and extend straight back to the rear of the body.

11.190 Chevron Reflective Stripe-Rear Side Panels

At least 50 percent of the rear-facing vertical surfaces, visible from the rear of the apparatus, excluding any pump panel areas not covered by a door, shall be equipped with retroreflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees. Each stripe shall be 6" width.

The rear side panels of the body on each side of a rear stairway or compartment shall have a chevron style reflective stripe, extending from bumper height up to side compartment drip rail height. Each chevron panel shall be a full sheet and shall have a 3M UV over laminate to protect from UV rays, scene damage, and everyday use.

The stripe material: 3M Diamond Grade.

This reflective chevron stripe shall alternate red and fluorescent yellow-green in color.

11.191 Graphics Proof

A color graphics proof of the lettering layout shall be provided for approval by Winnipeg Fire Paramedic Service prior to installation. The graphics proof shall be submitted to Winnipeg Fire Paramedic Service on 8.5" x 11" sheets with front, sides, rear and plan views, each on one (1) sheet. In addition if there is any special art work an additional sheet shall be provided showing all details.

11.192 Upper Body Side Lettering

10" high reflective letters furnished and installed on the vehicle.

"WINNIPEG FIRE DEPARTMENT"

This reflective lettering shall be white in color.

11.193 Front of Cab Lettering

The bidder shall install two (2) Winnipeg Fire Paramedic Service supplied decal(s) on the vehicle.

11.194 Emergency Dial 9-1-1 Decal

Two (2) "EMERGENCY DIAL 9-1-1" decals shall be provided one (1) on each side of vehicle below main reflective stripe. Decals shall be red Scotchcal retroreflective type material.

11.195 Canada Flag

Two (2) 12" - 18" wide waving type Canada flag(s) printed on Scotchcal type retroreflective material shall be provided and located on the completed vehicle, location per Winnipeg Fire Paramedic Service.

11.196 TESTING & CERTIFICATION-

Testing- The completed vehicle shall be tested and labelled to (NFPA) National Fire Protection Association Standard latest revisions by an independent third party certification organization.

11.197 Third Party Organization-

The third party organization accredited for testing systems on fire vehicle in

	accordance with ISO/IEC 17020 or ISO/IEC Guide 65.	
11.198 Certification-	The certification organization shall not be owned or controlled by manufacturers or vendors of the vehicle being tested. Manufacturer's certification is not acceptable. (No exceptions)	_____
11.199 Labelling-	A warning label shall be provided in the cab within sight of the driver stating the seating capacity of the cab/crew cab.	_____
11.200 Safety Labelling	A warning label shall be provided in the cab within sight of the driver stating the seating capacity of the cab/crew cab.	_____
11.201 Dimension Plate-	A warning label shall be provided in the cab within sight of the driver stating the following vehicle dimensions: <ul style="list-style-type: none">• Height and length in standard and metric measurements.• Gross vehicle weight rating in pounds and kilograms.	_____
11.202 Voltage Testing	The wiring and permanently connected devices and equipment shall be subject to a dielectric voltage withstand test of 900 volts for one minute. The testing shall be performed after all body work has been completed. The electric polarity of all permanently wired equipment, cord reels, and receptacles shall be tested to verify that wiring connections have been properly made.	_____
11.203 Fluid Capacity and Type Label	A permanent label shall be provided and shall state the type and quantity of the following fluids used in the vehicle: <ul style="list-style-type: none">• Engine Oil• Engine Coolant• Chassis Transmission Fluid• Drive Axle Fluid• Pump Gear Case• Primer Lubricant (If Applicable)	_____
11.204 Vehicle Data Recorder	Meeting the requirements of NFPA 1901-2009, Vehicle Data Recorder is required. Recorded to Include the following Data: <ul style="list-style-type: none">• Vehicle Speed• Acceleration• Deceleration• Engine Speed• Engine Throttle Position• ABS Event• Seat Occupied Status	_____

- Seat Belt Status
- Master Optical Warning Switch
- Park Brake
- Service Brake
- Time
- Date
- Engine Hours

11.205	Inputs	Six (6) seat position inputs for occupied and belts buckled. Additional six (6) seat expansion module available. Easily interfaces with V-MUX™ or other multiplexing systems. Data is extracted by a standard, mini USB cable	_____
11.206	Occupant restraint indicator	Occupant Restraints designed to alert driver and officer, this module will indicate where restraints of occupied seats are properly fastened keeping personnel safe. The indicator shall be low profile compact size. Support commercial and custom cab seating layouts up to 12 seats. A dimming feature adjusts indicator intensity to synchronize with dash lights and have a built-in audible alarm.	_____
11.207	Visual Tire Pressure Monitoring	There shall be a visual ten (10) wheel tire pressure system supplied that monitors all of the tires on the vehicle. An LED valve cap shall be attached to the tires valve-stem that contains a Pressure Sensor to alert the operators of a developing tire problem	_____
11.208	Helmet Storage	Two (2) On scene solutions helmet holders shall be located in the front cab. Preferably on the back wall.	_____
		Two (2) On scene solutions helmet holders in the rear walk in body compartment, command center area.	_____
11.209	Transportation Road Safety Kit	Fire Extinguisher One (1) 2.5 lb. ABC vehicle type fire extinguisher with mounting bracket.	_____
		First Aid Kit- One (1) standard First Aid Kit shall be provided.	
		Warning Flares- One (1) set of three (3) dual faced triangular warning flares to meet the Department of Transportation's Motor Vehicle Safety Standards	

ELECTRICAL & LIGHTING:

11.210 Conformance All lighting to conform to: _____
• C.M.V.S.S.
• Manitoba Highway Traffic Act.
• City of Winnipeg Lighting Visibility Standard
<http://winnipeg.ca/matmgt/pdfs/PublicWorksEquipLightingVisibility.pdf>.

11.211 Lighting Supplier installed **high count** LED lighting and shall be Truck-Lite, Whelen **or equivalent** _____

DRAWINGS

11.212 Two (2) sets of three (3) view drawings showing complete unit including chassis, body, compartments, etc. Bidders shall include drawings, within 72 hours of the request of the Contract Administrator. _____

WARRANTY

12.1 The body warranty on the complete vehicle (excluding the chassis) shall include 100% replacement parts and labour at no cost to the City and shall cover the complete equipment and all parts thereof against defects of workmanship, construction and materials for one (1) year from the date the equipment is put into service by the City of Winnipeg. _____

12.2 All warranty information be detailed and include all exclusions. The successful bidder shall provide all published warranty information upon delivery of the equipment. Contractor shall State: all warranty information _____

BODY WARRANTY

12.3 Structural **State:** _____

12.4 Body Vehicle basic coverage **State:** _____

12.5 Body compartment latches, hinges and shelving **State:** _____

12.6 Components e.g. Pumps **State:** _____

12.7 Electrical **State:** _____

12.8 Body Lighting **State:** _____

12.9 Body Paint **State:** _____

CAB & CHASSIS WARRANTY

12.10 Basic Vehicle - Chassis **State:** _____

12.11 Electrical **State:** _____

12.12	LED Lighting	State:	_____
12.13	Batteries	State:	_____
12.14	Drivetrain	State:	_____
12.15	Cab Structure/Corrosion	State:	_____
12.16	Frame & Cross-Members	State:	_____
12.17	Cab Paint	State:	_____
12.18	Engine	State:	_____
12.19	Transmission	State:	_____
12.20	Axles - Front & Rear	State:	_____
12.21	Components	State:	_____
12.22	Warranty Administration Coordinator	The successful Contractor shall have a dedicated person allocated and available 24/7 to receive phone calls and determine, co-ordinate, schedule and have the ability to authorize all warranty related issues which arise during the warranty period.	_____
12.23	Third Party-	In the case where the Contractor proposes that warranty work be performed by a third party or by the City of Winnipeg Fire Paramedic Service, the Contractor shall include a written detailed estimate. Any work performed by the Fire Paramedic Service Mechanical Services Branch will be charged to the Contractor at the Branch's shop rate in effect at the time the work is performed.	_____
12.24	Importance-	The vehicle is of vital importance to the City in providing essential services and, accordingly, all warranty items brought to the attention of the Contractor by the City shall be rectified expediently. The City reserves the right to affect warranty repairs to the vehicle, at full cost to the Contractor, should the Contractor fail to perform in a timely manner.	_____
12.25	Warranty Literature	All warranty literature and Documentation or "fine print" documentation provided within three (3) Business Days of the request from the Contract Administrator. This warranty documentation will be entered into the City of Winnipeg Fire Department's Service Data Network to expedite and	_____

administrate warranty claims and repairs.

13.0 **DELIVERY**

13.1 Delivery Point: The complete unit shall be serviced, ready for operation and delivered F.O.B. with the freight prepaid, including invoice and N.I.V.S. (if applicable) to the WFMA 185 Tecumseh Street, Winnipeg MB. The Contractor shall be notified by the Contractor Administrator the delivery address prior to issuance of the purchase order _____

13.2 Delivery Time: Equipment shall be delivered between 8:00 am and 2:00 pm on Business Days. _____
State: Delivery Date

13.3 Delivery Contact: The Contractor shall contact the Contract Administrator prior to delivery of the equipment. _____

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

14.0 **MANUALS**

14.1 Manuals supplied under this Contract shall cover the complete equipment including all components thereof, CD or USB flash drive is preferred where available. _____

14.2 The following manuals shall be supplied with the units when delivered: _____
a) Operator's manual – Two (2) per unit (one operator manual shall be sent to the Winnipeg Fire Paramedic Service Training Academy 2546 McPhillips Street Winnipeg, Manitoba Office- (204).986.8398 Fax- (204).986.4266

b) Parts and service manuals – One (1) complete set including preventative maintenance schedules. CDs or USB flash drive are preferred. _____

15.0 **PARTS/LABOUR DISCOUNT**

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

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

16.0 **FIRST SERVICE PREVENTATIVE MAINTENANCE KIT**

16.1 In order to assure minimum downtime of the equipment in future service, the Contractor shall 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, cab and hydraulic, or otherwise all known necessary common replacement filters required for the first preventative maintenance _____

servicing.

- 16.2 The Contractor shall 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. _____