

Platte Canyon Fire Protection District
Bailey, CO
Water Supply- SVI #1297
Production Specification



Approved by: _____

Date: _____

LIABILITY INSURANCE

The manufacturer shall furnish with the bid a certificate of insurance for;

Workman's Compensation and Employer's Liability Insurance covering for all employees.

General Liability (each occurrence) of \$1,000,000.00. General Aggregate coverage of \$2,000,000.00. Products Completed / Operations Aggregate coverage of \$2,000,000.00. Medical Expense coverage of \$5,000 (any one person). Personal Injury of \$1,000,000.00.

Automobile liability of \$1,000,000.00 combined single limit (each accident), including any auto, all owned autos, scheduled autos, hired autos, non-owned autos, and garage liability.

Excess Umbrella Liability coverage of \$6,000,000.00 each occurrence, Aggregate of \$6,000,000.00. Garage Keepers Liability coverage of \$6,000,000.00 combined limit.

All insurance policies must be;

- Maintained for the life of the contract,
- Must provide ten (10) days notice before cancellation,
- Must cover all operations of the contractor, or anyone employed by them.

INTERNET IN-PROCESS SITE

The manufacturer shall post and maintain a website where the Platte Canyon Fire Protection District will be able to view digital images of their apparatus as its being built. The digital images shall be posted once a week starting when the body begins production or when the cab/chassis arrives and shall continue until the final completion of unit.

RESPONSIBILITY OF PURCHASER

It shall be the responsibility of the purchaser to specify the details of the apparatus in addition to the requirements in NFPA 1901 needed by the manufacturer to build the apparatus, including:

- 1) Requirements not uniquely specified in NFPA 1901, such as the type of apparatus desired.
- 2) Any features of the apparatus desired in addition to, or in excess of, the requirements in NFPA 1901.

After acceptance of the fire apparatus, the purchaser shall be responsible for ongoing training of personnel to develop and maintain proficiency regarding the proper and safe use of the apparatus and the associated equipment.

RESPONSIBILITY OF CONTRACTOR

The Contractor shall provide a detailed description of the apparatus, a list of equipment to be furnished, and other construction and performance details to which the apparatus shall conform. The detailed description of the apparatus shall include, but shall not be limited to,

3. Estimated In-Service Weight,
4. Wheelbase, Turning Clearance Radius,
5. Principal dimensions, Angle of Approach, Angle of Departure,
6. Transmission, Axle Ratios.

The Contractor's detailed description shall include a statement specifically describing each aspect of the delivered apparatus that will not be fully compliant with the requirements of this standard.

The purpose of these Contractor specifications shall be to define what the contractor intends to furnish and deliver to the purchaser.

Responsibility for the apparatus and equipment shall remain with the contractor until they are accepted by the purchaser.

VEHICLE STABILITY

ROLLOVER STABILITY

The apparatus shall meet the criteria defined below, or it shall be equipped with a stability control system defined below.

The apparatus shall meet the criteria defined in either of the following:

- 7) The apparatus shall remain stable to 26.5 degrees in both directions when tested on a tilt table in accordance with SAE J2180, *A Tilt Table Procedure for Measuring the Static Rollover Threshold for Heavy Trucks*.
- 8) The calculated or measured center of gravity (CG) shall be no higher than 80 percent of the rear axle track width.

Compliance shall be certified by testing, calculating, or measuring the apparatus or by comparing the apparatus to a compliant, substantially similar example apparatus and the certification shall be delivered with the fire apparatus.

The example apparatus shall be considered substantially similar if it includes a chassis with the same or higher CG height, the same or narrower rear axle track width, the same or greater water tank size and CG height, the same type of front and rear suspension and the same type and size of aerial device.

The apparatus shall be loaded with fuel, fire-fighting agents, hose, ladders, a weight of 250 lb in each seating position and weight equivalent to the Miscellaneous Equipment Allowance as defined in Table 12.1.2.

If the apparatus is designed to meet a specified higher equipment loading or larger hose bed capacity or to carry additional ground ladders, these greater loads shall be included in the testing, calculating or measuring.

The weight added to the fire apparatus for the purpose of test, calculation or measurement shall be distributed to approximate typical in-service use of the fire apparatus while not exceeding the manufacturer's published individual compartment weight ratings.

If the apparatus is equipped with a stability control system, the system shall have, at a minimum, a steering wheel position sensor, a vehicle yaw sensor, a lateral accelerometer and individual wheel brake controls.

FIRE APPARATUS PERFORMANCE

The fire apparatus shall meet the requirements of this standard at elevations of 2000 ft (600 m) above sea level.

The fire apparatus shall meet all the requirements of this standard while stationary on a grade of 6 percent in any direction.

The fire apparatus shall meet the requirements of this standard in ambient temperature conditions between 32°F (0°C) and 110°F (43°C).

HIGHWAY PERFORMANCE

The apparatus, when loaded to its estimated in-service weight, shall be capable of the following performance while on dry, paved roads that are in good condition:

- 9) Accelerating from 0 to 35 mph (55 km/hr) within 25 seconds on a 0 percent grade
- 10) Attaining a speed of 50 mph (80 km/hr) on a 0 percent grade
- 11) Maintaining a speed of at least 20 mph (32 km/hr) on any grade up to and including 6 percent

The maximum top speed of fire apparatus with a GVWR over 26,000 lb (11,800 kg) shall not exceed either 68 mph (109 km/hr) or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

If the combined water tank and foam agent tank capacities on the fire apparatus exceed 1250 gal (4732 L), or the GVWR of the vehicle is over 50,000 lb (22,680 kg), the maximum top speed of the apparatus shall not exceed either 60 mph (95 km/hr) or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

SERVICEABILITY

The fire apparatus shall be designed to allow the manufacturer's recommended routine maintenance checks of lubricant and fluid levels to be performed by the operator without lifting the cab of a tilt-cab apparatus or without the need for hand tools.

Where special tools are required for routine service on any component of the apparatus, such tools shall be provided with the apparatus.

Apparatus components that interfere with repair or removal of other major components shall be attached with fasteners, such as cap screws and nuts, so that the components can be removed and installed with ordinary hand tools. These components shall not be welded or otherwise permanently secured into place.

FIRE APPARATUS DOCUMENTATION

The contractor shall supply, at the time of delivery, at least one (1) copy of the following documents:

- 12) The manufacturers record of apparatus construction details, including the following documents:
 - a) Owner's name and address
 - b) Apparatus manufacturer, model, and serial number
 - c) Chassis make, model, and serial number

- d) GAWR of front and rear axles and GVWR
 - e) Front tire size and total rated capacity in pounds (kilograms)
 - f) Rear tire size and total rated capacity in pounds (kilograms)
 - g) Chassis weight distribution in pounds (kilograms) with water and manufacturer-mounted equipment (front and rear)
 - h) Engine make, model, serial number, rated horsepower and related speed, and governed speed; and if so equipped, engine transmission PTO(s) make, model, and gear ratio
 - i) Type of fuel and fuel tank capacity
 - j) Electrical system voltage and alternator output in amps
 - k) Battery make, model, and capacity in cold cranking amps (CCA)
 - l) Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio
 - m) Ratios of all driving axles
 - n) Maximum governed road speed
 - o) Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), maximum discharge pressure capability rating, and serial number
 - p) Pump transmission make, model, serial number, and gear ratio
 - q) Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
 - r) Water tank certified capacity in gallons or liters
 - s) Foam tank (if provided) certified capacity in gallons (liters)
 - t) Aerial device type, rated vertical height in feet (meters), rated horizontal reach in feet (meters), and rated capacity in pounds (kilograms)
 - u) Paint manufacturer and paint number(s)
 - v) Company name and signature of responsible company representative
 - w) Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)
- 2) Certification of compliance of the optical warning system (*see 13.8.16*)
 - 3) Siren manufacturer's certification of the siren (*see 13.9.1.1*)
 - 4) Written load analysis and results of the electrical system performance tests (*see 13.14.1 and Section 13.15*)
 - 5) Certification of slip resistance of all stepping, standing, and walking surfaces (*see 15.7.4.5*)
 - 6) If the apparatus has a fire pump, the pump manufacturer's certification of suction capability (*see 16.2.4.1*)
 - 7) If the apparatus is equipped with a fire pump and special conditions are specified by the purchaser, the pump manufacturer's certification of suction capacity under the special conditions (*see 16.2.4.2*)
 - 8) If the apparatus has a fire pump, a copy of the apparatus manufacturer's approval for stationary pumping applications (*see 16.3.1*)
 - 9) If the apparatus has a fire pump, the engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum governed speed (*see 16.3.2.2*)
 - 10) If the apparatus has a fire pump, the pump manufacturer's certification of the hydrostatic test (*see 16.5.2.2*)
 - 11) If the apparatus has a fire pump with a maximum discharge pressure capability rating that exceeds the hydrostatic test pressure of 16.5.2.1, the pump manufacturer's certification of the hydrodynamic test
 - 12) If the apparatus has a fire pump, the certification of inspection and test for the fire pump (*see 16.13.1.1.5 or 16.13.1.2.4 as applicable*)
 - 13) If the apparatus is equipped with an auxiliary pump, the apparatus manufacturer's certification of the hydrostatic test (*see Section 17.13*)
 - 14) When the apparatus is equipped with a water tank, the certification of water tank capacity (*see Section 18.6*)
 - 15) If the apparatus has an aerial device, the certification of inspection and test for the aerial device (*see Section 19.24*)
 - 16) If the apparatus has an aerial device, all the technical information required for inspections to comply with NFPA 1911

- 17) If the apparatus has a foam proportioning system, the foam proportioning system manufacturer's certification of accuracy (see 20.10.4.2) and the final installer's certification the foam proportioning system meets this standard (see 20.11.2)
- 18) If the system has a CAFS, the documentation of the manufacturer's pre delivery tests (see Section 21.9)
- 19) If the apparatus has a line voltage power source, the certification of the test for the power source (see 22.15.7.2)
- 20) If the apparatus is equipped with an air system, air tank certificates (see 24.5.1.2), the SCBA fill station certification (see 24.9.6), and the results of the testing of the air system installation (see 24.14.5 and 24.15.4)
- 21) Any other required manufacturer test data or reports

OPERATIONS AND SERVICE DOCUMENTATION

The contractor shall deliver with the fire apparatus complete operation and service documentation covering the completed apparatus as delivered and accepted.

The documentation shall address at least the inspection, service, and operations of the fire apparatus and all major components thereof.

The contractor shall also deliver with the fire apparatus the following documentation for the entire apparatus and each major operating system or major component of the apparatus:

- 22) Manufacturer's name and address
- 23) Country of manufacture
- 24) Source for service and technical information
- 25) Parts replacement information
- 26) Descriptions, specifications, and ratings of the chassis, pump (if applicable), and aerial device (if applicable)
- 27) Wiring diagrams for low voltage and line voltage systems 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
- 28) Lubrication charts
- 29) Operating instructions for the chassis, any major components such as a pump or aerial device, and any auxiliary systems
- 30) Precautions related to multiple configurations of aerial devices, if applicable
- 31) Instructions regarding the frequency and procedure for recommended maintenance
- 32) Overall apparatus operating instructions
- 33) Safety considerations
- 34) Limitations of use
- 35) Inspection procedures
- 36) Recommended service procedures
- 37) Troubleshooting guide
- 38) Apparatus body, chassis and other component manufacturer's warranties
- 39) Special data required by this standard
- 40) A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus

The contractor shall deliver with the apparatus all manufacturer's operations and service documents supplied with components and equipment that are installed or supplied by the contractor.

NFPA REQUIRED DOCUMENTATION FORMAT - Online @ SVI Trucks . com

The vehicle construction details and the operations and service documentation as required per NFPA 1900 latest edition shall be provided online. These manuals shall be divided into sections for ease of reference and will include two (2) QR codes installed on the apparatus for accessibility, with an additional 2 QR codes shipped loose.

FIRE APPARATUS SAFETY GUIDE

A Fire Apparatus Safety Guide published by Fire Apparatus manufacturer's Association shall be provided with delivered vehicle. This manual includes essential safety information for fire fighters, fire chiefs, apparatus mechanics, and fire department safety officers. The guide is applicable to municipal, wildland, and airport fire fighting apparatus manufactured on either custom or commercial chassis.

STATEMENT OF EXCEPTIONS

The final-stage manufacturer shall deliver with the fire apparatus either a certification that the apparatus fully complies with all requirements of this standard or alternatively, a Statement of Exceptions specifically describing each aspect of the completed apparatus that is not fully compliant with the requirements of this standard at the time of delivery.

The Statement of Exceptions shall contain, for each noncompliant aspect of the apparatus or missing required item, the following information:

- 41) A separate specification of the section of the applicable standard for which compliance is lacking
- 42) A description of the particular aspect of the apparatus that is not in compliance therewith or required equipment that is missing
- 43) A description of the further changes or modifications to the delivered apparatus that must be completed to achieve full compliance
- 44) Identification of the entity that will be responsible for making the necessary post delivery changes or modifications or for supplying and installing any missing required equipment to the apparatus to achieve full compliance with this standard

Prior to or at the time of delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of the entity responsible for final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating mutual understanding and agreement between the parties regarding the substance thereof.

CARRYING CAPACITY

The GAWR and the GCWR or GVWR of the chassis shall be adequate to carry the weight of the completed vehicle when loaded to its estimated in-service weight. The manufacturer shall establish the estimated in service weight during the design of the vehicle.

The estimated in-service weight shall include the following:

45. The chassis, body and tank(s)
46. Full fuel, lubricant, and other chassis or component fluid tanks or reservoirs
47. Full water and other agent tanks
48. *250 lb (114 kg) in each seating position
49. Fixed equipment such as pumps, aerial devices, generators, reels and air systems as installed
50. Ground ladders, suction hose, designed hose load in their hose beds and on their reels

51. An allowance for miscellaneous equipment that is the greatest of the following:

- a) The values shown for items 1 - 7
- b) A purchaser-provided list of equipment to be carried with weights
- c) A purchaser-specified miscellaneous equipment allowance

The manufacturer shall engineer and design the fire apparatus such that the completed apparatus, when loaded to its estimated in-service weight, with all movable weights distributed as close as is practical to their intended in-service configuration, does not exceed the GVWR.

A final manufacturer's certification of the GVWR or GCWR, along with a certification of each GAWR, shall be supplied on a label affixed to the vehicle.

The fire apparatus manufacturer shall permanently affix a high-visibility label in a location visible to the driver while seated.

The label shall show the height of the completed unequipped fire apparatus in feet and inches (meters), the length of the completed fire apparatus in feet and inches (meters), and the GVWR in tons (metric tons).

Wording on the label shall indicate that the information shown was current when the apparatus was manufactured and that, if the overall height changes while the vehicle is in service, the fire department must revise that dimension on the plate.

		Equipment Allowance	
Apparatus Type	Storage Areas	lb.	kg.
Mobile Water Supply Apparatus	Equipt. minimum of 10 cu ft (.30 cu mt) of enclosed compartmentation.	1,000	455
	Hose minimum of 6 cu ft (0.80 cu mt) for 2 1/2" (65 mm) or larger fire hose.		
	If pump is provided; storage for a minimum of 100 ft (30 m) of 1-1/2 in. (38 mm) or larger fire hose for a protection line shall be provided.		
Compartment space for mobile water supply fire apparatus is calculated based on the inside dimensions of the enclosed compartment.			

TESTING

ROAD TEST

Each apparatus shall be tested by the manufacturer before delivery to verify that it meets the following criteria;

Tests shall be conducted at a location and in a manner that does not violate local, state or provincial, or federal traffic laws. Tests shall be conducted on a dry, level, paved surface that is free of loose material, oil, or grease. Tests shall be conducted with the water and foam tanks full (water or product).

The apparatus shall accelerate from 0 to 35 mph (55 km/hr) within 25 seconds. The apparatus shall attain a speed of 50 mph (80 km/hr).

The auxiliary braking system, if so equipped, shall function as intended by the auxiliary braking system manufacturer.

The air service brakes shall bring the apparatus to a complete stop from a speed of 20 mph (32.2 km/hr) in a distance not exceeding 35 ft (10.7 m).

The hydraulic service brakes shall bring the apparatus to a complete stop from a speed of 30 mph (48.2 km/hr) in a distance not exceeding 88 ft (26.8 m).

LOW VOLTAGE - ELECTRICAL SYSTEM PERFORMANCE TEST

The vehicles low voltage electrical system shall be tested and certified by the manufacturer. The certified test results shall be delivered with the completed vehicle. Tests shall be performed when the air temperature is between 0°F and 110°F (–18°C and 43°C).

TEST SEQUENCE

The following three (3) tests shall be performed in the order in which they appear below. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for ten (10) minutes. Failure of any of these tests shall require a repeat of the sequence.

1. RESERVE CAPACITY TEST

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes.

All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure of the battery system.

2. ALTERNATOR PERFORMANCE TEST

TEST AT IDLE

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

TEST AT FULL LOAD

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test.

An alarm sounded by excessive battery discharge, as detected by the warning system required in 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system, 23.6 V dc for a 24 V nominal system, or 35.4 V dc for a 42 V nominal system for more than 120 seconds shall be considered a test failure.

3. LOW VOLTAGE ALARM TEST

The following test shall be started with the engine off and the battery voltage at or above 12 V for a 12 V nominal system, 24 V for a 24 V nominal system or 36 V for a 42 V nominal system.

With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals.

The test shall be considered a failure if the alarm does not sound in less than 140 seconds after the voltage drops to 11.70 V for a 12 V nominal system, 23.4 V dc for a 24 V nominal system, or 35.1 V for a 42 V nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

LOW VOLTAGE - ELECTRICAL SYSTEM PERFORMANCE TEST

DOCUMENTATION

The manufacturer shall deliver the following with the fire apparatus:

52) Documentation of the electrical system performance tests

53) A written electrical load analysis, including the following:

- a) The nameplate rating of the alternator
- b) The alternator rating
- c) Each of the component loads specified that make up the minimum continuous electrical load
- d) Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load
- e) Each individual intermittent electrical load

UL PUMP CERTIFICATION

The apparatus upon completion shall be tested and certified by Underwriters Laboratories, Inc. (UL). The certification tests shall follow the guide lines outlined in NFPA 1901 "Standard for Fire Apparatus".

If the fire pump has a rated capacity of 750 gpm (3000 L/min) or greater, the pump shall be tested after the pump and all its associated piping and equipment have been installed on the apparatus.

A three (3) hour pumping test from draft shall be completed and certified to perform as listed below;

- 100% of rated capacity at 150 psi (1,000 kPa) net pressure, 2 hours
- 70% of rated capacity at 200 psi (1,400 kPa) net pressure, 1/2 hour
- 50% of rated capacity at 250 psi (1,700 kPa) net pressure, 1/2 hour

The test shall include at least the pumping test, the pumping engine overload test, the pressure control system test, the priming device tests, and the vacuum test.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 500 psi (3,400 kPa).

The pump shall comply with the applicable requirements of "Standard for Fire Apparatus 1901, latest edition.

The pump shall be capable of producing fire streams that are free from objectionable pulsation under all normal operating conditions.

If the apparatus is equipped with a pump driven by the chassis engine designed for both stationary pumping and pump-and-roll, the test shall verify that the engine speed control at the pump operator's panel cannot be advanced when either of the following conditions exists:

- (1) The chassis transmission is in neutral, the parking brake is off, and the pump shift status in the driving compartment is disengaged.
- (2) The chassis transmission is in any gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" or the "OK to Pump-and-Roll" position.

A test plate shall be provided at the pump operator's panel that gives the rated discharges and pressures together with the speed of the engine as determined by the certification test for each unit, the position of the parallel/series pump as used, and the governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve.

WARRANTY

A full statement shall be provided of the warranties for the vehicle(s) being bid. Warranties should clearly describe the terms under which the vehicle manufacturer accepts responsibility for the cost to repair defects caused by faulty design, quality of work or material and for the applicable period of time after delivery.

Cost of repairs refers to all costs related thereto including, but not limited to, the cost of materials and the cost of labor.

The Body Manufacturer shall warrant all materials and accessories used on the vehicle(s), whether fabricated by manufacturer or purchased from an outside source and will deal directly with the Platte Canyon Fire Protection District on all warranty work.

GENERAL LIMITED WARRANTY - TWO (2) YEARS

The vehicle shall be free of defects in material and workmanship for a period of two (2) years or 36,000 miles (or 57,936 kilometers), whichever occurs first starting thirty (30) days after the original invoice date.

The Contractor must be the "single source" coordinator of all warranties on the vehicle.

LOW VOLTAGE ELECTRICAL WARRANTY - FIVE (5) YEARS

The vehicle low voltage electrical system shall be free of defects in material and workmanship for a period of five (5) years or 60,000 miles (or 96,561 kilometers), whichever occurs first, starting thirty (30) days after the original invoice date.

STRUCTURAL WARRANTY - TEN (10) YEARS

The body shall be free of structural or design failure or workmanship for a period of ten (10) years, or 100,000 miles (or 160,934 kilometers), whichever occurs first, starting thirty (30) days after the original invoice date.

UNDERCOAT WARRANTY

The body undercoating shall have a warranty provided by the manufacturer for the lifetime of the vehicle or twenty (20) years, whichever occurs first. The warranty shall be transferable between vehicle owners. Should the undercoating material applied to the underside of the body and wheel wells of the vehicle ever flake off, peel, chip or crack due to drying out, the damaged area shall be re-sprayed without charge to the vehicle owner.

PAINT LIMITED WARRANTY - TEN (10) YEARS

The body shall be free of bubbling or peeling as a result of a defect in the method of manufacture for a period of ten (10) years or 100,000 miles (or 160,934 kilometers), whichever occurs first, starting thirty (30) days after the original invoice date. **Pro-rated warranties will not be acceptable.**

GRAPHICS LIMITED WARRANTY

The 3M graphics installation shall be warranted for a period of two (2) years. The 3M materials installed on completed vehicle shall be warranted for seven (7) years. The 3M Diamond grade film (if specified) shall be warranted for ten (10) years.

WATEROUS SEVEN YEAR PUMP WARRANTY

The fire pump shall be warranted by Waterous for a period of seven (7) years from the date of delivery to the Platte Canyon Fire Protection District.

STAINLESS STEEL PLUMBING WARRANTY

The stainless steel plumbing shall be free of defects in material and workmanship for a period of ten (10) years, or 100,000 miles (or 160,934 kilometers), whichever occurs first, starting thirty (30) days after the original invoice date.

The contractor shall supply details of their warranty information with their bid submission.

AKRON BRASS TEN YEAR VALVE WARRANTY

The Akron Brass valves shall be warranted by Akron Brass for a period of ten (10) years from the date of delivery to the Platte Canyon Fire Protection District. The warranty for electronics shall be warranted by Akron Brass for a period of five (5) years from date of delivery to the Platte Canyon Fire Protection District.

POLY WATER TANK WARRANTY

The poly water tank shall be provided with a lifetime material and workmanship limited warranty. The manufacturer shall supply details of their warranty information with their bid submission.

CONSTRUCTION PERIOD

The completed vehicle shall be delivered within six hundred twenty (620) days after pre-construction meeting and receipt and approval of any signed change orders from Platte Canyon Fire Protection District.

Contractor shall not be held liable for delays of chassis delivery due to accidents, strikes, floods or other events not subject to their control. Contractor shall provide written notice to Platte Canyon Fire Protection District as to delays and to what extent these delays have in completing vehicle within the stated construction time period.

OVERALL HEIGHT REQUIREMENT

The overall height (OAH) of the vehicle shall be approximately " (' - ") from the ground. This measurement shall be taken on flat ground with the tires properly inflated, in the unloaded condition, at that highest point of the vehicle.

OVERALL LENGTH

The overall length (OAL) of the vehicle shall be approximately " (' - ").

ANGLE OF APPROACH

The angle of approach for this vehicle shall not be less than twenty (20) degrees when it is loaded to the estimated in-service weight as specified by the current edition of NFPA 1901.

ANGLE OF DEPARTURE

The angle of departure for this vehicle shall not be less than twenty (20) degrees when it is loaded to the estimated in-service weight as specified by the current edition of NFPA 1901.

PRE-CONSTRUCTION CONFERENCE

A pre-construction conference shall be required, at the Contractor's factory for two (2) personnel from the Platte Canyon Fire Protection District to finalize all construction details prior to manufacturing.

The Contractor shall at his/her expense, provide transportation, lodging, rental car and meal expenses during the pre-construction conference. Any travel distance greater than 250 miles shall be by non-stop commercial air travel.

PRE-PAINT CONFERENCE

A pre-paint conference shall be required, at the Contractor's factory for two (2) personnel from the Platte Canyon Fire Protection District to inspect the vehicle and construction details prior to the painting process.

The Contractor shall at his/her expense, provide transportation, lodging, rental car and meal expenses during the pre-paint conference. Any travel distance greater than 250 miles shall be by non-stop commercial air travel.

FINAL INSPECTION CONFERENCE

A final inspection conference shall be required, at the Contractor's factory for two (2) personnel from the Platte Canyon Fire Protection District to inspect the vehicle and construction details prior to shipment of the completed vehicle. This inspection shall take place after any specified striping and lettering is installed.

The Contractor shall at his/her expense, provide transportation, lodging, rental car and meal expenses during the final inspection conference. Any travel distance greater than 250 miles shall be by non-stop commercial air travel.

DELIVERY AND DEMONSTRATION

The Contractor shall be responsible for the delivery of the completed unit to the Platte Canyon Fire Protection District's location. On initial delivery of the apparatus, the Contractor shall supply a qualified representative to demonstrate the apparatus and provide initial instruction to representatives of the Platte Canyon Fire Protection District regarding the operation, care and maintenance of the apparatus and equipment supplied at Platte Canyon Fire Protection District location.

The Delivery Engineer shall set delivery and instruction schedule with the person appointed by Platte Canyon Fire Protection District.

After delivery of the apparatus, the Platte Canyon Fire Protection District shall be responsible for ongoing training of its personnel to proficiency regarding the proper and safe use of the apparatus and associated equipment.

FREIGHTLINER SPECIFICATION PROPOSAL

Vehicle Configuration

108SD PLUS CONVENTIONAL CHASSIS
2025 MODEL YEAR SPECIFIED
SET BACK AXLE - TRUCK

General Service

DOMICILED, USA (EXCLUDING CALIFORNIA AND CARB
OPT-IN STATES)
FIRE/EMERGENCY SERVICE
FREIGHTLINER LEVEL II WARRANTY
EXPECTED FRONT AXLE LOAD: 16000 lbs
EXPECTED REAR DRIVE AXLE LOAD: 31000 lbs
EXPECTED GROSS VEHICLE CAPACITY: 47000 lbs

Engine

CUM L9 400EV HP @ 2200 RPM; 2200 GOV RPM, 1250 LB-
FT @ 1200 RPM, FIRE/EMERGENCY

Engine Equipment

EPA 2010/GHG 2024 CONFIGURATION
AIR INTAKE WITH NFPA COMPLIANT EMBER SCREEN
AND FIRE-RETARDANT DONALDSON AIR CLEANER
DR 12V 300 AMP 40-SI BRUSHLESS PAD MOUNT
ALTERNATOR WITH REMOTE BATTERY VOLTAGE
SENSE
(3) DTNA GENUINE, HIGH TEMP **AGM** STARTING AND
CYCLING, MIN 2775CCA, 570RC, THREADED STUD
BATTERIES WITH POSITIVE JUMP START POST
BATTERY BOX FRAME MOUNTED
WIRE GROUND RETURN FOR BATTERY CABLES WITH
ADDITIONAL FRAME GROUND RETURN
NON-ESSENTIAL POSITIVE LOAD DISCONNECT, IN CAB
CONTROL SWITCH MOUNTED OUTBOARD OF DRIVER
CUMMINS TURBOCHARGED 18.7 CFM AIR
COMPRESSOR WITH INTERNAL SAFETY VALVE
C-BRAKE BY JACOBS WITH HIGH MED LOW BRAKE
SWITCH
RH MTD HORIZONTAL AFTERTREATMENT ASSEMBLY
WITH RH HORIZONTAL TAILPIPE
AIR POWERED ON/OFF ENGINE FAN CLUTCH
AUTOMATIC FAN CONTROL WITHOUT DASH SWITCH
CUMMINS SPIN ON FUEL FILTER
COMBINATION FULL FLOW/BYPASS OIL FILTER
1115 SQUARE INCH ALUMINUM RADIATOR WITH
AUXILIARY COOLING

ANTIFREEZE TO -34F, OAT (NITRITE AND SILICATE FREE) EXTENDED LIFE COOLANT
GATES BLUE STRIPE COOLANT HOSES OR EQUIVALENT
CONSTANT TENSION HOSE CLAMPS FOR COOLANT HOSES
ELECTRIC GRID AIR INTAKE WARMER
DELCO 12V 38MT HD STARTER WITH INTEGRATED MAGNETIC SWITCH

Transmission

ALLISON 3000 EVS 6 SPD AUTOMATIC TRANSMISSION WITH PTO PROVISION

Transmission Equipment

MAGNETIC PLUGS, ENGINE DRAIN, TRANSMISSION DRAIN, AXLE(S) FILL AND DRAIN
HEAVY DUTY ELECTRONIC TRANSMISSION SHIFT CONTROL, COLUMN MOUNTED
TRANSMISSION PROGNOSTICS - ENABLED 2013
WATER TO OIL TRANSMISSION COOLER
MERITOR MTC-4210 TRANSFER CASE & OIL COOLER
TRANSMISSION OIL CHECK AND FILL WITH ELECTRONIC OIL LEVEL CHECK
TRANSFER CASE SHIFT CONTROLS IN DASH
SYNTHETIC TRANSMISSION FLUID (TES-295 COMPLIANT)

Front Axle and Equipment

MERITOR MX-16-120 16,000# 1790MM KPI SINGLE FRONT DRIVE AXLE
6.14 FRONT AXLE RATIO
MERITOR 16.5X6 Q+ MX DRIVE AXLE CAST SPIDER CAM FRONT BRAKES
FIRE AND EMERGENCY SEVERE SERVICE, NON-ASBESTOS FRONT LINING
FRONT BRAKE DUST SHIELDS
FRONT GREASE SEAL
MERITOR AUTOMATIC FRONT SLACK ADJUSTERS
TRW TAS-85 POWER STEERING
SYNTHETIC 75W-90 FRONT AXLE LUBE

Front Suspension

16,000# TAPERLEAF FRONT SUSPENSION
MAINTENANCE FREE RUBBER BUSHINGS
FRONT SHOCK ABSORBERS

Rear Axle and Equipment

MERITOR RS-30-185 31,000# U-SERIES
FIRE/EMERGENCY SERVICE SINGLE REAR AXLE
6.14 REAR AXLE RATIO

IRON REAR AXLE CARRIER WITH STANDARD AXLE HOUSING
MXL 17T MERITOR EXTENDED LUBE MAIN DRIVELINE WITH HALF ROUND YOKES
DRIVER CONTROLLED TRACTION DIFFERENTIAL
MERITOR 16.5X7 P CAST SPIDER CAM REAR BRAKES, DOUBLE ANCHOR, CAST SHOES
FIRE AND EMERGENCY SEVERE SERVICE NON-ASBESTOS REAR BRAKE LINING
REAR BRAKE DUST SHIELDS
REAR OIL SEALS
HALDEX AUTOMATIC REAR SLACK ADJUSTERS
SYNTHETIC 75W-90 REAR AXLE LUBE

Rear Suspension

31,000# FLAT LEAF SPRING REAR SUSPENSION WITH HELPER AND RADIUS ROD FOR FIRE/EMERGENCY SERVICE
FORE/AFT CONTROL RODS

Brake System

WABCO 4S/4M ABS WITH TRACTION CONTROL AND ESC
FRONT WINCH BRAKE, 45PSI TO STEER AXLE BRAKES WHEN PARKED
STANDARD AIR SYSTEM PRESSURE PROTECTION SYSTEM
BW AD-9 BRAKE LINE AIR DRYER WITH HEATER
CUSTOM STEEL AIR BRAKE RESERVOIRS
BW DV-2 AUTO DRAIN VALVE WITH HEATER - WET TANK, PETCOCKS ALL OTHERS

Wheelbase & Frame

(185 INCH) WHEELBASE / (119.49 INCH) CA (PCM says 183; but noticed it needed to be 185 from engineering)
11/32X3-1/2X10-15/16 INCH STEEL FRAME 120KSI
(47 INCH) REAR FRAME OVERHANG

Chassis Equipment

14 INCH PAINTED BLACK STEEL BUMPER
FRONT TOW HOOKS - FRAME MOUNTED
GRADE 8 THREADED HEX HEADED FRAME FASTENERS

Fuel Tanks

50 GALLON RECTANGULAR ALUMINUM FUEL TANK - LH
6 GALLON DIESEL EXHAUST FLUID TANK
FUEL/WATER SEPARATOR WITH WATER IN FUEL SENSOR AND 12 VOLT PREHEATER

Tires

MICHELIN X WORKS XDY 315/80R22.5 20 PLY RADIAL FRONT TIRES

MICHELIN X WORKS XDY 315/80R22.5 20 PLY RADIAL
REAR TIRES

Hubs

MERITOR IRON FRONT HUBS
WEBB IRON REAR HUBS

Wheels

22.5X9.00 10-HUB PILOT STEEL DISC FRONT WHEELS
PAINTED BLACK
22.5X9.00 10-HUB PILOT STEEL DISC REAR WHEELS
PAINTED BLACK

Cab Exterior

108 INCH BBC FLAT ROOF ALUMINUM CONVENTIONAL
AIR RIDE CAB
BOLT-ON MOLDED FLEXIBLE FENDER EXTENSIONS
NFPA COMPLIANT LH AND RH EXTERIOR GRAB
HANDLES
STATIONARY BLACK GRILLE
FIBERGLASS HOOD WITH FIRE WALL INSULATION
DUAL 25 INCH ROUND STUTTER TONE HOOD MOUNTED
AIR HORNS WITH DUAL LANYARDS
DUAL ELECTRIC HORNS
LED COMPOSITE HEADLAMPS WITH BEZELS
LED AERODYNAMIC MARKER LIGHTS
DUAL 102" WEST COAST MOLDED-IN COLOR HEATED
MIRRORS WITH LH AND RH REMOTE
LH AND RH 8 INCH MOLDED-IN COLOR CONVEX
MIRRORS MOUNTED UNDER PRIMARY MIRRORS
REAR WINDOW DELETE
TINTED DOOR GLASS LH AND RH WITH TINTED NON-
OPERATING WING WINDOWS
RH AND LH ELECTRIC POWERED WINDOWS & DOOR
LOCKS
1-PIECE SOLAR GREEN GLASS WINDSHIELD
8 LITER (2 GAL) WINDSHIELD WASHER RESERVOIR,
CAB MOUNTED, WITH FLUID LEVEL INDICATOR

Cab Interior

GRAY & CARBON VINYL INTERIOR
MOLDED DOOR PANEL WITH DUAL ALUMINUM KICK
PANELS LOWER DOORS
BLACK MATS WITH PREMIUM INSULATION
FORWARD ROOF MOUNTED CONSOLE
AM/FM/WB WORLD TUNER RADIO WITH AUXILIARY
INPUT
(2) CUP HOLDERS LH AND RH DASH
SD DASH WITH DUAL USB CHARGING PORTS (2) IN
DASH

HEATER, DEFROSTER AND AIR CONDITIONER
 MAIN HVAC CONTROLS WITH RECIRCULATION SWITCH
 SOLID-STATE CIRCUIT PROTECTION AND FUSES
 12V NEGATIVE GROUND ELECTRICAL SYSTEM
 LED PREMIUM CAB LIGHTING
 SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR
 SUSPENSION DRIVER SEAT NFPA COMPLIANT
 SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR
 SUSPENSION PASSENGER SEAT NFPA COMPLIANT
 BLACK CORDURA PLUS CLOTH SEAT COVERS
 NFPA 1901-2009 HIGH VISIBILITY ORANGE SEAT BELTS
 ADJUSTABLE TILT AND TELESCOPING STEERING
 COLUMN
 4-SPOKE 18 INCH BLACK STEERING WHEEL
 DRIVER AND PASSENGER INTERIOR SUN VISORS

Instruments & Controls

BRIGHT ARGENT FINISH GAUGE BEZELS
 LOW AIR PRESSURE INDICATOR LIGHT AND AUDIBLE
 ALARM
 DUAL NEEDLE PRIMARY AND SECONDARY AIR
 PRESSURE GAUGE
 ELECTRONIC AIR RESTRICTION INDICATOR DISPLAYED
 IN DRIVER DISPLAY
 87 DECIBELS TO 112 DECIBELS AUTOMATIC SELF-
 ADJUSTING BACKUP ALARM
 ELECTRONIC CRUISE CONTROL WITH CONTROLS ON
 STEERING WHEEL SPOKES
 PREMIUM INSTRUMENT CLUSTER WITH 5.0 INCH TFT
 COLOR DISPLAY
 FIRE AND EMERGENCY SERVICE VEHICLES ENGINE
 WARNING
 2 INCH ELECTRIC FUEL GAUGE
 ELECTRICAL ENGINE COOLANT TEMPERATURE GAUGE
 ELECTRIC ENGINE OIL PRESSURE GAUGE
 DIGITAL TRANSMISSION OIL TEMPERATURE IN DRIVER
 DISPLAY
 ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN
 DRIVER DISPLAY
 ELECTRONIC MPH SPEEDOMETER WITH SECONDARY
 KPH SCALE
 ELECTRONIC 3000 RPM TACHOMETER
 IGNITION SWITCH CONTROLLED ENGINE STOP
 DIGITAL VOLTAGE DISPLAY INTEGRAL WITH DRIVER
 DISPLAY
 SINGLE ELECTRIC WINDSHIELD WIPER MOTOR WITH
 DELAY
 ROTARY HEADLAMP SWITCH, MARKER
 LIGHTS/HEADLIGHTS SWITCH

ONE VALVE PARKING BRAKE SYSTEM WITH DASH
VALVE CONTROL

SELF CANCELING TURN SIGNAL SWITCH WITH DIMMER,
HEADLAMP FLASH, WASH/WIPE/INTERMITTENT

INTEGRAL ELECTRONIC TURN SIGNAL FLASHER

Paint Design

ONE SOLID CUSTOM BASE/CLEAR COAT L0006EY
WHITE CAB COLOR

BLACK, HIGH SOLIDS POLYURETHANE FRAME/CHASSIS
PAINT

Weight Summary

	Weight Front	Weight Rear	Total Weight
Factory Weight ⁺	9476 lbs	5257 lbs	14733 lbs
(+) Weights shown are estimates only.			

CAB TO AXLE DIMENSION

Cab to axle will be 118".

CHASSIS MODIFICATIONS

LUBRICATION AND TIRE DATA PLATE

A permanent label in the driving compartment shall specify the quantity and type of the following fluids used in the vehicle and tire information:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid . . (if applicable)
- Pump priming system fluid, if applicable . . (if applicable)
- Drive axle(s) lubrication fluid
- Air conditioning refrigerant . . (if applicable)
- Air conditioning lubrication oil . . (if applicable)
- Power steering fluid
- Cab tilt mechanism fluid . . (if applicable)
- Transfer case fluid . . (if applicable)
- Equipment rack fluid (if applicable)
- CAFS air compressor system lubricant . . (if applicable)
- Generator system lubricant . . (if applicable)
- Front tire cold pressure
- Rear tire cold pressure
- Maximum tire speed ratings

VEHICLE DATA PLATE

A permanent label in the driving compartment which indicates the following:

- Filter part numbers for the;
 - Engine
 - Transmission
 - Air
 - Fuel
- Serial numbers for the;
 - Engine
 - Transmission
- Delivered Weights of the Front and Rear Axles
- Paint Brand and Code(s)
- Sales Order Number

OVERALL HEIGHT, LENGTH DATA PLATE (US)

The fire apparatus manufacturer shall permanently affix a high-visibility label in a location visible to the driver while seated.

The label shall show the height of the completed unequipped vehicle in feet and inches (meters), the length of the completed vehicle in feet and inches (meters to nearest 1/10th), and the GVWR in tons (metric tons).

Wording on the label shall indicate that; "The information shown was current when the apparatus was manufactured. If the overall height changes while the vehicle is in service, the fire department must revise that dimension on the plate".

PERSONNEL CAPACITY

A label that states the number of personnel the vehicle is designed to carry shall be located in an area visible to the driver.

SEAT BELT WARNING - FAMA06/07

A safety sign FAMA06 shall be visible from each seat that is not equipped with occupant restraint and therefore not intended to be occupied while the vehicle is in motion.

A safety sign FAMA07, which warns of the importance of seat belt use, shall be visible from each seat that is intended to be occupied while the vehicle is in motion.

EQUIPMENT MOUNTING FAMA10

A safety sign FAMA10, which warns of the need to secure items in the cab, shall be visible inside the cab.

FIRE SERVICE TIRES - FAMA12

A safety sign FAMA12, which warns of the special requirements for fire service-rated tires, shall be visible to the driver entering the cab of any apparatus so equipped.

HELMET WARNING - FAMA15

A safety sign FAMA15, which warns not to wear helmets while the vehicle is in motion, shall be visible from each seat that is intended to be occupied while the vehicle is in motion.

CLIMBING METHOD - FAMA23

A safety sign FAMA23, which warns of the proper climbing method, shall be visible to personnel entering the cab and at each designated climbing location on the body.

REAR STEP CROSSWALK WARNING - FAMA24

A safety sign FAMA24, which warns personnel not to ride on the vehicle, shall be located at the rear step areas and at any cross walkways.

FINAL STAGE MANUFACTURER VEHICLE CERTIFICATION

A final stage manufacturer vehicle certification label shall be provided and installed in the driver cab door jamb area.

FRONT BUMPER

The front bumper shall be as provided by the cab/chassis manufacturer.

BUMPER GRAVELSHIELD

The bumper extension gravel shield if specified shall be provided by the cab/chassis manufacturer.

AIR HORN(S)

Air horn(s) if specified shall be supplied and installed by the cab/chassis manufacturer.

Air horns will be removed and black powder coated

FRONT TOW PROVISIONS

The front tow provisions if specified shall be supplied and installed by the cab/chassis manufacturer.

SIREN SPEAKER

One (1) Whelen model SA314B 100 watt aluminum, 6.4" x 6.1" x 3.1" deep siren speaker shall be provided and located behind grille or front bumper with black epoxy coated finish.

The solid state siren speaker shall be vibration resistant. The SA314A shall comply with California Title XIII, Class A, and SAE J1849 requirements and with OSHA 1910.95 Guidelines regarding "Permissible Noise Exposure". All mounting hardware shall be stainless steel and covered by a two year factory warranty.

The siren speaker shall be located on the streetside of front bumper.

AIR INTAKE SYSTEM

An air filter shall be provided in the engine's air intake system by the commercial cab/chassis manufacturer. Air inlet restrictions shall not exceed the engine manufacturer's recommendations.

The air inlet shall be equipped with a means of separating water and burning embers from the air intake system.

This requirement shall be permitted to be achieved by either of the following methods:

54. Provision of a device such that burning particulate matter larger than 0.039 in. (1.0 mm) in diameter cannot reach the air filter element.
55. Provision of a multi screen ember separator capable of meeting the test requirements defined in the Parker Hannafin, Racor Division, publication LF 1093-90, *Ember Separation Test Procedure*, or an equivalent test.

EXHAUST

The existing exhaust tailpipe shall be extended to ahead of the rear axle on the curbside.

The exhaust piping and discharge outlet shall be located or shielded so as not to expose any portion of the apparatus or equipment to excessive heating.

Exhaust pipe discharge shall be directed away from any operator's position.

Where parts of the exhaust system are exposed so that they are likely to cause injury to operating personnel, protective guards shall be provided.

MAGNEGRIP EXHAUST ADAPTER

Magnegrip exhaust adapter

- The tail pipe(s) shall terminate parallel to rear axle and flush with body.
- The tail pipe(s) shall terminate in a standard straight cut pipe.

WARNING LIGHT: CHASSIS CAB

ZONE A - FRONT WARNING LIGHTS, UPPER

There shall be one (1) Whelen Freedom F4N0QLED LED 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 Side LED	Clear
2	Red Front Corner LED	Clear
3	White Super Long-LED	Clear
4	Blue Super Long-LED	Clear
5	Red Super Long-LED	Clear
6	Red Super Long-LED	Clear
7	White Super Long-LED (Opticom if specified)	Clear
8	White Super Long-LED (Opticom if specified)	Clear
9	Red Super Long-LED	Clear
10	Red Super Long-LED	Clear
11	Blue Super Long-Led	Clear
12	White Super Long-LED	Clear
13	Red Front Corner LED	Clear
14	Red Side LED	Clear

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(s) shall be separately controlled at multiplex display(s) in the cab.

ZONE A - FRONT WARNING LIGHTS, LOWER

There shall be two (2) Whelen 600 Series, linear super-LED Light(s) with full-fill optic provided, one (1) each side. The light head shall include an integral flasher with programmable flash patterns and Hi/Lo intensities.

Each Light shall have:

- Clear Lens

Each light shall have a black flange.

- Blue Light Streetside / Red Light Curbside

Flash Pattern shall be (factory default) Whelen ACTION SCAN

The lights shall be controlled at the multiplex display(s) in the cab.

ZONES B AND D - CAB INTERSECTOR LIGHT (CAB FRONT CORNERS)

There shall be two (2) Whelen surface mount ION Series LED light(s) with wide angle optic provided, one (1) each side. The light head shall include an integral flasher with programmable flash patterns.

Each light shall have:

- Red LED Streetside

- Blue LED Curbside

- Clear Lens

- Black Flange

The lights shall be controlled at the multiplex display(s) in the cab.

CAB STEP LIGHTS

Two (2) (one each side) OnScene 10" Access Pro white LED light(s) installed on the vehicle capable of providing illumination at a minimum 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.

BACK-UP ALARM

An electronic back-up alarm shall be supplied and installed by the cab/chassis manufacturer. The back-up alarm shall actuate automatically when the transmission gear selector is placed in reverse.

CAB HAZARD WARNING LIGHT

A Truck-Lite red LED flashing light shall be provided and located in the driving compartment and be illuminated automatically whenever the vehicles 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."

In addition, label shall be in both English/French for units built for Canada; "*Ne pas déplacer l'engin lorsque la lumière est allumée.*"

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

RADIO ANTENNA INSTALLATION

Note: PCFPD will be using a Remote head, mounted to the roof console and the base will be mounted to center console. It will be utilizing one (1) set of radio wires and will need a prewire added for future use.

Antenna #1 mounted and installed on the roof of the cab/chassis.

Due to multiple configurations of antenna whips, the Body Manufacturer shall provide the antenna base, and Platte Canyon Fire Protection District shall provide the whip.

COMMUNICATION RADIO/ANTENNA INSTALLATION

There shall be one (1) mobile communication radio(s) with antenna installed in the cab. The location of radio shall be determined by the Platte Canyon Fire Protection District at the pre-construction meeting. All required radio programming shall be responsibility of Platte Canyon Fire Protection District. Radio(s) may not be fully tested if no radio program is provided with radio and will be responsibility of Platte Canyon Fire Protection District after delivery.

Radio shall be installed per Manufacturer's requirements and wired for proper 12 volt power and ground.

- Radio shall be provided by Platte Canyon Fire Protection District.
- Radio shall be mounted in chassis cab overhead console, exact location provided to Platte Canyon Fire Protection District prior to installation.

The end of antenna cable shall be routed to center dash. Cable shall be labeled.

Cab roof mounted antenna shall be located driver side of upper forward roof section.

Antenna #2 mounted and installed on the roof of the cab/chassis.

Due to multiple configurations of antenna whips, the Body Manufacturer shall provide the antenna base, and Platte Canyon Fire Protection District shall provide the whip.

COMMUNICATION RADIO/ANTENNA INSTALLATION

There shall be one (1) mobile communication radio(s) with antenna installed in the cab. The location of radio shall be determined by the Platte Canyon Fire Protection District at the pre-construction meeting. All required radio programming shall be responsibility of Platte Canyon Fire Protection District. Radio(s) may not be fully tested if no radio program is provided with radio and will be responsibility of Platte Canyon Fire Protection District after delivery.

Radio shall be installed per Manufacturer's requirements and wired for proper 12 volt power and ground.

- Radio shall be provided by Platte Canyon Fire Protection District.

The end of antenna cable shall be routed to center dash. Cable shall be labeled.

Cab roof mounted antenna shall be located driver side of upper forward roof section.

SCBA SEAT AIR PACK BRACKETS

No SCBA air pack bracket(s) shall be provided in specified commercial cab SCBA seats. Platte Canyon Fire Protection District will provide and install necessary bracket(s) after delivery.

SCBA SEAT AIR PACK BRACKETS

No SCBA air pack bracket(s) shall be provided in specified commercial cab SCBA rear crew seats. Platte Canyon Fire Protection District will provide and install necessary bracket(s) after delivery.

SEAT BELT COLOR

Section 14.1.3.4 of the NFPA 1901 Standards, requires all seat belt webbing in cab to be bright red or bright orange in color, and the buckle portion of the seat belt shall be mounted on a rigid or semi rigid stalk such that the buckle remains positioned in an accessible location.

SEAT BELT WEB LENGTH - COMMERCIAL CAB

Sections 14.1.3.2 and 14.1.3.3 of the NFPA 1901 standards, require the effective seat belt web length for a Type 1 lap belt for pelvic restraint to be a minimum of 60", and a Type 2 pelvic and upper torso restraint-style seat belt assembly to be a minimum of 110".

The chassis seat belt web length as supplied by the commercial chassis manufacturer shall be compliant to NFPA Standards 14.1.3.2 and 14.1.3.3.

SEAT BELT MONITORING AND VEHICLE DATA RECORDER (VDR) SYSTEMS

SEAT BELT MONITORING

A Weldon 6444 series gateway interface module shall be integrated into V-MUX multiplex system display to allow the driver to know if all persons seated in the vehicle are secured with seat belts before moving the vehicle. Built-in smart seating logic shall detect if the correct sit and buckle sequence is not followed for all seats. System shall also provide an output for an external alarm. Weldon diagnostic port will be located under dash on driver side. System shall include the following features;

VEHICLE DATA RECORDER (VDR)

The vehicle data recorder shall have the following features;

- Recorded Data Includes: 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 and Engine Hours.
- Password Protected by the customer
- 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

OCCUPANT RESTRAINT INDICATOR

The occupant restraint indicator shall have the following features;

- Will be displayed on Vista IV panel.
- Supports commercial and custom cab seating layouts; up to 12 seats
- Built-in audible alarm
- Use in conjunction with Vehicle Data Recorder (VDR)

IGNITION KEY

If the vehicle is specified to have an ignition key it will be attached to steering column or dash with vinyl covered steel cable.

SIX (6) – LED TIRE PRESSURE VISUAL INDICATORS

Each tire valve stem shall be equipped with an LED Tire Alert (or equal), heavy duty valve cap LED indicator that indicates proper tire pressure. The LED Tire Alert valve cap is self-calibrating. When the cap is mounted on the valve stem the first time, it will memorize that tire pressure, and can be set to recognize a drop in pressure as little as 6 psi. It can be checked for functionality and battery condition by simply unscrewing the cap. If it is in working condition, it will immediately start blinking.

HELMET STORAGE

HELMET STORAGE, DRIVER POSITION

Helmet storage shall be the responsibility of Platte Canyon Fire Protection District in specified cab area.

A safety sign FAMA15, which warns not to wear helmets while the vehicle is in motion, shall be visible from each seat that is intended to be occupied while the vehicle is in motion.

HELMET STORAGE, OFFICER POSITION

Helmet storage shall be the responsibility of Platte Canyon Fire Protection District in specified cab area.

A safety sign FAMA15, which warns not to wear helmets while the vehicle is in motion, shall be visible from each seat that is intended to be occupied while the vehicle is in motion.

CAB CRASH TEST CERTIFICATION

A cab crash test certification from the fire apparatus manufacturer shall be provided with the equipment. A copy of this certification shall be included with the bid.

NOTE: There shall be no exception to any portion of the cab integrity certification requirements. Nonconformance shall lead to immediate rejection of bid.

The certification shall state that the cab does meet or exceed the requirements below:

56) European Occupant Protection Standard ECE Regulation No. 29.

57) SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.

CAB PAINT

The finish paint and color as provided from the cab/chassis manufacturer shall be provided. Cab shall not be repainted.

(Note: Most departments do NOT find that the fleet paint finish from a commercial cab/chassis manufacturer is acceptable. The Body Builder will NOT be responsible for paint quality and finish issues.)

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.

The inside of each cab door shall have 4" Chevron style 3M Scotchlite 680 series graphic film.

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

CAB INTERIOR COMPONENT PAINT COLOR, OEM SUPPLIED

Powder coat shall be hammertone black. Cardinal T013-BK62

CAB STEP COVER AND BATTERY COMPARTMENT

The stock cab upper and lower entry steps shall be overlaid with 1/8" smooth aluminum.

The maximum stepping height shall not exceed 18", with the exception of the ground to first step, which shall not exceed 24" when the vehicle is loaded to its estimated in-service weight. All steps shall have a minimum area of 35 sq in and shall be of such a shape that a 5" diameter disk does not overlap any side when placed on the step, and shall be arranged to provide a t least 8" of clearance between the leading edge of the step and any obstruction. All platforms shall have a minimum depth of 8" from the leading edge of the platform to any obstruction.

The following options will be cut into the step cover:

The step overlays shall be provided with one (1) 4.75" aluminum Grip-Strut insert(s) for improved slip resistance.

CAB STEP LIGHTS

Two (2) (one each side) OnScene 10" Access Pro white LED light(s) installed on the vehicle capable of providing illumination at a minimum 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.

- The above component(s) shall have a black Scorpion rubberized finish.

WHEEL HUB AND NUT COVERS

Wheel hub and nut covers shall not be provided on completed unit.

MUDFLAPS

There shall be 1/4" rubber mudflaps with logo provided and installed behind rear axle tires to prevent throwing road debris and lower road spray.

AIR BRAKE SYSTEM QUICK BUILD-UP - STYLE 'M' / INDUSTRIAL INLET CONNECTION

There shall be one (1) male, quick connect type inlet to provide air to the chassis air tanks from a station/external compressed air shoreline in order to maintain full operating air pressure while the vehicle is not running. The system shall include a one-way check valve to prevent accidental release of chassis air pressure and be labeled "AIR INLET".

- Air inlet shall be located near driver's door.
- The fitting will be of style 'M' / Industrial design.

The inlet shall eliminate the need for a quick build up system and the 60 second buildup time.

The female end of the connector shall be supplied by the Platte Canyon Fire Protection District.

CHASSIS AIR TANK DRAINS

The cab/chassis air brake system tank drains shall remain as provided by cab/ chassis manufacturer.

ROAD EMERGENCY SAFETY KIT

The completed unit shall be supplied with one (1) set of three (3) dual faced reflective triangles, and three (3) warning flares complete with storage case per DOT requirements.

One (1) 2.5 lb. ABC type vehicle fire extinguisher with bracket per DOT requirements shall be provided and mounted inside cab area.

Front Cab Components: Not Provided

DEF FLUID FILL

The DEF fluid fill shall be as supplied by commercial cab/chassis manufacturer.

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.

It is the intent of these specifications to fully describe the requirements for a custom built emergency type vehicle. In order to extend the expected service life of this vehicle, the body module shall be removable from the chassis frame and be capable of being installed on a new chassis.

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 strictly adhered to.

The fabrication of the body shall be formed sheet metal. Formed components shall allow the Platte Canyon Fire Protection District to have the body repaired locally in the case where any object has struck the body and caused damage. The use of proprietary extrusions will prevent the Platte Canyon Fire Protection District from such repair and shall NOT be used. All fabricated body components to be cut by a laser or water-jet for superior cut edge quality.

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. The use of pop rivets in any portion of structural construction may allow premature failure of the body structure. Therefore, 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.

EXTERIOR ALUMINUM BODY

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

The rear body panels shall be 1/8" (.125) aluminum 3003H-14 smooth plate below top of side compartment level for specified reflective chevron. The upper rear section of water tank shall be provided with 1/8" (.125) aluminum 3003H-14 smooth plate panel.

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

The front and rear corners of body shall be formed as part of the front or rear body panels. This provides a stronger body corner and finished appearance. The use of extruded corners, or caps will not be acceptable, No Exceptions.

The door side frame openings shall be formed "C" channel design. An electrical wiring conduit raceway running the full length of exterior compartments shall be provided. This raceway shall 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, will 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 preformed, 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 resist moisture from entering the compartments. All other interior seams and corners shall be sealed with silicone based caulk prior to painting.

Only stainless steel bolts, nuts, and sheet metal screws shall be used in mounting exterior trim, hardware and equipment.

DRIP RAILS

The body shall have drip rails over the side compartments. The drip rails shall be formed into the upper body panels providing a ridged lower panel and a flat upper body panel surface.

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 4" x 1/4" aluminum tubes minimum, the same width as the chassis frame rails. Welded to this tubing shall be cross members of 2" x 4" x 1/4" aluminum. Smaller dimension, lighter gauge tubing or angle material subframe shall not be accepted.

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.

BODY MOUNTING

The body subframe shall be fastened to the chassis frame with one (1) 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 resist 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.

Body mountings that do not allow relief from chassis movement will not be acceptable.

10" REAR STEP BUMPER

The full width rear bumper shall be constructed from 2" x 2" x 1/4" aluminum tubing frame and covered with **3/16" smooth aluminum**. The bumper shall extend from the rear vertical body panel 10" and provide a rear step with a minimum of 1/2" space at body for water drainage.

- Bumper to be black scorpion finish

Rear bumper shall be provided with one (1) 4.75" aluminum Grip-Strut insert(s) for improved slip resistance.

The corners of bumper shall have a 45 degree chamfer.

REAR TOW EYES

There shall be two (2) heavy duty rear mounted tow eyes securely attached to the body subframe, below body. The tow eyes shall be fabricated from 3/4" thick steel plate with a 3" diameter opening. Tow eyes shall have a black powder coat finish.

GROUND LIGHTS

There shall be two (2) OnScene 10" Access Pro white LED lights installed below bumper capable of providing illumination at a minimum 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.

- The above component(s) shall have a **Black Scorpion rubberized finish.**

WHEEL WELL EXTERIOR PANEL

The exterior panel of the body wheel well enclosure shall be constructed from 1/8" smooth aluminum and will be bolted on for easy removal and replacement.

Panels will be job color

RUBBER BODY FENDERETTES

The body wheel well openings shall be provided with round radius, rubber fenderettes. The fenderettes shall be bolted and easily replaceable if damaged. The fenderettes shall be installed using stainless steel fasteners with plastic isolators to help prevent corrosion.

WHEEL WELL LINERS

The wheel wells shall be 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.

SCBA CYLINDER COMPARTMENTS

There shall be four (4) SCBA cylinder storage compartments located, two (2) on each side of body in the rear wheel well area.

Each fore compartment shall be capable of storing two (2) SCBA (60 min.) cylinders in the upper section with misc storage below.

Each aft compartment will be left open for wheel chock storage.

Each compartment shall have a vertically hinged aluminum door with 14ga stainless steel hinge, a positive catch latch and painted primary lower body color.

Each compartment shall allow the storage of an SCBA cylinder or a fire extinguisher up to 7-3/4" in diameter x 24" deep.

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

- **Curbside Forward to have divider**
- **Other three with no divider**
- **All door ajar switches located up high on all four doors**

BODY PAINT SPECIFICATIONS

BODY PAINT PREPARATION

After the body and components have been fabricated they shall be disassembled so when vehicle is complete there shall be finish paint beneath the removable components. The body shall be removed from chassis during the paint process to insure proper paint coverage. The body and components shall be metal finished as follows to provide a superior substrate for painting.

The exterior (and interior, if painted) 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.

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.

PAINT PROCESS

The paint process shall follow the strict standards set forth by PPG Industries guidelines. Painters applying PPG products will be PPG Certified Commercial Technicians, and re-certified every two (2) years. The body shall go through the following paint process;

- 58) Clean bare metal with a wax and grease remover using low lint rags.
- 59) Inspect, straighten, and hammer high points, grind all seams, sharp edges, and welds. DA sand entire paintable surfaces using 24-180 grit dry paper. Plastic fill all low spots and DA sand fill areas using 36-180 grit dry paper. Apply pinhole filler and DA sand areas using 80-180 grit dry paper.
- 60) Re-clean bare metal using a wax and grease remover and low lint rags.
- 61) Within 24 hours, a PPG Delfleet® epoxy color primer with proper hardener for corrosion resistance using a pressure pot spray gun and applying 2-5 full wet coats or 1.5-8.0 dry mils max. achieving full hiding and allow to air dry 60 minutes @ 70°F or bake for 45 minutes @ 140°F degree.
- 62) Inspect, putty fill, and dry guild coat entire body surface and DA sand using 180-400 grit dry paper.
- 63) Re-clean bare metal using a wax and grease remover using low lint rags.
- 64) A PPG Delfleet® primer sealer with proper hardener and thinner shall be sprayed using a pressure pot spray gun and applying 1 full wet coat or 1.0-2.0 dry mils achieving full hiding and allow to flash off in spray booth for minimum of 60 minutes @ 70°F.
- 65) A PPG Delfleet® FBCH basecoat (color) with proper hardener and dry additive shall then be sprayed using a pressure pot set @ 45-60 PSI and achieving full hiding or 1.5-2.0 wet mils and allow to flash off in spray booth 45-60 minutes before applying clearcoat.
- 66) A PPG Delfleet® clearcoat with proper hardener and thinner shall be sprayed using a pressure pot spray gun and applying 2-3 full wet coats or 5.0 wet mils for a uniform gloss and allow to flash off in spray booth 10 minutes and bake for 120-140 minutes @ 125°F (surface temp.).
- 67) After cooling, DA sand heavy orange peel or runs using 1000 grit dry sand paper and final DA sand using 1500-2000 grit dry sand paper. Wipe off all surfaces to remove dust and debris. Buff unit as needed using 3M rubbing compound and a white wool pad and inspect until all sand scratches are removed.
- 68) Polish as needed using 3M Perfect-It-Polish and a black foam pad, repeat as necessary and inspect until all sand scratches are removed.

PAINT - ENVIRONMENTAL IMPACT

The contractor shall meet or exceed their current State regulations concerning paint operations pollution control and shall include measures to protect the atmosphere, water and soil. PPG Delfleet® Evolution paint shall be free of all heavy metal (lead & chromate) components. Paint emissions from sanding and painting shall be filtered and collected. All paint wastes shall be disposed of in an environmentally safe manner. Solvents used in cleanup operations shall be collected, sent off-site for distillation and returned for reuse.

FASTENERS

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

ELECTROLYSIS CORROSION CONTROL

The vehicle shall be assembled using ECK brand or similar corrosion control compound 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.

PAINT FINISH - SINGLE COLOR

The body shall be painted with a single color of PPG Delfleet® Evolution per Platte Canyon Fire Protection District approved paint spray out provided.

- Paint Color: Match cab/chassis supplied paint color.
Freightliner White (L0006 EY)

COMPARTMENT INTERIOR FINISH

The compartment interior paintable surfaces shall be prepared and DA sanded using 80-120 grit dry paper and cleaned with a wax and grease remover. A PPG Delfleet® primer topcoat of either a solids epoxy primer or an etch primer shall be applied.

A PPG Delfleet® color primer with proper hardener and thinner mix shall then be sprayed using a pressure pot spray gun and applying 2 wet coats achieving full hiding on entire compartment surface and allow to air dry for 30 minutes @ 70°F before applying texture coat.

A PPG Delfleet® F3985 White/F3986 Gray top coat/texture coat with proper hardener and dry additive shall then be sprayed using a pressure pot and reducing the atomizing air pressure and turn fan pattern all the way in on the gun. Apply the first color texture coat as needed and allow to air dry @ 70°F over night before assembly and 7 days before putting into full service.

BODY UNDERCOATING

The entire underside of body shall be sprayed with black automotive undercoating. Undercoating shall cover all areas underside of body and wheel well area to help resist corrosion under the vehicle.

REFLECTIVE STRIPE REQUIREMENTS

Material

All retroreflective materials shall conform to the requirements of ASTM D4956, *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 D4956, Section 6.1.1, shall have a minimum coefficient of retro-reflection 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 D4956, Section 6.1.1.

Minimum 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 vehicle, not including mirrors or other protrusions.

The stripe or combination of stripes shall be a minimum 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.

A graphic design shall be permitted to replace all or part of the required striping material if the design or combination thereof covers at least the same perimeter length(s).

GRAPHICS PROOF (Will match signed approval)

A color graphics proof of the reflective striping layout shall be provided for approval by Platte Canyon Fire Protection District prior to installation. The graphics proof shall be submitted to Platte Canyon Fire Protection District 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. **Note:** The graphics color proof may not reflect the correct paint break lines on the chassis and body please refer to the paint section of your specifications for correct paint break lines.

EXTERIOR COMPARTMENT DOORS

ROLL-UP DOOR CONSTRUCTION - ROBINSON (ROM)

The vehicle shall be equipped with R•O•M Series IV roll-up exterior compartment doors. The R•O•M roll-up doors shall be complete with the following features;

Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum. Shutter slats shall feature a double wall extrusion 0.315" thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slat must have interlocking joints with an inverted locking flange. Slat inner seal shall be a one piece PVC extrusion; seal design will be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

Shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. Finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene; it will be a double "V" seal to resist water and debris from entering compartment. Bottom rail lift bar shall be a one piece "D" shaped aluminum extrusion with linear striations to improve operator grip during operation. Lift bar shall have a wall thickness of 0.125". Lift bar shall be supported by no less than two pivot blocks; pivot blocks shall be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks shall have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.

Shutter door shall have an enclosed counter balance system. Counter balance system shall be 4" in diameter and held in place by two (2) heavy duty 18 gauge zinc plated plates. Counter balance system shall have two (2) over-molded rubber guide wheels to provide a smooth transition from vertical track to counter balance system; no foam material of any kind shall be permitted or used in this area.

The R•O•M Series IV roll-up compartment doors shall be free of manufacturing defects for a period of up to 7 years from date of purchase provided doors are used under conditions of normal use, regular periodic maintenance and service is performed, and doors were installed in accordance with R•O•M's instructions.

ROM DOOR BOTTOM RAIL

All exterior compartment doors shall have the standard 3.0" tall bottom rail extrusion for easy one (1) hand opening and closing.

The specified retroreflective stripe material shall be applied on the roll-up compartment doors. The stripe shall be precision machine cut for each door slat of the roll-up doors. Under no circumstance will the stripe material be cut on roll-up door surface.

BODY WIDTH DIMENSIONS

The body shall be 100.0" wide, and 102.0" wide at drip rails. Interior compartment depth dimensions shall be approximately:

<u>Area Description</u>	<u>Dimension</u>
Compartment depth above subframe	13.0" or 24.5" (Depending on water tank and/or ladder configuration.)
Compartment depth below subframe	24.5"

STREETSIDE COMPARTMENT - FRONT (S1)

The interior useable compartment width shall be approximately 35.25" wide.

- This compartment shall have a R•O•M series IV roll-up door.
- The compartment door opening shall be approximately 28.5" wide.
- The roll-up door slats and the door track components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior door track to activate compartment lighting and door ajar signal in cab when door is opened.
- There shall be NO keyed lock on this roll-up compartment door.
- One (1) aluminum drip pan/door guard shall be provided below door roll area. Drip pan/door guard shall have thumb nuts making it easily removable without tools with a maintenance-free, un-painted finish. A plastic drain line shall be provided on each end of the drip pan to lower door threshold.
- Compartment threshold protection shall be provided on the bottom edge of the compartment door sill. The threshold protection shall be an extruded aluminum shape with an un-painted anodized finish.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum Shelf-Trac welded to compartment walls 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.
 - Any equipment mounting on adjustable shelf shall be provided by Platte Canyon Fire Protection District after delivery.
 - The above component(s) shall have a painted gray top coat/textured finish.
- One (1) OnScene Access white LED, full height compartment light, vertically mounted.
- There shall be one (1) 120 VAC outlet(s) located in compartment.
 - The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R).
 - Outlet(s) shall be powered through the on-board shore power system.
 - The outlet shall be located on forward wall, upper left area.

STREETSIDE COMPARTMENT - AHEAD OF REAR WHEELS (S2)

Pump plumbing interior useable area shall be approximately 50" wide.

The pump panel shall be approximately 47" wide.

COMPARTMENT LAYOUT

- The pump operator's panel shall be located in this compartment.

STREETSIDE COMPARTMENT - REAR

The interior useable compartment width shall be approximately 13" wide.

The compartment door opening shall be approximately 11" wide.

- This compartment shall have flush style vertically hinged compartment door. The door exterior shall be painted job color.
- The compartment door opening shall be approximately 13.0" wide.
- The interior door panel shall have a smooth un-painted aluminum panel.
- The hinged door(s) shall have a stainless steel 6" offset bent **BLACK** D-ring non-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 pneumatic cylinder to hold door in the open and closed positions. Each door shall be capable of being closed without unlatching. Door checks shall be bolted to the compartment door header and the box pan of the door.
- The door ajar switch shall be provided with specified hinged door and pneumatic cylinder switch assembly to activate compartment lighting and door ajar signal in cab when door is opened.
- Compartment threshold protection shall be provided on the bottom edge of the compartment door sill. The threshold protection shall be fabricated from brushed 304 stainless steel sheet metal.
- One (1) 6" x 7-1/16" large air vent shall be provided in lower compartment wall for air displacement.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum Shelf-Trac welded to compartment walls 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.
 - Any equipment mounting on adjustable shelf shall be provided by Platte Canyon Fire Protection District after delivery.
 - The above component(s) shall have a painted gray top coat/textured finish.
- One (1) OnScene Access white LED, full height compartment light, vertically mounted.

CURBSIDE COMPARTMENT - FRONT (C1)

The interior useable compartment width shall be approximately 38" wide.

- This compartment shall have a R•O•M series IV roll-up door.
- The compartment door opening shall be approximately 34.5" wide.
- The roll-up door slats and the door track components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior door track to activate compartment lighting and door ajar signal in cab when door is opened.
- There shall be NO keyed lock on this roll-up compartment door.
- One (1) aluminum drip pan/door guard shall be provided below door roll area. Drip pan/door guard shall have thumb nuts making it easily removable without tools with a maintenance-free, un-painted finish. A plastic drain line shall be provided on each end of the drip pan to lower door threshold.
- Compartment threshold protection shall be provided on the bottom edge of the compartment door sill. The threshold protection shall be an extruded aluminum shape with an un-painted anodized finish.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum Shelf-Trac welded to compartment walls 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.
 - Any equipment mounting on adjustable shelf shall be provided by Platte Canyon Fire Protection District after delivery.
 - The above component(s) shall have a painted gray top coat/textured finish.
- There shall be one (1) vertical compartment partition(s) provided dividing the compartment into fore and aft sides. The vertical partition(s) shall be 3/16" (.188) 3003H-14 alloy smooth aluminum sheet. Partition shall be approximately Fill In from forward wall of compartment.

- LOCATION: Rear of discharge and intake

- Partition shall be bolted in position at base and top of partition.
 - The above component(s) shall have a smooth un-painted finish.
- One (1) OnScene Access white LED, full height compartment light, vertically mounted.

- There shall be one (1) 120 VAC outlet(s) located in compartment.
 - The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R).
 - Outlet(s) shall be powered through the on-board shore power system.
 - The outlet shall be located on forward wall, upper left area.

CURBSIDE COMPARTMENT - AHEAD OF REAR WHEEL (C2)

The interior useable compartment width shall be approximately 38" wide.

- This compartment shall have a R•O•M series IV roll-up door.
- The compartment door opening shall be approximately 34.5" wide.
- The roll-up door slats and the door track components shall be painted to match the single tone exterior color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior door track to activate compartment lighting and door ajar signal in cab when door is opened.
- There shall be NO keyed lock on this roll-up compartment door.
- One (1) aluminum drip pan/door guard shall be provided below door roll area. Drip pan/door guard shall have thumb nuts making it easily removable without tools with a maintenance-free, un-painted finish. A plastic drain line shall be provided on each end of the drip pan to lower door threshold.
- Compartment threshold protection shall be provided on the bottom edge of the compartment door sill. The threshold protection shall be an extruded aluminum shape with an un-painted anodized finish.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum Shelf-Trac welded to compartment walls 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.
 - Any equipment mounting on adjustable shelf shall be provided by Platte Canyon Fire Protection District after delivery.
 - The above component(s) shall have a painted gray top coat/textured finish.
- One (1) OnScene Access white LED, full height compartment light, vertically mounted.
- There shall be one (1) 120 VAC outlet(s) located in compartment.
 - The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R).
 - Outlet(s) shall be powered through the on-board shore power system.
 - The outlet shall be located on forward wall, upper left area.

CURBSIDE COMPARTMENT - REAR

The interior useable compartment width shall be approximately 13" wide.

The compartment door opening shall be approximately 11" wide.

- This compartment shall have flush style vertically hinged compartment door. The door exterior shall be painted job color.
- The compartment door opening shall be approximately 13.0" wide.
- The interior door panel shall have a smooth un-painted aluminum panel.
- The hinged door(s) shall have a stainless steel 6" offset bent **BLACK** D-ring non-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 pneumatic cylinder to hold door in the open and closed positions. Each door shall be capable of being closed without unlatching. Door checks shall be bolted to the compartment door header and the box pan of the door.
- The door ajar switch shall be provided with specified hinged door and pneumatic cylinder switch assembly to activate compartment lighting and door ajar signal in cab when door is opened.
- Compartment threshold protection shall be provided on the bottom edge of the compartment door sill. The threshold protection shall be fabricated from brushed 304 stainless steel sheet metal.
- One (1) 6" x 7-1/16" large air vent shall be provided in lower compartment wall for air displacement.

COMPARTMENT LAYOUT

- There shall be vertically mounted aluminum Shelf-Trac welded to compartment walls 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.
 - Any equipment mounting on adjustable shelf shall be provided by Platte Canyon Fire Protection District after delivery.
 - The above component(s) shall have a painted gray top coat/textured finish.
- One (1) OnScene Access white LED, full height compartment light, vertically mounted.

STREETSIDE ADDITIONAL COMPONENTS

The following additional components shall be provided above the lower side compartments on streetside;

- Storage for Two (2), contractor supplied hard suction hose(s) shall be provide inside of body. Hard suction hose(s) shall be detailed in the Pump Intake specification.

CURBSIDE ADDITIONAL COMPONENTS

The following additional components shall be provided above the lower side compartments on curbside;

PORTABLE WATER TANK LIFT

One (1) Zico PTS-HA, Quic-Lift portable water tank lift system(s) shall be provided and installed above rear wheels. Consisting of two (2) high-strength aluminum casting sets and 12-VDC, 30 amp linear actuators. The electrically operated system requires a minimum shelf width of 8-1/4". Twenty-one inches (10-1/2" per device) shelf space must be added to collapsed length of portable tank when calculating mounting requirement.

FEATURES:

- Easy to install on new or existing tankers
- Uses only 12-volts...no hydraulic fittings to fuss with
- Controlled by a two-pole double throw momentary switch
- Flashing light kit provided to signal when the device is in motion
- Self-locking in any position
- May be raised or lowered manually in the event of electrical failure
- Tank box will hold portable tank up to 36" high by 9" wide collapsed

*Maximum weight of portable tank and cover not to exceed 300 lbs.

PORTABLE WATER TANK LIFT COVER

The area between lift devices shall be covered with 1/8" aluminum and painted job color.. Cover shall be reinforced, if necessary to prevent flexing, or bowing of structure.

- One (1) Fol-Da-Tank folding steel frame 2,100 gallon 30 oz. red vinyl, portable water supply tank shall be provided on completed vehicle. Tank dimensions shall be 11'-3" x 11'-3" x 29" open, and 11'-3" x 7" x 29" closed, and weigh 165 lbs.

BODY OPTIONS AND UPGRADES

PLASTIC FLOOR AND SHELF TILE

Dri-Dek 12" x 12" x 9/16", self-draining plastic inter-locking material shall be cut to size and cover all compartment floors, shelves, and trays.

- The plastic floor tile shall be black.
- The plastic edge trim shall be black.

LOWER SIDE BODY PROTECTION - RUB RAIL

Rub rails shall be provided below the compartment door openings on both the streetside and curbside.

The rub rails shall be fabricated from ABS plastic, measuring approximately 2-3/4" high x 1-3/8" thick. 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 ABS plastic material shall be **black** in color.

REAR BODY HANDRAILS

There shall be two (2) **30"** vertical handrails on rear body. Handrails shall be NFPA compliant 1-1/4" knurled 304 stainless steel with welded end stanchions.

A safety sign FAMA23, which warns of the proper climbing method, shall be visible to personnel entering the cab and at each designated climbing location on the body.

A safety sign FAMA24, which warns personnel not to ride on the vehicle, shall be located at the rear step areas and at any cross walkways.

- The above component(s) shall **have a black powder coat finish.**

FOLDING STEP(S)

There shall be eight (8) Innovative Controls **BLACK Powder Coat** cast aluminum folding step(s) provided and installed on completed vehicle. Each step shall be heavy duty with stainless steel spring and textured step surface meeting NFPA standards. Each step shall include an LED light.

REAR STEP

Two (2) Zico PS-8 manual pull-out and down step(s) shall be installed below the rear bumper. The step surface, when pulled out from its nested position, shall be approximately 8" below the rear bumper step.

The Pull-out and down steps shall be black Scorpion coated.

REAR BODY HANDRAILS

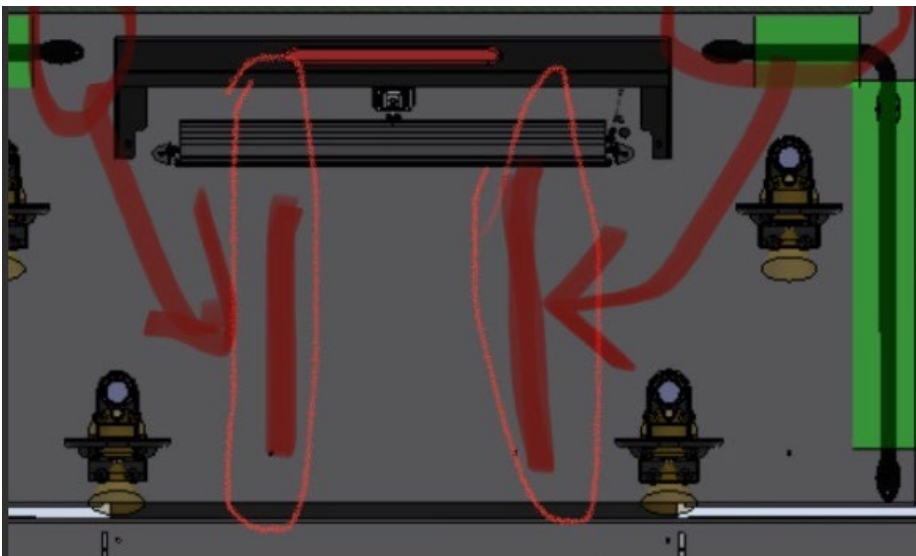
There shall be two (2) 15.5" horizontal handrails on rear body. Handrails shall be NFPA compliant 1-1/4" knurled 304 stainless steel with welded end stanchions.

A safety sign FAMA23, which warns of the proper climbing method, shall be visible to personnel entering the cab and at each designated climbing location on the body.

A safety sign FAMA24, which warns personnel not to ride on the vehicle, shall be located at the rear step areas and at any cross walkways.

POWDER COATED BLACK

Location will be under the extension step as marked in photo. (Red Lines)



LOW VOLTAGE ELECTRICAL SYSTEM- 12 VDC

General

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.

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*.

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. Conductor materials and stranding, other than copper, shall be permitted if all applicable requirements for physical, electrical, and environmental conditions are met as dictated by the end application. Physical and dimensional values of conductor insulation shall be in conformance with the requirements of SAE J1127 or SAE J1128, except where good engineering practice dictates special conductor insulation. The overall covering of conductors shall be moisture-resistant loom or braid that has a minimum continuous rating of 194°F (90°C) except where good engineering practice dictates special consideration for loom installations exposed to higher temperatures. The overall covering of jacketed cables shall be moisture resistant and have a minimum continuous temperature rating of 194°F (90°C), except where good engineering practice dictates special consideration for cable installations exposed to higher temperatures.

All wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection. The wiring connections and terminations shall be installed in accordance with the device manufacturer's instructions. All ungrounded electrical terminals shall have protective covers or be in enclosures. Wire nut, insulation displacement, and insulation piercing connections shall not be used.

Wiring shall be restrained to prevent damage caused by chafing or ice buildup and protected against heat, liquid contaminants, or other environmental factors.

Wiring shall be uniquely identified at least every 2 ft (0.6 m) by color coding or permanent marking with a circuit function code. The identification shall reference a wiring diagram.

Circuits shall be provided with properly rated low voltage over-current protective devices. Such devices shall be readily accessible and protected against heat in excess of the over-current 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:

- 69) SAE J156, *Fusible Links*
- 70) SAE J553, *Circuit Breakers*
- 71) SAE J554, *Electric Fuses (Cartridge Type)*
- 72) SAE J1888, *High Current Time Lag Electric Fuses*
- 73) 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.

Power Supply

A 12 V 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.

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

If the apparatus is equipped to tow a trailer, an additional 45 A shall be added to the minimum continuous electrical load to provide electrical power for the federally required clearance and marker lighting and the optical warning devices mounted on the trailer.

The condition of the low voltage electrical system shall be monitored by a warning system that provides both an audible and a visual signal to persons on, in, or near the apparatus of an impending electrical system failure caused by the excessive discharge of the battery set.

The charge status of the battery shall be determined either by direct measurement of the battery charge or indirectly by monitoring the electrical system voltage.

If electrical system voltage is monitored, the alarm shall sound if the system voltage at the battery or at the master load disconnect switch drops below 11.8 V for 12 V nominal systems, 23.6 V for 24 V nominal systems, or 35.4 V for 42 V nominal systems for more than 120 seconds.

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

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)*.

Wiring Diagram

A complete electrical wiring schematic of actual system shall be provided with finished apparatus. Similar or generic type electrical schematics shall NOT BE ACCEPTABLE.

Low Voltage Electrical System Performance Test

A low voltage electrical system test certification shall be provided with delivered apparatus.

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, No Exception. 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.

Outputs:

The outputs shall perform all the following items without added modules to perform any of the tasks;

1. Load Shedding: The system shall have the capability to load shed with 8 levels any output. This means you can specify which outputs (barring NFPA restrictions) you would like load shed. Level 1 12.9v, Level 2 12.5V, Level 3 - 12.1V, Level 4 - 11.7V, Level 5 11.3V, Level 6 10.9V, Level 7 10.5, Level 8 10.1. Unlike conventional load shedding devices you can assign a level to any or all outputs.
2. Load Sequencing: The system shall be able to sequence from 0 8 levels any output. With 0 being no delay and 1 being a 1 second delay, 2 being a 2 second delay and so on. Sequencing reduces the amount of voltage spikes and drops on your vehicle, and can help limit damage to your charging system.
3. Output Device: The system shall have solid-state output devices. Each solid-state output shall be a MOS-FET (Metal Oxide Semiconductor - Field Effect Transistors); MOS-FETs are solid-state devices with no moving parts to wear out. A typical relay when loaded to spec has a life of 100,000 cycles. The life of a FET is more than *100 times* that of a relay.

4. Flashing Outputs: The system shall be able to flash any output in either A or B phase, and logic is used to shut down needed outputs in park, or any one of several combined interlocks. The flash rate can be selected at either 80, 160 or 200 FPM. This means any light can be specified with a multiplex truck with no need to add flashers. Flashing outputs can also be used to warn of problems or other unique idea you may come up with.
5. PWM: The modules shall have the ability to PWM at some outputs so that a headlight PWM module is not needed.
6. Diagnostics: An output should be able to detect either a short or open circuit. The system should be able report in "real time" a text based message that points the maintenance person to a specific output.

Inputs:

1. The inputs shall have the ability to switch by a ground or vbatt signal.
2. The inputs shall be filtered for noise suppression via hardware and software so that RF or dirty power will not trick an input into changing its status.

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.

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.

System Network:

The multiplex system shall contain a Peer-to-Peer network. A Master Slave Type network is not suitable for this type of unit. A Peer-to-Peer network means that all the modules are equal on the network; a Master is not needed to tell other nodes when to talk, **No Exceptions.**

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.

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.

CAB CONSOLE

A center cab console shall be provided between the Driver's and Officer's seats extending to rear wall of cab. Console shall be as large as possible and fabricated of 1/8" smooth aluminum. A textured powder coat paint finish shall be provided for durability and finished appearance.

Console shall include;

- Forward section of cab console shall include;
 - **MULTIPLEX SYSTEM INTERFACE DISPLAY** Weldon V-MUX Vista IV multiplex system interface display(s) with push-button control shall be provided in cab easily accessible to driver and/or passenger. The full-color Vista interface display allows the user to control warning and scene lighting, HVAC controls (when specified), and view on-board diagnostics including service information. This display has a wide operating temperature range, automatic screen switching in response to current conditions, and a sleep mode option to eliminate night glare. The following features shall be included;
 - 800 x 480 resolution
 - Four video ports
 - Flash updates with USB memory stick
 - Display inside and outside temperature (when specified)
 - Automatic climate control (when specified)
 - 100% Configurable (OEM Level)
 - Field re-programmable
 - Peer to peer network
 - On-board diagnostics / service information
 - Colors change to indicate button status
 - Video Ready for: Backup camera, Thermal camera, DVD, GPS...
- Forward section, driver side of cab console shall include;
 - No components provided at this position.
- Forward section, officer side of cab console shall include;
 - No components provided at this position.
- Cab console, panel position forward shall include;

ELECTRONIC SIREN

One (1) Whelen model 295SLSA1 electronic siren control with selectable 100 or 200 watt output, hands-free operation, user selectable siren tones, park kill, and standard hard wired microphone shall be provided and installed in cab within easy reach of Driver. Siren power shall be wired through the master warning light switch.

- There shall be one (1) communications radio and/or siren 3" recess mount(s) with black powdercoat paint finish in specified console.

The specified siren functions shall be controlled by siren mounted switches.

- Cab console, panel position center shall include;

RADIO INSTALLATION

There shall be one (1) Platte Canyon Fire Protection District supplied radio(s) installed in the cab center console within easy reach of driver and/or officer. The final location of radio shall be determined by the Platte Canyon Fire Protection District at the pre-construction meeting.

All required radio programming shall be responsibility of Platte Canyon Fire Protection District. Radio(s) may not be fully tested if no radio program is provided with radio and will be responsibility of Platte Canyon Fire Protection District after delivery.

Radio shall be installed per Manufacturer's requirements and wired for proper 12 volt power and ground.

- There shall be one (1) communications radio and/or siren 3" recess mount(s) with black powdercoat paint finish in specified console.
- Cab console, panel position rearward shall include;
- There shall be one (1) communications radio and/or siren 3" filler plate(s) with black powdercoat paint finish provided for future radio/siren location in specified console.

BATTERY SYSTEM

Any body builder supplied battery connections 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.

Where an enclosed battery compartment is provided, it shall be ventilated to the exterior to prevent the buildup of heat and explosive fumes. The batteries shall be protected against vibration and temperatures that exceed the battery manufacturer's recommendation.

BATTERY SWITCH

One (1) battery "On/Off" switch shall be provided and located in cab within easy reach of Driver.

- A green "BATTERY ON" pilot light shall be visible from the driver's position.

BATTERY SOLENOID

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

BATTERY CONDITIONER

One (1) Blue Sea model P12 battery charger with 120 VAC input, and 25 amp 12 VDC output shall be provided. The P12 is a four stage, three output, dry mount charger designed for use in harsh environments where reliability, ease of use, and high performance are of primary importance. Backed by a 5-year warranty.

Five Critical Features Extend Battery Life

- User Defined Charge Profiles for setting voltages to match the battery manufacturer's recommendations
- User Defined Absorption Stage Values determine when the charger should exit Absorption Stage in order to prevent overcharging

- Charge Coordination™ integrates with Blue Sea Systems' Automatic Charging Relays to separate battery banks while the P12 is operational
- PreFloat™ Stage prevents over charging by individually moving batteries out of Absorption Stage
- Battery Temperature Compensation adjusts charging voltage up (for colder batteries) or down (for warmer batteries) as recommended by battery manufacturers for proper battery performance

Additional Features

- Rugged finned aluminum case dissipates heat
- Universal line voltage 90–265V AC, 45–65 Hz for worldwide use
- Large bright full graphic control screen with user interface
- Plain-language text in English, French, Italian, German and Spanish
- Intuitive screens provide fault alerts and plain language diagnostics

CHASSIS AIR BRAKE PUMP

One (1) Blue Sea Compressor.

- Automatically turns ON at 95 PSI and OFF at 125 PSI
- Industrial grade compressor provides reliable, long term operation
- Easy installation, no mounting plate required
- Integrated vibration dampening mounts
- Serviceable air filter and water separator filter
- Works in conjunction with engine driven compressor
- Integrated auto drain to protect your air system

BATTERY CHARGE INDICATOR

A Blue Sea EV battery charger display shall be provided and located near driver's door area. It can display a graphical representation of voltage with or without connection to a P12 battery charger. When connected to a P12 battery charger it can display the charger's summary screen, displaying voltage, current charging stage, and faults from the charger with other features as follows;

- Drop in replacement for traditional rectangular displays
 - Automatically detects 1-3 battery banks
 - AC charge indication verifies that power is connected and the battery charger is charging
 - Plain language fault indication relays if there is a fault with the battery charger
 - Dip switch selectable screen configuration allows the display to show voltage bar graphs or the P12 Battery Charger summary screen
 - Displays voltage bar graphs even when AC power is not present
 - Optional standby mode shuts off screen after 4 hours of inactivity
 - Automatic ON based on motion with integrated knock sensor
 - Bright, daylight readable, OLED display
- The charge indicator display shall be located at Driver step area.

SHORE POWER INLET

One (1) Blue Sea Sure Eject model 7851, 120 VAC, 20 amp shore power inlet(s) shall be provided. The shore power connection shall automatically disengage from vehicle when chassis ignition is engaged. A matching keyed plug shall be shipped loose with completed vehicle.

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 curbside front of body between compartment C1 and C2.

NOTE: As low as possible with no interference with cab step

REAR VIEW CAMERA

There shall be one (1) ASA Voyager rear observation camera system provided and installed on completed unit. The system shall include one (1) model VCMS155 high resolution box style camera with white housing installed on rear of body.

The camera(s) shall be wired to the cab/chassis supplied single multiplex display. The rear camera shall activate when the transmission is placed in reverse. If a right camera is provided it shall activate with the right side turn signal and if a left camera is provided it shall activate with the left side turn signal. All camera(s) shall also be activated by a button on the display(s).

TAIL LIGHTS

Rear body tail lights shall be vertically mounted in a 4 light bezel and located per Federal Motor Vehicle Safety Standards, FMVSS and Canadian Motor Vehicle Safety Standards CMVSS. The following lights shall be provided;

- Two (2) Whelen 604T amber LED sequential arrow turn signal lights, amber lens
- Two (2) Whelen 604BTT red LED brake and tail lights, red lens
- Two (2) Whelen 604BU white LED back-up lights, clear lens
- Two (2) Whelen 600 series as specified in warning light section.

Bezel to be BLACK in color.

THIRD STOP LIGHT

A TecNiq model T11-RR001 15.5" wide third LED stop light shall be provided with red lens at center of body, as high as practical. Light shall be connected to specified stop lights.

MIDSHIP 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.

MARKER LIGHTS

The body shall be equipped with all necessary side and rear clearance lights and reflectors in accordance with Federal Motor Vehicle Safety Standards (FMVSS) and Canadian Motor Vehicle Safety Standards (CMVSS). Clearance lights on body shall be connected to the clearance light circuit of the chassis.

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.

FRONT SCENE LIGHT(S)

The following front scene lights shall be mounted on chassis brow above windshield.

FRONT LED FLOODLIGHT

One (1) Rigid Industries E-Series model 130313, 30" combination spot/flood LED light(s) with black housing color and cradle mount brackets shall be provided on front of vehicle. The E-Series 30" LED light(s) shall have 32,000 lumen output each.

Each light shall be wired directly to the 12 VDC electrical system with stranded copper wire. The floodlights shall be protected with circuit breakers rated at the proper amperage and wire size.

The lights shall be controlled at the multiplex display(s) in the cab.

SIDE LED FLOODLIGHT

Four (4) Rigid Industries E-Series model 810313, 10" combination spot/flood LED light(s) with **BLACK** housing color and cradle mount brackets shall be provided on upper body sides. Light quantity shall be divided equally per side. The E-Series 10" LED light(s) shall have 15,000 lumen output each.

Each light shall be wired directly to the 12 VDC electrical system with stranded copper wire. The floodlights shall be protected with circuit breakers rated at the proper amperage and wire size.

The lights shall be controlled at the multiplex display(s) in the cab.

The **SIDE** scene lights shall also be activated when the apparatus is in reverse.

REAR LED FLOODLIGHT

One (1) Rigid Industries E-Series model 130313, 30" combination spot/flood LED light(s) with black housing color and cradle mount brackets shall be provided on upper rear body. Light quantity shall be divided equally per side. The E-Series 30" LED light(s) shall have 32,000 lumen output each.

Each light shall be wired directly to the 12 VDC electrical system with stranded copper wire. The floodlights shall be protected with circuit breakers rated at the proper amperage and wire size.

The lights shall be controlled at the multiplex display(s) in the cab.

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

WARNING LIGHT PACKAGE

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

The optical warning system shall consist of an upper and a lower warning level. The requirements for each level shall be met by the warning devices in that particular level without consideration of the warning devices in the other level.

For the purposes of defining and measuring the required optical performance, the upper and lower warning levels shall be divided into four (4) warning zones. The four zones shall be determined by lines drawn through the geometric center of the apparatus at 45 degrees to a line drawn lengthwise through the geometric center of the apparatus. The four (4) zones shall be designated A, B, C, and D in a clockwise direction, with zone A to the front of the apparatus.

Each optical warning device shall be installed on the apparatus and connected to the apparatus's electrical system in accordance with the requirements of this standard and the requirements of the manufacturer of the device.

A master optical warning system switch that energizes all the optical warning devices shall be provided.

The optical warning system on the fire apparatus shall be capable of two (2) separate signaling modes during emergency operations. One (1) mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way. One (1) mode shall signal that the apparatus is stopped and is blocking the right-of-way. The use of some or all of the same warning lights shall be permitted for both modes provided the other requirements of this chapter are met.

A switching system shall be provided that senses the position of the parking brake or the park position of an automatic transmission. When the master optical warning system switch is closed and the parking brake is released or the automatic transmission is not in park, the warning devices signaling the call for the right-of-way shall be energized. When the master optical warning system switch is closed and the parking brake is on or the automatic transmission is in park, the warning devices signaling the blockage of the right-of-way shall be energized. The system shall be permitted to have a method of modifying the two (2) signaling modes.

The optical warning devices shall be constructed or arranged so as to avoid the projection of light, either directly or through mirrors, into any driving or crew compartment(s). The front optical warning devices shall be placed so as to maintain the maximum possible separation from the headlights.

Steadily burning, non flashing optical sources shall be permitted to be used.

UPPER LEVEL OPTICAL WARNING DEVICES

The upper-level optical warning devices 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.

ZONE A - FRONT WARNING LIGHTS

See Chassis Modification section for cab mounted warning lights.

The Zone B & D upper rear lighting requirements shall be met by the specified Zone C upper lighting.

ZONE C - REAR WARNING LIGHTS

There shall be two (2) Whelen L31 series Super-LED beacons model L31HCDN provided on the rear of the body, one (1) each side in the upper corners. The beacons shall have clear lenses. The high profile beacon shall incorporate 32 red Super-LEDs installed in sets of eight on four PC boards.

The L31HCDN shall include Phase 1 / Phase 2 Signal Alert™ 75 and Phase 1 / Phase 2 Single Flash 75 with synchronized features. The L31HCDN shall also contain cruise mode and low power mode.

The high profile beacon will meet NFPA zone C upper requirements and is covered by a five year factory warranty.

COLOR NOTE:

- Red Streetside
- Blue Curbside
- Both Clear Lense

The lights shall be controlled at the multiplex display(s) in the cab.

LOWER LEVEL OPTICAL WARNING DEVICES

To define the clearance lines of the apparatus, the optical center of the lower-level optical warning devices 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 1600 mm) above level ground.

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.

ZONE A - FRONT WARNING LIGHTS, LOWER

See Chassis Modification section for cab mounted warning lights.

ZONES B AND D - BODY LIGHT (BODY WHEELWELL AREA)

There shall be two (2) Whelen 600 Series, linear super-LED Light(s) with full-fill optic provided, one (1) each side. The light head shall include an integral flasher with programmable flash patterns and Hi/Lo intensities.

Each Light shall have:

- Clear Lens

Each light shall have a black flange.

- Blue Light Streetside / Red Light Curbside

Flash Pattern shall be (factory default) Whelen ACTION SCAN

The lights shall be controlled at the multiplex display(s) in the cab.

ZONES B AND D - BODY INTERSECTOR LIGHT (BODY REAR CORNERS)

There shall be two (2) Whelen surface mount ION Series LED light(s) with wide angle optic provided, one (1) each side. The light head shall include an integral flasher with programmable flash patterns.

Each light shall have:

- Red LEDs
- Clear Lens
- Black Flange

- Red Streetside

- Blue Curbside

The lights shall be controlled at the multiplex display(s) in the cab.

ZONE C - REAR WARNING LIGHTS (LOWER REAR CORNERS)

There shall be two (2) Whelen 600 Series, linear super-LED Light(s) with full-fill optic provided, one (1) each side. The light head shall include an integral flasher with programmable flash patterns and Hi/Lo intensities.

Each Light shall have:

- Clear Lens

Each light shall have a black flange.

- Blue Light Streetside / Red Light Curbside

Flash Pattern shall be (factory default) Whelen ACTION SCAN

The lights shall be controlled at the multiplex display(s) in the cab.

WATEROUS CX SINGLE STAGE FIRE PUMP

A Waterous Model CX series fire pump shall be midship mounted, single stage construction and shall comply with all applicable requirements of the latest standards for automotive fire apparatus of the National Fire Protection Association, NFPA 1901, and shall have a rated capacity of 750 GPM.

The CX pump is capable of supplying volumes of 750 GPM (2,850 L/min) @ 150 psi (10.3 bar) and up to 1,250 GPM (4,750 L/min) @ 150 psi (10.3 bar). When installed in vehicle, complete with proper intake piping, CX meets NFPA 1901 for a 750 GPM rating.

The CX shall be driven by a PA series transmission side mounted power take-off. It has an integral speed increasing transmission custom fitted with the proper gear ratio to provide required impeller speeds at available input speeds, whether pumping from tank, draft, or in relay operation.

Construction features of the CX include helical gears; replaceable wear rings, balanced impeller, and anti-friction ball bearings running in oil to support the impeller shaft and drive shaft.

Casing

Two-piece, vertically-split, high-tensile, close-grained gray iron.

Impeller

Bronze impeller specifically designed for the fire service, double hubbed to eliminate axial thrust, and accurately balanced for vibration-free running.

Wear Rings

Replaceable bronze wear rings to increase pump life and keep maintenance costs at a minimum.

Impeller Shaft

Stainless steel, heat treated, precisely ground to size, and polished under shaft seal. Supported by oil-lubricated ball bearings.

Bearings

All bearings are oil or grease lubricated, ball-type, located outside the pump casting to accurately align and support the impeller shaft assembly. Ball bearings are deep groove type designed to carry both radial and axial thrust.

Shaft Seal

Face-type, self-adjusting, corrosion and wear resistance mechanical seal is standard.

Intake

6.0" (15.2 cm) Victaulic

Sideswipe

Pump shall be a special built unit complete with stainless steel pump panel and all controls as listed below.

ANODES

The fire pump shall be equipped with replaceable alloy anodes. The pump shall have one anode on each intake section and one anode on the discharge section of the fire pump.

CERTIFICATION

The pump will perform and meet the following tests:

100% of rated capacity @ 150 PSI net pump pressure.
100% of rated capacity @ 165 PSI net pumps pressure.
70% of rated capacity @ 200 PSI net pump pressure.
50% of rated capacity @ 250 PSI net pump pressure.

Pump shall be tested at manufacturer under full NFPA suction conditions.

RELIEF VALVE

There shall be one (1) suction bronze body relief pump valve provided on the pump system.

PUMP MODULE BODY

The pump module body shall be a self-supported structure mounted independently from the body and chassis cab. The pump module design must allow normal frame deflection through isolation mounts without imposing stress on the pump module structure or side running boards. The pump module shall consist of a welded framework, properly braced to withstand chassis frame flexing. The pump module support shall be bolted to the frame rails of the chassis.

PUMP MODULE PANELS

The pump module panel shall be 14 gauge **BLACK POWDER COATED**.

PUMP CERTIFICATION TEST PLATE

A permanently affixed plate shall be installed at the pump operators position that will provide the rated discharge and pressures together with the speed of the engine as determined by the certification test for each unit, the position of the parallel/series pump used and the no load governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve.

PIPING AND MANIFOLDS

All the plumbing and/or piping in the pump module shall be of 304 stainless steel or flexible piping for long life. All NPT pipe thread connections larger than ¾" connections shall be avoided in the construction of the plumbing system. The following valves shall have groove connection: tank fill, all 2" (5.08 cm) and/or 2-1/2" (6.35 cm) pre-connect valves.

PUMP COOLER and ENGINE COOLER VALVES

An engine cooler and pump cooler valve shall be installed in the instrument panel.

The valves shall be a 1/4" multi-turn valve installed thru the instrument panel and labeled.

MASTER PUMP DRAIN

The pump shall be equipped with a Trident Master Pump drain to allow draining of the lower pump cavities, volute and selected water carrying lines and accessories.

VALVE CONTROLS

Locking push pull control rods shall be provided for appropriate valves. The chrome plated zinc handles shall have a recessed area for 1" x 3" (2.54 x 12.70 cm) identification tags. The controls shall be locked in any position.

Valve lift handles shall be provided on appropriate valves. The lift handles shall have a recessed area for 1" x 3" (2.54 x 12.70 cm) identification tags. The lift handles require a self locking valve.

DISCHARGE VALVES

All discharge valve(s) shall be bronze body valve(s) with stainless steel ball. Each valve shall be equipped with a stainless steel weld type valve adapter on inlet side, and discharge side with drain port.

DISCHARGE GAUGES

All discharge gauge(s) shall be Innovative Controls/NoShok 2-1/2" liquid filled gauge(s).

INDIVIDUAL DRAINS

All 2" (5.08cm) or larger discharge outlets shall be equipped with a 3/4" ball valve drain valve or larger.

DISCHARGES

LEFT SIDE PANEL DISCHARGE

One (1) 2-1/2" (6.35 cm) discharge valve shall be located on the streetside panel. The 2-1/2" (6.35 cm) outlet shall be equipped with an integral, stainless steel, 30-degree elbow terminating with 2-1/2" (6.35 cm) NSTM threads. The discharge shall be capable of flowing 250 GPM or greater.

LEFT SIDE AUXILLARY SUCTION

One (1) 2-1/2" (6.35cm) intake with a stainless steel valve shall be located on the left side panel. The valve shall be a quarter turn ball type and fixed pivot design to allow easy operation at all pump pressures. The valve shall be controlled at the side pump panel with a swing handle. The valve shall come equipped with a chrome plug, chain, inlet strainer, 2-1/2" (6.35 cm) NST chrome inlet swivel and 3/4" drain valve.

TANK FILL

One (1) 2" (5.08 cm) discharge with a bronze body valve shall be plumbed to the tank. The valve shall be a quarter turn ball type and fixed pivot design to allow easy operation at all pump pressures.

TANK TO PUMP

One (1) 3" (7.62 cm) bronze body valve with stainless steel ball shall be installed between the water tank and the pump. The valve shall be a quarter turn ball type. The valve shall be actuated with an air motor. The valve shall be controlled with a switch at the pump panel **AND IN CAB AT CENTER CONSOLE.**

MASTER INTAKE/PRESSURE GAUGES

There shall be one (1) Innovative Controls/NoShok 4" liquid filled gauge to display the Master Intake Pressure, and labeled "PUMP INTAKE".

There shall be one (1) Innovative Controls/NoShok 4" liquid filled gauge to display the Master Discharge Pressure. Gauge shall be labeled "PUMP DISCHARGE".

Both gauges shall have a die cast zinc, chrome plated bezel and color-coded. The left side (Pump Intake) bezel shall be color coded red, and the right side (Pump Discharge) bezel shall be colored black.

A test gauge port manifold shall be integrated into lower center bezel.

PRESSURE GOVERNOR and ENGINE MONITORING DISPLAY

A Fire Research PumpBoss series PBA401-D00 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 6 3/4" high by 4 5/8". The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored engine information and outputs for engine control shall be on the J1939 databus. Inputs from the pump discharge and intake pressure sensors shall be electrical.

The following continuous displays shall be provided:

- Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs
- Engine oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display
- Pressure and RPM operating mode LEDs
- Pressure / RPM setting; shown on a dot matrix message display
- Throttle ready LED.

A dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and night time operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

• High Battery Voltage	• Low Engine Oil Pressure
• Low Battery Voltage (Engine Off)	• High Engine Coolant Temperature
• Low Battery Voltage (Engine Running)	• Out of Water (visual alarm only)
• High Transmission Temperature	• No Engine Response (visual alarm only).

The program features shall be accessed via push buttons located on the front of the control module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

WATER TANK LEVEL GAUGE

There shall be an Innovative Controls SL series 10-LED water tank level gauge(s) for indicating water tank level. The tank level gauge shall indicate the liquid level on an easy to read display.

Each tank level gauge system shall include:

- A pressure transducer that is mounted on the outside of the tank in an easily accessible area.
- A super bright LED bar graph display with a visual alarm at 1/4 of a tank. The display shall also provide an output to activate an audible alarm or secondary visual alarm at 1/4 of a tank.

A set of weather resistant connectors to connect the digital display to the pressure transducer and to the apparatus power.

ADDITIONAL DISCHARGES

Additional discharges (if any) shall be listed separately below.

PUMP HEAT PAN ENCLOSURE - ALUMINUM

An aluminum heat pan shall be provided to enclose the bottom of the pump compartment. Aluminum material shall be used to prevent rust and corrosion that is commonly found in pans made of steel. The assembly shall completely enclose the underside of the pump to aid in the prevention of freezing in winter weather. The bottom of this enclosure shall be designed to be easily removed without the need to remove any bolts or fasteners. For ease of handling, the bottom enclosures shall be installed in two (2) sections. One (1) section shall slide out each side for maintenance and pump compartment clean-out.

PUMP TEST RATING

The fire pump shall be tested at 1,000 GPM (4,000 LPM) @ 150 PSI (1,134 Kpa).

PAINT FINISH

The pump shall remain the color and finish provided by the pump manufacturer.

PUMP DRIVE SYSTEM - PUMP AND ROLL

The water pump system shall be driven by a Chelsea "Hot-Shift" transmission PTO and mounted directly to the transmission of the chassis. The drive line shall be hollow tube type, with heavy duty universals and splined shaft to allow movement of the chassis components and pump.

Where the pump is driven by the chassis engine, a label indicating the chassis transmission shift selector position to be used for pumping shall be provided in the driving compartment and located so that it can be read from the driver's position.

Where the pump is driven by the chassis engine and automatic transmission through a split shaft PTO, an interlock system shall be provided to prevent the pump drive system from being shifted out of the "pump engaged" pumping mode of operation when the chassis transmission is in pump gear.

Where the water pump is driven by the chassis engine, an interlock system shall be provided to ensure that the pump drive system components are engaged in the pumping mode of operation so that the pumping system can be operated from the pump operator's position, with indicators to inform the operators of the status of the controls.

Apparatus shall have "Pump Engaged", "OK to Pump" and "Ok to Pump & Roll" indicators in the driver compartment.

All apparatus shall have "Throttle Ready" and "OK to Pump" indicators on the pump operator's panel.

A "Pump Engaged" indicator shall be provided in the driving compartment to indicate the pump shift has been successfully completed.

An "OK to Pump" indicator shall be provided in the driving compartment and on the pump operator's panel to indicate that all of the following conditions have been met to safely operate the pump in stationary mode:

8. The pump shift is engaged.
9. The parking brake is engaged.
10. If the pump is driven from a transfer case PTO or auxiliary transmission PTO, the drive to the wheels is in neutral.
11. If the apparatus is equipped with an automatic transmission, the chassis transmission is in the correct pump gear as follows:
 - x. If the pump is driven by a PTO after the chassis transmission gearing (e.g., split shaft PTO, transference PTO, etc.) the transmission is in the correct forward drive gear.
 - y. If the pump is driven by a PTO ahead of the chassis transmission gearing (e.g., flywheel PTO, crankshaft PTO, etc.) the transmission is in neutral.
5. If the apparatus is equipped with a manual transmission, any gear, including neutral, will allow an "OK to Pump" indicator to come on provided all other conditions are met.

As this Apparatus is designed to be used in both stationary pumping mode and "pump-and roll" pumping mode, an "OK to Pump-and-Roll" indicator shall be provided in the driving compartment to indicate that all of the following conditions have been met to safely operate the pump in pump-and-roll mode:

1. The pump shift is engaged.
2. The parking brake is released.

A "Throttle Ready" indicator shall be provided on the pump operator's panel. The "Throttle Ready" indicator shall indicate when the pump is in "OK to Pump" mode. The "Throttle Ready" indicator at the pump operator's panel shall indicate when the parking brake is engaged, pump is engaged and, if the apparatus is equipped with an automatic Transmission, when the Transmission is in the appropriate Gear.

Model part number shall be Chelsea 280 series.

THERMAL PROTECTION

No thermal protection shall be provided on specified pump.

PUMP COMPARTMENT HEATER

The pump compartment shall be provided with one (1) Red Dot 35,000 BTU hot water type heater(s). The heater(s) shall be connected to the chassis engine cooling system and have three-speed, 12 volt blower. The cooling system lines shall be insulated and be provided with 1/4 turn shut-off valves to isolate system, if required.

The pump operator's panel shall have an Innovative Controls switch panel for heat control switch with indicator light. Switch shall be constantly illuminated and labeled.

WATEROUS SEVEN YEAR PUMP WARRANTY

The fire pump shall be warranted by Waterous for a period of seven (7) years from the date of delivery to the Platte Canyon Fire Protection District.

FIRE PUMP TEST

The pump shall undergo a fire pump test per applicable sections of NFPA 1901 or 1906 standards, prior to delivery of the completed apparatus.

The test shall include at least the pumping test, the pumping engine overload test, the pressure control system test, the priming device tests, and a vacuum test.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 500 psi (3400 kPa) for a minimum for 10 min.

The pump shall be capable of producing fire streams that are free from objectionable pulsation under all normal operating conditions.

The results of this test shall be furnished with the vehicle on delivery.

FIRE PUMP TEST LABEL

A test plate shall be provided at the pump operator's panel that gives the rated discharges and pressures together with the speed of the engine as determined by the certification test for each unit, the position of the parallel/series pump as used, and the governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve

SAFETY SIGN

A safety sign FAMA25, which warns of the need for training prior to operating the apparatus, shall be located on the pump operators panel.

ALTITUDE REQUIREMENT

The apparatus shall be designed to meet the specified rating at 7,000 feet (2,135 meters) altitude.

AIR PRIMING PUMP CONTROL - MANUAL CONTROL

The priming pump shall be a Trident Emergency Products compressed air powered, high efficiency, multi-stage venturi based AirPrime System.

The AirPrime is more efficient and reliable than the conventional electric motor driven primers, and virtually eliminates the impact load on the vehicles electrical system improving the reliability of the vehicle. AirPrime also improves performance in the elapsed time for establishing water supply resulting in improved fire ground operations and safety.

The primer shall be capable of priming the pump through a 20' section of suction hose with a 10' lift within 30 seconds for pumps less than 1,500 gpm, and 45 seconds for pumps 1,500 gpm and larger.

6" SUCTION INLET - STREETSIDE

One (1) 6" (150 mm) suction intake shall be installed on the streetside pump panel to supply the fire pump from an external water supply. The intake threads shall be 6" NHM threads.

The suction fittings shall include a removable die-cast screen to provide cathodic protection for the pump thus reducing corrosion.

A short steamer barrel may be required to accommodate an intake valve without exceeding the legal overall body width.

SUCTION CAP

The suction inlet shall be equipped with a 6" NH chrome plated, long handled, aluminum, cap capable of withstanding 500 psi.

- Two (2) Harrington 6.0" NST/NH x 6.0" Hose x 10' Flexlite PVC flexible suction hose(s) shall be provided with completed unit. The hose shall have NHM rocker lug x NHF long handle couplings.
 - The suction hose(s) shall be mounted on streetside above wheels in formed aluminum hard suction tray(s).
- One (1) 6" barrel strainer(s) with foot valve shall be provided with completed unit. Barrell strainer hard suction end shall match provided hard suction(s).

HOSE THREADS

Hose threads shall be National Standard (NST) on all base threads on the apparatus intakes and discharges, unless otherwise specified. (NST and NH are the same thread)

PLUMBING SPECIFICATIONS

The fire pump plumbing system shall be fabricated with rigid stainless steel and or flexible piping with stainless steel fittings. Victaulic couplings shall be installed to permit flexing of the plumbing system and allow for quick removal of piping or valves for service. Flexible hose couplings shall be threaded stainless steel or Victaulic connections.

The fire pump and plumbing shall be hydrostatically tested in compliance to applicable sections of NFPA standards, with test results submit with the delivery documentation.

STAINLESS STEEL INTAKE MANIFOLD

The suction manifold assembly shall be fabricated with Schedule 10 type 304 stainless steel. All threaded fittings shall be a minimum of Schedule 10 stainless steel. The suction manifold assembly shall have radiused sweep elbows to minimize water turbulence into the suction volute.

The suction manifold shall be welded and pressure tested prior to installation. The stainless steel manifold assembly shall be attached to the pump intake volute with a heavy-duty, flexible Victaulic coupling.

The entire intake piping system, valves, bleeder valves, and intake closures, excluding the tank-to-pump line on the tank side of the valve, shall be capable of withstanding a hydrostatic pressure of 250 psi (1700 kPa).

STAINLESS STEEL DISCHARGE MANIFOLD

The discharge manifold assembly shall be fabricated with Schedule #10 type 304 stainless steel. All threaded fittings shall be a minimum of Schedule 10 stainless steel. The discharge manifold assembly shall have radiused sweep elbows to minimize water turbulence into the discharge header.

The manifold shall be welded and pressure tested prior to installation. The stainless steel manifold assembly shall be attached to the pump intake volute with a heavy-duty, flexible Victaulic coupling.

The entire discharge piping system; valves; drain cocks; and outlet closures, excluding the tank fill line on the tank side of the valve and CAF system piping and components that include valves that permit isolation from discharge pressure, shall be capable of withstanding a hydrodynamic discharge pressure of 500 psi (3400 kPa) or 100 psi (700 kPa) over the maximum discharge pressure capability rating of the pump, whichever is greater.

PLUMBING SYSTEM FINISH

The plumbing system shall not be painted. The piping and valves shall remain natural color.

STAINLESS STEEL PLUMBING WARRANTY

The stainless steel plumbing shall be free of defects in material and workmanship for a period of ten (10) years, or 100,000 miles (or 160,934 kilometers), whichever occurs first, starting thirty (30) days after the original invoice date.

The contractor shall supply details of their warranty information with their bid submission.

INTAKE, CURBSIDE #1

- One (1) Akron Brass 8800 series Gen II, manual type 2-1/2" (65 mm) valve(s), Stainless Steel ball with HydroMax technology. Each valve shall be equipped with a Class 1 stainless steel weld type valve adapter on inlet side, and discharge side with drain port.
 - Valve(s) shall be controlled with a chrome handle directly connected to valve.
- Each intake shall have a 2-1/2" (65 mm) NSTF chrome swivel adapter with strainer provided.
 - The specified adapter shall be provided with a 2-1/2" (65 mm) NSTM chrome plated plug with chain.
- One (1) Innovative Controls model 3003000, 3/4" brass 90 degree ball type drain valve(s) with lift type handle which can be opened under pressure, with color coded label shall be provided. Valve(s) shall be located on lower pump panel and drain the lowest point in the plumbing.

2-1/2" DIRECT TANK FILL

One (1) 2-1/2" (65 mm) direct tank fill(s) shall be provided on pump panel with a check valve.

- Located on rear of truck curbside

- One (1) Akron Brass 8800 series Gen II, manual type 2-1/2" (65 mm) valve(s), Stainless Steel ball with HydroMax technology. Each valve shall be equipped with a Class 1 stainless steel weld type valve adapter on inlet side, and discharge side with drain port.
 - Valve(s) shall be controlled with a chrome handle directly connected to valve.
- Each intake shall have a 2-1/2" (65 mm) NSTF chrome swivel adapter with strainer provided.
 - The specified adapter shall be provided with a 2-1/2" (65 mm) NSTM chrome plated plug with chain.

FRONT DISCHARGE

2-1/2" DISCHARGE - 250 GPM

There shall be one (1) 2-1/2" (65 mm) gated discharge(s) with control located on pump panel. Each discharge shall include:

- One (1) of the discharge(s) shall flow water only.
- The valve(s) shall be supplied by the pump module manufacturer.
 - There shall be one (1) 2-1/2" (65 mm) NSTF chrome plated cap with chain.

FRONT BUMPER GROUND SWEEP NOZZLES

The front bumper shall be provided with 1/2" ground sweep nozzles with 145 degree spray angle (approx. 16 GPM @ 100 PSI) with spray overlap. Two (2) Bete 1/2" NPT brass fan type nozzles with vertical adjustable brass nozzle joints shall be provided and mounted, one (1) each corner of bumper and plumbed to valve using high pressure flexible 1/2" hose.

- One (1) of the discharge(s) shall flow water only.
- Two (2) KZ 84 series 1/2" (12 mm) valves with EH3 series 12 VDC electric on/off control shall be provided to control the front ground sweep nozzles. 84 Series valves have bronze body with stainless steel ball and stem.

Each valve shall be individually controlled with **VISTA controls** located in cab near driver, and labeled "Front Spray Bar - Left / Right".

- One (1) Innovative Controls model 3003000, 3/4" brass 90 degree ball type drain valve(s) with lift type handle which can be opened under pressure, with color coded label shall be provided. Valve(s) shall be located on lower pump panel and drain the lowest point in the plumbing.

CURBSIDE DISCHARGE

CURBSIDE DISCHARGE #1

- Label: DISCHARGE #3.
- One (1) of the discharge(s) shall flow water only.
- Discharge shall have a 2-1/2" (65 mm) NSTF x 2-1/2" (65 mm) NSTM chrome plated 30 degree downsweep elbow provided.
 - The specified elbow shall be provided with a 2-1/2" (65 mm) NSTF chrome plated cap with chain.

REAR CURBSIDE DISCHARGE

Each discharge(s) shall have a stainless steel trim ring.

DISCHARGE REAR CURBSIDE (OUTBOARD)

- Label: 2-1/2" REAR DISCHARGE.
- One (1) of the discharge(s) shall flow water only.
- Discharge shall have a 2-1/2" (65 mm) NSTF x 2-1/2" (65 mm) NSTM chrome plated 30 degree downsweep elbow provided.
 - The specified elbow shall be provided with a 2-1/2" (65 mm) NSTF chrome plated cap with chain.

PUMP PANEL

The side mount pump control panel shall be hinged, or bolted in place allowing it to be easily removed to gain access to plumbing components.

The pump controls shall be mounted on an aluminum control panel with a black powdercoat painted finish.

PUMP PANEL LOCATION

The pump control panel shall be located as per the itemized compartment list.

The pump panel shall include the following items;

PUMP SAFETY AND TEST LABELS

Safety, information, data, and instruction labels for apparatus shall be provided and installed at the operator's instrument panel.

The labels shall include rated capacities, pressure ratings, and engine speeds as determined by the certification tests. The no-load governed speed of the engine, as stated by the engine manufacturer, shall also be included.

The labels shall be provided with all information and be attached to the apparatus prior to delivery.

PUMP PANEL LIGHTING

All gauges and controls on the pump operator's panel shall be adequately illuminated by a full panel width shielded light assembly with full width OnScene Solutions LED light (each panel, if equipped). The light shall be activated by a weather-proof type switch on the pump operator's panel as well as automatically when pump is engaged. This switch shall also activate any area step lighting.

PUMP PANEL SWITCH PANEL

An Innovative Controls black back-lit switch panel shall be provided to control specified scene lighting or other control switching.

PUMP PANEL AIR HORN SWITCH

The pump operator's panel shall have an Innovative Controls switch panel to activate the cab/chassis air horn(s). Switch shall be constantly illuminated and labeled.

BACK PACK FILLER VALVE

A brass, 3/4", quarter turn ball valve with chrome T-handle shall be supplied and labeled "Back Pack Filler". The valve shall be installed on the streetside lower forward side of the pump panel with the discharge terminating at the outside of the panel. The valve plumbing shall be properly routed and clamped from the water tank to the filler valve.

PUMP PANEL - SPEAKER MOUNTING

There shall be one (1) speaker mounted on the gauge panel portion of the pump operators panel(s). The speaker shall be of a weather proof design as they will be mounted on face of the panel.

POLY WATER TANK

The water tank capacity shall be approximately 2,000 USG (1,665 IG). Certification of the tank capacity shall be recorded on the manufacturer's record of construction and shall be provided to the purchaser upon delivery of the apparatus.

CONSTRUCTION

The water tank shall be of a specific configuration and designed to be completely independent of the body and to incorporate the lowest possible Center of Gravity. The transverse and longitudinal baffles shall be manufactured of a minimum of 3/8" polypropylene. All baffles shall be properly vented to permit movement of air and water between compartments. All baffles shall interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. All exterior walls and interior baffles shall be welded to the floor of the tank. Tolerances in design allow for a maximum variation of 1/8" on all dimensions. All poly sheeting utilized in the construction of the tank shall be of a textured finish.

WATER FILL TOWER AND COVER

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" polypropylene sheet and shall have a minimum outside dimension of 8" (203mm) x 8" (203mm). The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The fill tower cover shall include a Label "WATER ONLY" that is blue in color with white letters indicating that it is a water-only fill tower. Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with a minimum I.D. of 4" that is designed to run through the tank and shall be piped to discharge water behind the rear wheels as required in NFPA 1901 so as too not interfere with rear tire traction. The discharge of the overflow/vent shall be threaded to allow for a fitting and hose to be installed and routed below the fuel tank or rear axle to prevent flooding.

SUMP

The sump shall be constructed of a minimum of 1/2" polypropylene. When a front suction is required, a 3" schedule 40 polypropylene pipe shall be installed that will incorporate a dip tube from the front of the tank to the sump location. The sump shall have a minimum 3" N.P.T. threaded outlet on the bottom for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3" above the inside floor.

THREADED PORTS

There will be three (3) standard threaded Ports: one for the tank-to-pump suction Line, one for tank fill line and a one for a water level sensor. All threads shall be of National Pipe Taper specification unless otherwise specified.

MOUNTING AND SUPPORT

The tank shall be mounted to the sub-frame of the body with a barrier of 1/4" rubber between tank and any frame material. The rubber Isolator shall have a Rockwell rating of 60 durometer. The frame / cradle shall support the entire floor including the perimeter of the tank with a maximum unsupported area of 529 square inches (.341 sq m) for tanks equal to or less than 40" (1016 mm) tall and 400 square inches (.258 sq m) for tanks greater than 40" (1016 mm) tall.

BOOSTER TANK REFILL SYSTEM

A booster tank refill system shall not be provided.

CAB MOUNTED WATER TANK INDICATOR

There shall be one (1) Innovative Controls SL Mini 4-light, remote tank level gauge for indicating water level installed in cab. The tank level gauge shall indicate the liquid level or volume on an easy to read blue LED display and show increments of 1/4 of a tank.

The Mini remote gauge will receive data from the same source as the Master Display. No additional transducers shall be required.

- Above tank level display shall be located in cab interior.
- Above tank level display shall be located on main pump panel.

WATER TANK LEVEL INDICATOR

There shall be two (2) Whelen Strip-Lite model PSTANK LED light(s) provided to indicate the water tank level and connected to tank level sensor in water tank. The four tank levels to be indicated as follows;

Green =	"Full"
Blue =	"3/4"
Amber =	"1/2"
Red =	"1/4"

The red "1/4" level light shall flash when the tank level drops below "1/4" of the tank capacity. Each light will be installed in a vertical orientation and be de-activated whenever the parking brake is released.

- Water tank level indicators shall only be on with the Park Brake set.

POLY WATER TANK WARRANTY

The poly water tank shall be provided with a lifetime material and workmanship limited warranty. The manufacturer shall supply details of their warranty information with their bid submission.

TANK FINISH

The tank shall be standard black poly, un-painted finish.

TANK SLEEVE, 4"

One (1) 4" sleeve(s) shall be installed through the specified water tank above to accommodate plumbing for rear discharge(s).

DUMP VALVE FLANGE(S)

One (1) 10" x 10" dump valve flange(s) shall be provided with specified tank.

FILL VALVE FLANGE(S)

One (1) 4" fill valve flange(s) shall be provided with specified tank. The fill line shall have an "in-tank" slow fill safety protection system to protect the tank during filling for high flow conditions.

Tank shall not be provided with side dump valve(s).

REAR DUMP VALVES

One (1) Newton Kwik-Dump model 1020-34, 10" x 10" square, manually operated, plunger-style dump valve(s) shall be provided on specified water tank. This 1020 dump valve shall have stainless steel construction including the manual two position handle. For improved water flow, the dump valve shall be attached directly to the tank and not by the use of a rear manifold system.

Each dump valve shall be capable of a flow rate of 2,940 GPM and able to completely empty a 2,500 gallon tank in approximately 42 seconds.

- The specified dump valve shall be supplied with a Newton model 4036-34 manual stainless steel 36" telescopic extension chute.
- Dump valve shall be supplied with a model 6012SW-34 stainless steel swivel to rotate 180 degrees. The swivel chute works in conjunction with the 4036 telescopic chute.

HOSE BED STORAGE AREA

Hose bed storage area shall be located over water tank and body, and shall exit at the rear of the apparatus. The interior of storage area shall be free from all projections such as nuts, sharp angles, or brackets that may damage equipment.

ALUMINUM HOSE BED DECKING

The hose bed deck shall be constructed from 3" x 3/4" hollow aluminum extrusions welded into a one-piece grid to allow ventilation and water drainage. The extrusions shall have a radiused ribbed top surface. The deck will be completely removable for easy access to the booster tank. The booster tank fill tower shall be protected as necessary to prevent damage from equipment located in the storage area.

HOSE BED BAY #1

HOSE BED STORAGE

The following fire hose shall be stored in hose bed storage area;

- Hosebed bay shall be for dry hose storage.

HOSE BED BAY #2

HOSE BED STORAGE

The following fire hose shall be stored in hose bed storage area;

- One (1) adjustable 3/16" smooth aluminum hose bed divider(s) shall be provided in the hose bed storage area. 1" round split aluminum tubing welded to the top and rear edges of divider. Hose pay-out shall be unobstructed by the divider.
- Hosebed bay shall be for dry hose storage.

HOSE BED BAY #3

HOSE BED STORAGE

The following fire hose shall be stored in hose bed storage area;

- One (1) adjustable 3/16" smooth aluminum hose bed divider(s) shall be provided in the hose bed storage area. 1" round split aluminum tubing welded to the top and rear edges of divider. Hose pay-out shall be unobstructed by the divider.
 - Hosebed bay shall be for dry hose storage.

HOSE BED FULL WIDTH EXTENSION

A full width, bolt-on type hose bed extension step shall be provided. Step shall be fabricated from 3/16" smooth aluminum with side gusset supports to body. The specified center rear marker lights shall be located on rear facing edge. The underside of step shall have a 36" OnScene LED light to light the bumper or compartment area below.

The hose bed extension shall be provided with an aluminum Grip-Strut insert(s) for improved slip resistance.

The hose bed extension shall be black scorpion coated.

HOSEBED LIGHT

There shall be three (3) OnScene Solutions Rough-Service 9" white LED light(s) installed at forward edge of hosebed area. Each light shall be mounted in an extruded aluminum housing to protect against damage from personnel or equipment. Light activation shall be with battery master switch or hosebed hinged cover if provided.

All three (3) lights located on front wall of hose bed

EQUIPMENT PAYLOAD WEIGHT ALLOWANCE

In compliance with NFPA 1901 standards, the mobile water supply unit shall be designed for an equipment loading allowance of 1,000 lbs. of Platte Canyon Fire Protection District provided equipment based on the body having at least 200 cu. ft. of storage space.

EQUIPMENT

The following equipment shall be furnished with the completed water supply 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.
- The wheel chock(s) shall be the responsibility of Platte Canyon Fire Protection District after delivery of completed apparatus.
- Flashlight(s) shall be the responsibility of Platte Canyon Fire Protection District after delivery of completed apparatus.

PORTABLE WATER TANK

No portable water tank shall be provide with completed unit.

REMAINING NFPA MINOR EQUIPMENT BY PURCHASER

All other minor equipment not specified above, but required by NFPA 1901 for mobile water supply vehicles, section 7.9.4 shall be supplied and mounted by Platte Canyon Fire Protection District before the unit is placed in emergency service.
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