Agenda Report

2725 Judge Fran Jamieson Way
Viera, FL 32940

New Business - Public Safety Group

J.2. 10/28/2025

Subject:
Board Approval: Allocation and Procurement of Four (4) Class A Fire Engine/Pumper Trucks, One (1) Type IV Wildland Brush Truck, and Design/Construction of Fire Station 27.

Fiscal Impact:
The Fire Control MSTU was adopted at the voter-approved millage rate of 0.6431, resulting in $5,557,251 being set-aside in Reserves to be allocated by the Board.

Dept/Office:
Public Safety Group: Brevard County Fire Rescue

Requested Action:
Request allocation of Fire Control MSTU funds in the amount of $5,557,251 and approve the purchase of four (4) Fouts Bros FB94 Custom Class A Fire Engine/Pumper Trucks, $2,904,820; one (1) Type IV Wildland Brush Truck, $349,398; and Fire Station 27 Design/Construction, $2,303,033; Request authorization for the County Manager to execute all necessary budget amendments (BCRs) or other administrative actions necessary to complete the purchases.

Summary Explanation and Background:
On September 23, 2025, the Board adopted a Fire Control MSTU millage rate of 0.6431 in accordance with prior voter-approved referendum. This resulted in $5,557,251 in ad valorem revenue to be allocated by the Board. In alignment with the Fire Rescue Department's 7-year plan, staff recommends the following allocation in the current fiscal year. Recommendation for equipment is based on current manufacturer lead times of 180 days compared to the normal lead-time being three-years.

- Replacement of four (4) twenty-year old high-mileage Class A Fire Engine/Pumper Trucks that were purchased by a manufacturer who went out of business in 2006, $2,904,820
- Replacement of one (1) forty-eight-year-old Type IV Wildland Brush Truck, $349,398
- Design/Construction of Fire Station 27, $2,303,033

Appropriate vendor quotes and delivery timelines associated with equipment purchases have been obtained from the southeast authorized dealers and are attached for review. All equipment meets National Fire Protection Association (NFPA) specification standards.

Clerk to the Board Instructions:
None

BREVARD County
BOARD OF COUNTY COMMISSIONERS

FLORIDA'S SPACE COAST

Kimberly Powell, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001
Fax: (321) 264-6972
Kimberly.Powell@brevardclerk.us

October 29, 2025

MEMORANDUM

TO: Chief Patrick Voltaire, Fire Rescue Director

RE: Item J.2., Allocation and Procurement of Four (4) Class A Fire Engines/Pumper Trucks, One (1) Type IV Wildland Brush Truck, and Design/Construction of Fire Station 27

The Board of County Commissioners, in regular session on October 28, 2025, approved allocation of Fire Control MSTU Funds in the amount of $5,557,251; approved the Purchase of four (4) Fouts Bros FB94 Custom Class A Fire Engine/Pumper Trucks, $2,904,820; approved one (1) Type IV Wildland Brush Truck, $349,398; approved Fire Station 27 Design/Construction, $2,303,033; and authorized the County Manager to execute all necessary budget amendments (BCRs), or other administrative actions necessary to complete the purchases.

Your continued cooperation is always appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
RACHEL M. SADOFF, CLERK

Kimberly Powell

Kimberly Powell, Clerk to the Board

cc: Finance
Budget

SOUTH FLORIDA
EMERGENCY VEHICLES

PROPOSAL

TO THE:
Brevard County Fire Rescue
Chief Patrick Voltaire
1040 South Florida Avenue
Rockledge, FL 32955

October 3, 2025

FOR YOUR REVIEW:

We hereby propose and agree to furnish the following firefighting apparatus upon your acceptance of this proposal:

FOUTS BROS FB94 CUSTOM PUMPER
PRICE EACH ..... $ 741,205,00**

** NPPGOV COOPERATIVE CONTRACT PRICING WITH MODIFICATIONS AND ADDITIONS
TOTAL FOR FOUR ENGINES ..... $ 2,964,820.00

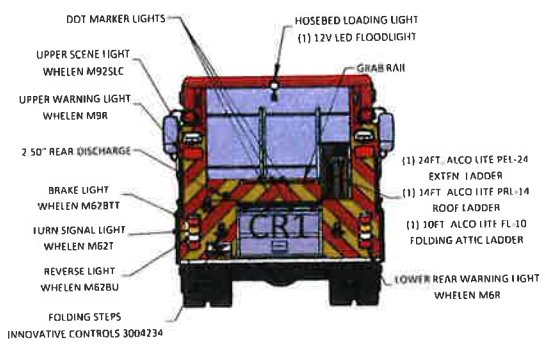
A **$15,000 PER UNIT DISCOUNT** IS OFFERED IF EACH ENGINE IS PAID IN FULL AT TIME OF ITS' DELIVERY.

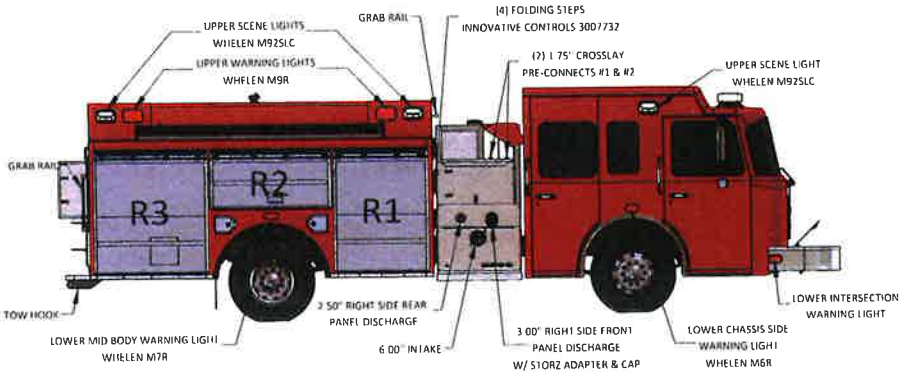
FINAL COST PER ENGINE WOULD BE **$ 726,205.00** FOR A TOTAL OF **$ 2,904,820.00**

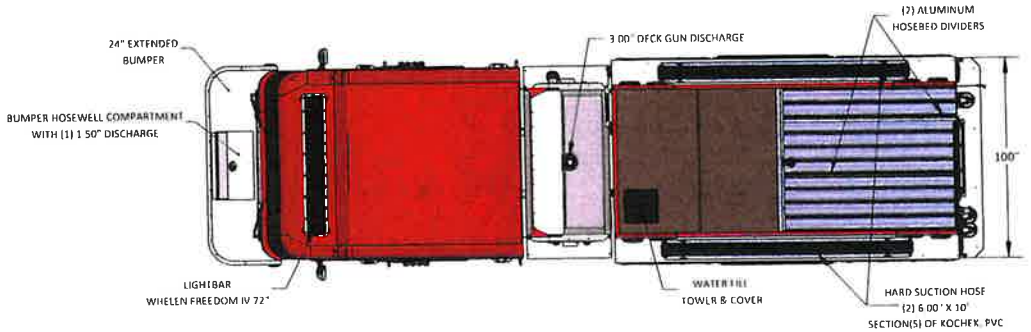
Apparatus will be manufactured completely in accordance to the included proposal documents and delivered in approximately **75 to 180 days** following approval of PO, subject to delays from all causes beyond our control. Unless accepted within **30 days** from this date, the right is reserved to withdraw this proposal.

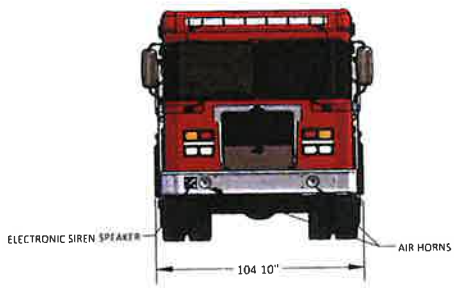
Respectfully submitted by:

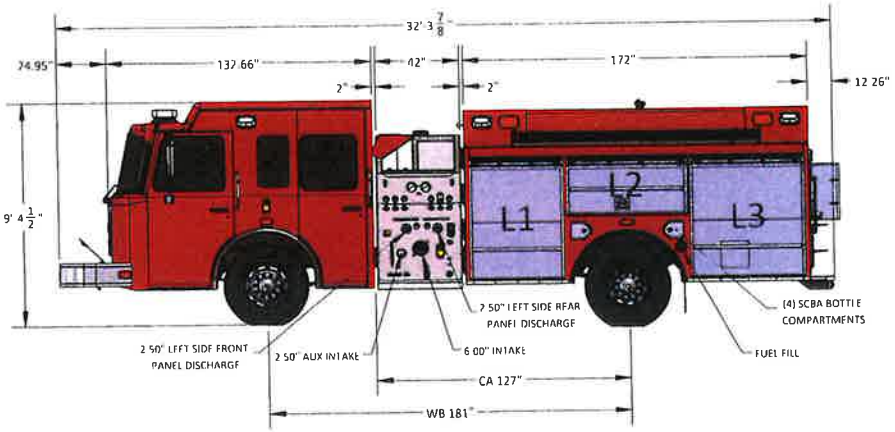
Guy Lombardo
Sales Manager











CHASSIS INFO	
CHASSIS	SPARTAN FC 94, SINGLE AXLE
CAB	4 DOOR, CREW CAB
ENGINE	CUMMINS L9 ENGINE, 450 HP
TRANSMISSION	ALLISON 3000 EVS AUTOMATIC
FRONT AXLE	18,000 LBS
REAR AXLE	27,000 LBS
PAINT COLOR	SIKKENS FENIX 32557 RED
BUMPER	EXTENDED 24 00" W/ HOSEWELL COMPARTMENT

PUMP INFO	
PUMP	HALE QMAX, 1500 GPM, SIDE MOUNT
INTAKES	
DRIVER SIDE	ONE (1) 6 00" & ONE (1) 2 50" AUX
OFFICER SIDE	ONE (1) 6 00
DISCHARGES	
DRIVER SIDE	TWO (2) 2 50"
OFFICER SIDE	ONE (1) 3 00" W/ STORZ ADAPTER & CAP, ONE (1) 2 50
CROSSLAY PRE CONNECTS	TWO (2) 1 75"
DECK GUN	ONE (1) 3 00"
FRONT DISCHARGE	ONE (1) 1 50"
REAR DISCHARGE	ONE (1) 2 50
PUMP MISC	
PUMP SHIFT	STATIONARY PUMPING
PRIMER	TRIDENT #31 001 2, AIR OPERATED
PRESSURE GOVERNOR	FRC PUMPBOSS PRA501
WATER LEVEL GAUGE	ONE (1) HALE MODEL # "ITL 40R" (PUMP PANEL)
TANK TO PUMP	ONE (1) 3 00"
TANK REFILL	ONE (1) 2 00"
PUMP PANEL MATERIAL	14 GAUGE 304L SS BRUSHED FINISH

TANK INFO	
TANK CAPACITY	1000 US GALLONS
HOSEBED DIVIDER	TWO (2) HOSEBED DIVIDER

BODY INFO	
BODY TYPE	ALUMINUM
DOOR TYPE	AMDOR ROLL-UP DOOR
SCBA BOTTLE COMPARTMENT	FOUR (4), ONE OVER EACH WHEEL WELL AREA
LH SIDE COMPARTMENTS	
L1	46 50" W x 62 00" H
L2	59 00" W x 29 50" H
L3	56 50" W x 62 00" H
RH SIDE COMPARTMENTS	
R1	46 50" W x 62 00" H
R2	59 00" W x 29 50" H
R3	56 50" W x 62 00" H
REAR COMPARTMENT	
CR1	42 00" W x 26 00" H

LOOSE EQUIPMENT	
HARD SUCTION HOSES	TWO (2) 6 20' X 10' KOCHEK
ROOF LADDER	ONE (1) 14 FOOT, ALCO LITE #PRL-14
EXTENSION LADDER	ONE (1) 24 FOOT, ALCO LITE #PEL 24, 2 SECTION
FOLDING ATTIC LADDER	ONE (1) 10 FOOT, ALCO LITE #FL-10

FOUTS FIRE

DIMENSIONS SHOWN ARE APPROXIMATE AND SUBJECT TO CHANGE AS MAY BE FOUND NECESSARY DURING CONSTRUCTION. MINOR DETAILS MAY NOT BE SHOWN TO OBTAIN CLARITY WITHIN THE DRAWING. THE DRAWING IS FOR REFERENCE PURPOSES ONLY. SPECIFICATIONS SHALL BE THE FINAL AUTHORITY OF WHAT IS SUPPLIED ON THE APPARATUS.
OVERALL HEIGHT IS UNLOADED CONDITION. UNLOADED HEIGHTS MAY BE 4" ABOVE HEIGHTS SHOWN.
THE EFFECTIVE DOOR OPENINGS WILL BE APPROX 2" LESS THAN THE NOTED COMPARTMENT OPENING FOR ROLL UP DOORS AND UP TO APPROX 4" LESS FOR HINGED DOORS.
INCLUSION OF ITEM IN THE DRAWING DOES NOT CONSTITUTE INCLUSION OF THAT ITEM WITH THE FINAL DELIVERED UNIT.
IN THE EVENT THERE ARE DISCREPANCIES BETWEEN THE DRAWING AND THE SPECIFICATIONS, THE SPECIFICATIONS SHALL PREVAIL.

DECIMAL ± 0.062	ENG	REV	SCALE	DWG SIZE	DATE
FRACTIONAL ± 1/16	BG	R00	1:60	D	14 DEC 2021
FOR	STOCK				
TITLE	FC-94 PUMPER				
PRODUCTION					

FB-94 CUSTOM PUMPER

South Florida Emergency Vehicles
6455 Cummins Court
Fort Myers Florida 33905

SCOPE AND GENERAL REQUIREMENTS

It is the intent of Fouts Brothers to provide a new fire apparatus that will withstand the continuous use encountered in the emergency firefighting service. The apparatus will be of the latest type, symmetrically proportioned and constructed with due consideration of the load to be sustained.

All parts not specifically mentioned herein, but which are necessary to furnish a complete fire apparatus, will be furnished and will conform to the best practices known to the fire apparatus industry.

The unit is of the current year manufacture and will be new and unused. The bid price will not include any local, State, or Federal taxes.

These specifications will be construed as minimum. Should the manufacturer's current published data or specifications exceed these, they will be considered minimum and be furnished.

FAMA COMPLIANCE

Fouts Bros. is a member of the Fire Apparatus Manufacturer's Association (FAMA).

PROPRIETARY PARTS

Fouts Brothers will furnish the apparatus with major parts commonly used by the heavy-duty truck manufacturers and open market vendors whereas replacement parts are more readily available and at reduced cost.

MANUFACTURER'S DISCRETION

Materials, parts, or procedures used are subject to change at the manufacturer's discretion at any time to provide equal or better products.

MANUFACTURING LOCATION

The apparatus will be manufactured in Milledgeville, Georgia.

PRODUCT QUALITY AND WORKMANSHIP

The components provided and workmanship performed will be of the highest quality available for this application. Special consideration will be given to the following areas:

A). Accessibility to various components that require periodic maintenance or lubrication checks.

B). Ease of vehicle and pump operation.

C). Features beneficial to the intended operation of the apparatus.

Construction of the complete apparatus will be designed to carry the loads intended to meet the road and terrain conditions and speed requirements desired when specified by the purchaser.

Welding will not be employed in the assembly of the apparatus in a manner that will prevent the removal of any major component part for service and/or repair.

PAYMENT TERMS

Full payment for the apparatus will be made at the time of delivery of the completed vehicle. Due to insurance liability, the apparatus will not be left at the purchaser's location without full acceptance and payment or prior agreement between the Purchaser and SFEV

DELIVERY REQUIREMENTS

Delivery of the completed vehicle will be no more than 120 calendar days after delivery of the chassis to the apparatus manufacturer.

FUEL TANK FILLED AT DELIVERY

The fuel tank and DEF tank (if applicable) will be filled upon final delivery at the factory.

OVERALL HEIGHT

The overall height will be no greater than 9' - 6".

OVERALL LENGTH

The overall length will be no greater than 32' - 6".

OVERALL WIDTH

The overall width will be no greater than 102".

OVERALL WHEELBASE

The wheelbase will 181"

NFPA 1901 COMPLIANCE

The National Fire Protection Association standard #1901 (most recent edition) is hereby adopted and made a part of these specifications, the same as if they were written out in full detail, except for any sections dealing with "Equipment Recommended for Various Types of Apparatus". Bidders are to provide only the equipment requested herein and the Department will supply the rest before the apparatus is put into service. The unit will comply with all federal, state, ICC, and DOT motor vehicle regulations, standards, and laws relating to commercial vehicles as well as to fire apparatus on the date of the bid.

ROAD TEST CERTIFICATION

A road test will be conducted with the finished apparatus fully loaded. During this time, the apparatus will not show loss of power and/or overheating. The transmission driveshaft or shafts and rear axle will run free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, will have not less than 25% or more than 45% of the weight on the front axle and not less than 55% or more than 75% on the rear axle.

A). The apparatus must be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.

B). The apparatus must be capable of accelerating from a steady speed of 15 mph to a true speed of 35 mph within 30 seconds. This will be accomplished without moving the gear selector.

C). The fully loaded apparatus will be capable of obtaining a speed of 50 to 55 mph on a level concrete highway.

D). The manufacturer will furnish copies of the engine installation approvals signed by the appropriate engine company upon delivery of the chassis to the Fire Department.

E). The manufacturer will furnish copies of the transmission approval signed by the transmission manufacturer upon delivery of the chassis to the Fire Department.

F). The manufacturer will furnish copies of the front and rear axle approvals upon delivery of the apparatus to the Fire Department.

ROAD TEST FAILURE

In the event the apparatus fails to meet the test requirements of these specifications on the first trials, second trials may be made at the option of the manufacturer within thirty (30) days of the first trials. Such trials will be final and conclusive and failure to comply with changes, as the purchaser may consider necessary to conform to any clause of the specifications within thirty (30) days after notice is given to the manufacturer of such changes, will be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by the purchaser, or its use by the purchaser during the above-specified period with permission of the manufacturer, will not constitute acceptance.

VEHICLE TOP SPEED

The rear axle will be geared for a top speed of 65 to 68 mph at engine governed RPM.

NFPA TOP SPEED STATEMENT

NFPA-1901, 2009 Edition - 4.15.2. The maximum top speed of fire apparatus with a GVWR over 26,000 lbs. will not exceed either 68 MPH or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

NFPA-1901, 2009 Edition - 4.15.3. If the combined water tank and foam agent tank capacities on the fire apparatus exceed 1250 gallons, or the GVWR of the vehicle is over 50,000 lbs., the maximum top speed of the apparatus will not exceed either 60 MPH or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

SAFETY SIGNS

The following safety signs will be provided:

SEATED AND BELTED WARNING LABEL - FAMA# 07

A permanent label will be provided that is visible to all occupants that states that they should be seated and belted while the apparatus is in motion. The label will also state potential injuries or death that could be caused if the safety belts are not used properly.

CAB INTERIOR EQUIPMENT MOUNTING DANGER LABEL - FAMA# 10

A permanent label will be provided inside of the cab warning of the dangers of unsecured equipment inside the cab. The label will state that all equipment will be properly secured and also warn of potential injury or death that could be caused by failing to do so.

DO NOT WEAR HELMET LABEL - FAMA# 15

A permanent label will be provided inside of the cab in view of all seated positions stating that helmets should not be worn in cab. The label will also warn of potential injury or death that could be caused by wearing helmet in cab.

VEHICLE BACKING LABEL - FAMA17

A permanent label will be provided inside of the cab in view of the driver advising of proper procedures to following when the apparatus is in reverse motion. The label will also warn of potential injury or death that be caused by failing to follow proper procedures.

"Do Not Move Apparatus When Light Is On" sign adjacent to the warning light indicating a hazard if the apparatus is moved (as described in subsequent section).

CHASSIS DATA LABELS

The following information will be on labels affixed to the vehicle:

Fluid Data:

Engine oil
Engine coolant
Chassis transmission fluid
Pump transmission lubrication fluid
Pump primer fluid (if applicable)
Drive axle(s) lubrication fluid
Air conditioning refrigerant
Air conditioning lubrication
Power steering fluid
Cab tilt mechanism fluid (if applicable)
Transfer case fluid
Equipment rack fluid (if applicable)
Air compressor system lubricant
Generator system lubricant (if applicable)

Chassis Data:

Chassis Manufacturer
Production Number
Year Built
Month Manufactured
Vehicle Identification Number

Location will be in the driver's compartment of the chassis cab.

OVERALL HEIGHT, LENGTH, GVW DATA PLAQUE

A "high visibility" plate will be permanently mounted in the cab, visible to driver when seated.

The plate will show the overall height of the completed apparatus in feet and inches, the overall length of the completed apparatus in feet and inches.

The plate will also show the gross vehicle weight rating (GVWR) in tons.

Text will also be supplied on the plate, indicating that the information shown is current upon completion of the apparatus. If the overall height of the apparatus changes after the apparatus is put into service, then the purchaser must revise the dimensions on the plate.

"NO RIDE" LABEL

A label will be located on the vehicle at the rear step areas, and at any cross walkways, if they exist. The label(s) will warn personnel that riding in or on these areas while the vehicle is in motion is prohibited.

FAMA SAFETY GUIDE

One (1) copy of the latest edition of FAMA's Fire Apparatus Safety Guide will be provided with the completed apparatus.

MODEL

The chassis will be an FC-94 model. The cab and chassis will include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis will be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

MODEL YEAR
The chassis will have a vehicle identification number that reflects a 2024 model year.

COUNTRY OF SERVICE
The chassis will be put in service in the country of United States of America (USA).

The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. The chassis manufacturer is not responsible for compliance to state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from the chassis manufacturer, or their OEM needed to be in compliance with those regulations.

CAB AND CHASSIS LABELING LANGUAGE
The cab and chassis will include the applicable caution, warning, and safety notice labels with text to be written in English.

VEHICLE TYPE

The chassis will be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle will be supplied and installed by the apparatus manufacturer.

VEHICLE ANGLE OF APPROACH PACKAGE

The angle of approach of the apparatus will be a minimum of 8.00 degrees. NFPA1901 Angle of Approach definition:

"To determine the angle of approach, place a thin steel strip against the front of the tires where they touch the ground or stretch a tight string from one front tire to the other at the front where they touch the ground.

Determine the lowest point (component or equipment) on the vehicle forward of the front tire that would make the smallest angle of approach. Hang a plumb bob from the lowest point and mark the point on the ground where the point of the plumb bob touches. Measure the vertical distance from the ground to the point where the plumb bob was hung (distance V). Measure the horizontal distance from the plumb bob point to the steel strip or string running from front tire to front tire (distance H). Divide the vertical distance by the horizontal distance. The ratio of V/H is the tangent of the angle of approach. If the ratio is known, the angle of approach can be determined from a table of trigonometric functions of angles or from a math calculator. The standard requires a minimum angle of approach of 8.00 degrees: since the tangent of 8.00 degrees is 0.1405, if V divided by H is 0.1405 or larger, the angle of approach is 8.00 degrees or greater."

AXLE CONFIGURATION

The chassis will feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis will be 18,000 pounds.

This front gross axle weight rating will be adequate to carry the weight of the completed apparatus including all equipment and personnel.

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis will be 27,000 pounds.

This rear gross axle weight rating will be adequate to carry the weight of the completed apparatus including all equipment and personnel.

PUMP PROVISION

The chassis will include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location. Chassis driveline pump provisions will include an interlock feature for automatic setting of the park brake when the vehicle is shifted into pump mode while the transmission is in neutral, and the transmission output speed translates to less than 1 mph.
When the conditions are met the driver side parking brake valve will activate. Once shifted to road mode the condition for electric automatic brake engagement is no longer present and the driver's parking brake control valve will function normally.

CAB STYLE

The cab will be a custom, fully enclosed, MFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab will be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab will offer up to eight (8) seating positions.

The cab will incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels will be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.

The cab will be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which will provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding will be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

All interior and exterior seams will be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.

The cab will be constructed of 5052-H32 corrosion resistant aluminum plate. The cab will incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion will be used for the "A" pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls and lower roof skin will be 0.13 inch thick; the rear wall and raised roof skins will be 0.09 inch thick; the front cab structure will be 0.19 inch thick.

The exterior width of the cab will be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length will be 131.10 inches with 54.00 inches from the centerline of the front of the axle to the back of the cab.

The cab interior will be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor will be flat across the entire walking area for ease of movement inside the cab.

The cab will offer an interior height of 57.50 inches from the front floor to the headliner in the non-raised roof area and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab will offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 51.88 inches. All interior measurements will include the area within the interior trimmed surfaces and not to any unfinished surface.
The cab will include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors will offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab will also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors will offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.

The cab will incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.

The first step for the driver and officer area will measure approximately 11.50 inches deep X 31.13 inches wide. The intermediate step will measure approximately 8.50 inches deep X 32.50 inches wide. The height

from the first step to the intermediate step and the intermediate step to the cab floor will not exceed 11.00 inches.

The first step for the crew area will measure approximately 11.50 inches deep X 20.44 inches wide. The intermediate step will measure approximately 10.25 inches deep X 22.75 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor will not exceed 12.80 inches.

CAB FRONT FASCIA

The front cab fascia will be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick plate which will be an integral part of the cab.
The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and will be the "Classic" design.
The front cab fascia will include two (2) modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. Two (2) chrome plated bezels will be provided on each side around each set of two lamps.

FRONT GRILLE

The front fascia will include a 304 stainless steel front grille.

CAB UNDERCOAT

There will be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.

CAB SIDE DRIP RAIL

There will be a drip rail along the top radius of each cab side. The drip rails will help prevent water from the cab roof running down the cab side.

CAB PAINT PROCESS/MANUFACTURER

The cab will be painted with Sikkens paint prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and maximum corrosion protection of all metal surfaces.

All metal surfaces on the cab will be mechanically etched by sanding disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once all imperfections on the exterior surfaces are removed and sanded smooth, body fillers will be applied to the cab on all surfaces that require a critically aesthetic finish and sanded smooth.

The entire cab will then be coated with a high-quality base primer that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure will be sanding the cab to a smooth finish followed by

sealing the seams with an automotive seam sealer. The minimum thickness of the primer coat after sanding will be 2.50 mils with a maximum thickness of 5.00 mils.

The cab will then be painted the specific color(s) designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on an emergency scene. The paint will have a minimum thickness of 1.00 mils with a maximum of 4 mills, followed by a clear topcoat with a minimum of 2.5 mils and a maximum of 3.5 mils. The entire cab will then be baked to speed the curing process of the coatings.

CAB PAINT PRIMARY/LOWER COLOR

The lower paint color will be Sikkens FLNA 32557 Red.

CAB PAINT WARRANTY

The purchaser will receive a Paint and Finish (Exterior Clear coated) One (1) Year limited warranty in accordance with, and subject to, warranty certificate RFW0701. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

CAB PAINT INTERIOR

The visible interior cab structure surfaces will be painted with a multi-tone silver gray texture finish.

CAB ENTRY DOORS

The cab will include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors will be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins will be constructed of 0.13 inch aluminum plate.

The doors will include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges will be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge will be piano style with a 0.38 inch pin and will be constructed of stainless steel.

CAB ENTRY DOOR TYPE

All cab entry doors will be barrier clear design resulting in exposed lower cab steps. The doors will provide approximately 32.00 inches of clearance from the ground to the bottom of the door so cab doors may be opened un-hindered by most obstacles encountered, such as guard rails along interstate highways.

Entry doors will include Pollak mechanical plunger style switches for electrical component activation.

CAB INSULATION

The cab ceiling and walls will include a nonwoven polyester fiber insulation. The insulation will act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

CAB STRUCTURAL WARRANTY

The purchaser will receive a Cab Structure (Aluminum) Five (5) Years limited warranty in accordance with, and subject to, warranty certificate RFW0601. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

CAB TEST INFORMATION

The cab will have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi –Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

The above tests have been witnessed by and attested to by an independent third party. The test results were recorded using cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing will be provided upon request.

ELECTRICAL SYSTEM

The chassis will include a single starting electrical system which will include a 12-volt direct current multiplexing system, suppressed per SAE J551. The wiring will be appropriate gauge cross link with 311-degree Fahrenheit insulation. All SAE wires in the chassis will be color coded and will include the circuit number and function where possible. The wiring will be protected by 275-degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors will be waterproof.

DATA RECORDING SYSTEM

The chassis will have a Weldon Vehicle Data Recorder (VDR) system installed. The system will be designed to meet NFPA 1901 and will be integrated with the Weldon Multiplex electrical system. The following information will be recorded:

Vehicle Speed
Acceleration
Deceleration
Engine Speed
Engine Throttle Position
ABS Event
Seat Occupied Status
Seat Belt Status

Master Optical Warning Device Switch Position
Time
Date
Each portion of the data will be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and will be retrievable by connecting a laptop computer to the VDR system. The laptop connection will be a panel mounted female type B USB connection point, remotely mounted in the left side foot well.

LOAD MANAGEMENT SYSTEM

The apparatus load management will be performed by the included multiplex system. The multiplex system will also feature the priority of sequences and will shed electrical loads based on the priority list specifically programmed.

ACCESSORY POWER

The electrical distribution panel will include two (2) power studs. The studs will be size #10 and each of the power studs will be circuit protected with a fuse of the specified amperage. One (1) power stud will be capable of carrying up to a 40-amp battery direct load. One (1) power stud will be capable of carrying up to a 15-amp ignition switched load. The two (2) power studs will share one (1) #10 groundstud. A 225-amp battery direct power and ground stud will be provided and installed on the chassis near the left-hand battery box for OEM body connections.

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.

ELECTRICAL SYSTEM WARRANTY

The purchaser will receive an Electrical System One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0201. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

ENGINE

The chassis engine will be a Cummins L9 engine. The L9 engine will be an in-line six (6) cylinder, four-cycle diesel-powered engine. The engine will offer a rating of 450 horsepower at 2100 RPM and will be governed at 2200 RPM. The torque rating will feature 1250-foot pounds of torque at 1200 RPM with 543 cubic inches (8.9 liters) of displacement.

The L9 engine will feature a VGT™ Turbocharger, a high-pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and will be EPA certified to meet the 2021-26 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.

The engine will include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine will include Citgo brand Citgard 500, or equivalent SAE 15W40 CK-4 low ash engine oil which will be utilized for proper engine lubrication.

A wiring harness will be supplied ending at the back of the cab. The harness will include a connector which will allow an optional harness for the pump panel. The included circuits will be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link will also be provided at the back of the cab.

CAB ENGINE TUNNEL

The cab interior will include an integrated engine tunnel constructed of 5052-H32 Marine Grade, 0.19 of an inch thick aluminum. The tunnel will be a maximum of 41.50 inches wide X 25.50 inches high.

DIESEL PARTICULATE FILTER CONTROLS

There will be two (2) controls for the diesel particulate filter. One (1) control will be for regeneration and one (1) control will be for regeneration inhibit.

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control will maintain the engine idle at approximately 1250 RPM when engaged.

ENGINE HIGH IDLE CONTROL

The vehicle will be equipped with an automatic high-idle speed control which will be pre-set to operate the engine at a specified RPM to increase alternator output if the system voltage drops to 12.5 volts with multi-plex wired chassis and 12.8 volts using load manager with conventional wiring. This device will automatically operate only when the engine is running, the transmission is in neutral, and with the parking brake set. The automatic high idle will stay engaged for a minimum of ten (10) minutes and until the system, voltage has reached 13.0 volts. Application of the service brake will override the automatic high idle and reset timer. The vehicle will be equipped with a high-idle speed rocker switch. It will be pre-set so when activated, it will operate the engine at the specified RPM to increase alternator output. This device will operate only when the engine is running, the transmission is in neutral, and with the parking brake set. When automatically engaged the high idle will disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and will be available to manually or automatically re-engage when the brake pedal is released, or when the transmission is placed in neutral. Switch will not override automatic high idle between voltage parameters during timed cycle.

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine will include programming which will govern the top speed of the vehicle.

AUXILIARY ENGINE BRAKE

A compression brake, for the six (6) cylinder engine will be provided. A cutout relay will be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine compression brake will activate upon 0% accelerator when in operation mode and actuate the vehicle's brake lights.

The engine will utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow, which when activated in conjunction with the compression brake will enhance the engine's compression braking capabilities.

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device will be included. The electronic control device will monitor various conditions and will activate the engine brake only if all of the following conditions are simultaneously detected:

A valid gear ratio is detected.
The driver has requested or enabled engine compression brake operation.
The throttle is at a minimum engine speed position.
The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.
The compression brake will be controlled through an on/off switch and a low/medium/high selector switch.

ELECTRONIC ENGINE OIL LEVEL INDICATOR

The engine oil will be monitored electronically and will send a signal to activate a warning in the instrument panel when levels fall below normal. The warning will activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

FLUID FILLS

The engine oil, coolant, transmission, and power steering fluid fills will be located under the cab. The windshield washer fill will be accessible through the front left side mid step.

ENGINE DRAIN PLUG

The engine will include an original equipment manufacturer installed oil drain plug.

ENGINE BLOCK HEATER

A Kim Hotstart 1000-watt, 120-volt engine coolant heater with automatic thermostat will be installed. The block heater will be connected to the electrical inlet.

ENGINE WARRANTY

The Cummins engine will be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

REMOTE THROTTLE HARNESS

An apparatus interface wiring harness for the engine and transmission pump interlocks will be supplied with the chassis. The harness will include a connector for connection to a chassis pump panel harness supplied by the body builder and will terminate in the left frame rail behind the cab for connection by the body builder. The harness will include circuits deemed for a pump panel and will contain circuits for a hand throttle, and a multiplexed gauge. Separate circuits will also be included for a pump control switch, "Pump Engaged" and "OK to Pump" indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, clean power, customer ignition, air horn solenoid switch, high idle switch and high idle indicator light. The harness will contain interlocks that will prevent shifting to road or pump mode unless the transmission output speed translates to less than 1 mph and the transmission is in neutral. The shift to pump mode will also require the park brake to be set.

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit will be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

ENGINE PROGRAMMING IDLE SPEED

The engine low idle speed will be programmed at 700 rpm.

ENGINE AIR INTAKE

The engine air intake system will include an ember separator. This ember separator will be designed to protect the downstream air filter from embers using a combination of unique flat and crimped metal screens packaged in a heavy-duty galvanized steel frame. This multilayered screen will trap embers and allow them to burn out before passing through the pack.

The engine air intake system will also include an air cleaner mounted above the radiator. This air cleaner will utilize a replaceable dry type of filter element designed to prevent dust and debris from being ingested into the engine. A service cover will be provided on the housing, reducing the chance of contaminating the air intake system during air filter service.

The air intake system will include a restriction indicator light in the warning light cluster on the instrument panel, which will activate when the air cleaner element requires replacement.

ENGINE FAN DRIVE

The engine cooling system fan will incorporate a thermostatically controlled, Horton fully variable type fan drive with SmartClutch J-1939 CAN controller. The clutch fan will override the thermostatic variable speed and function as full on automatically in pump mode.

The variable speed fan clutch only engages at the amount needed for proper cooling to facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design will be fail-safe so that if the clutch drive fails the fan will engage to prevent engine overheating due to the fan clutch failure. The fan speed will include a J-1939 CAN clutch controller to receive signal from the engine control module to activate at variable rates of speed. Variable speeds will be set through thermostatic and engine speed signals to run as efficiently and quietly as required to maintain temperature.

ENGINE COOLING SYSTEM

There will be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system will have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system will be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system will be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system will be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

The cooling system will be comprised of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components will include a surge tank, a charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.

The radiator will be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator will be equipped with a drain cock to drain the coolant for serviceability.

The cooling system will include a one piece injected molded polymer fan with a three (3) piece fiberglass fan shroud.

The cooling system will be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank will be equipped with a low coolant probe and rearward oriented sight glass to observe coolant in the system. A cold fill and observation line will be included within the frame mounted translucent recovery bottle to monitor the level of the coolant. The surge tank will have a dual seal cap that meets the engine manufacturer's pressure requirements and allows for expansion and recovery of coolant into a separate integral expansion chamber.

All radiator tubes will be formed from aluminized steel tubing. Recirculation shields will be installed where required to prevent heated air from reentering the cooling package and affecting performance.
The charge air cooler will be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes will be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "constant torque" style clamps meeting the engine manufacturer's requirements.

The radiator and charge air cooler will be removable through the bottom of the chassis.

ENGINE COOLING SYSTEM PROTECTION

The engine cooling system will include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris.

ENGINE COOLANT

The cooling package will include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant will contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.
Proposals offering supplemental coolant additives (SCA) will not be considered, as this is part of the extended life coolant makeup.

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel will feature a low engine coolant indicator light which will be located in the center of the instrument panel. An audible tone alarm will also be provided to warn of a low coolant incident.

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger will be installed between the engine and the radiator. The heat exchanger will be designed to prohibit water from the pump from coming in contact with the engine coolant. This will allow the use of water from the discharge side of the pump to assist in cooling the engine.

COOLANT HOSES

The cooling systems hose will be formed silicone hose and formed aluminized steel tubing and include stainless steel constant torque band clamps.

ENGINE COOLANT OVERFLOW BOTTLE

A remote engine coolant overflow expansion bottle will be provided in the case of over filling the coolant system. The overflow bottle will capture the expansion fluid or overfill rather than allow the fluid to drain on the ground.

ENGINE EXHAUST SYSTEM

The exhaust system will include an end-in end-out horizontally mounted single module after treatment device, and downpipe from the charge air cooled turbo. The single module will include four temperature sensors, diesel particulate filter (DPF), urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust

fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution will be mixed and injected into the system through the DPF and SCR.

The system will utilize 0.07 inch thick stainless steel exhaust tubing between the engine turbo and the DPF. Zero leak clamps seal all system joints between the turbo and DPF.

The single module after treatment through the end of the tailpipe will be connected with zero leak clamps. The discharge will terminate horizontally on the right side of the vehicle ahead of the rear tires. The exhaust system after treatment module will be mounted below the frame in the outboard position.

DIESEL EXHAUST FLUID TANK

The exhaust system will include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank will have a capacity of six (6) usable gallons and will be mounted on the left hand side of the chassis frame behind the batteries below the frame.

The DEF tank will be designed with capacity for expansion in case of fluid freezing. Engine coolant, which will be thermostatically controlled, will be run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

The tank fill tube will be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.

ENGINE EXHAUST ACCESSORIES

An exhaust temperature mitigation device will be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device will lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.

ENGINE EXHAUST WRAP

The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) will be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap will also help protect surrounding components from radiant heat which can be transferred from the exhaust.

The exhaust flex joint will not include the thermal exhaust wrap.

EMISSIONS SYSTEMS WARRANTY

The purchaser will receive a Regulated Emissions Systems Five (5) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0140. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

TRANSMISSION

The drive train will include an Allison model EVS 3000 torque converting, automatic transmission which will include electronic controls. The transmission will feature two (2) 10-bolt PTO pads located on the converter housing.
The transmission will include two (2) internal oil filters which will offer Allison formulated Castrol TranSynd™ synthetic transmission fluid which will be utilized in the lubrication of the EVS transmission.

An electronic oil level sensor will be included with the readout located in the shift selector.
The transmission gear ratios will be:

1st	3.49:1
2nd	1.86:1
3rd	1.41:1
4th	1.00:1
5th	0.75:1
6th	0.65:1 (if applicable)
Rev	5.03:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will automatically select a four (4) speed operation. The fifth speed over drive will be available with the activation of the mode button on the shifting pad.

TRANSMISSION FEATURE PROGRAMMING

The Allison Gen V/VI-E transmission EVS group package number 127 will contain the 198 vocational package in consideration of the duty of this apparatus as a pumper. This package will incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package will be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits will be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

A transmission interface connector will be provided in the cab. This package will contain the following input/output circuits to the transmission control module. The Gen V/VI-E transmission will include prognostic diagnostic capabilities. These capabilities will include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

Function ID	Description	Wire assignment
Inputs		
C	PTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
Outputs		
C	Range Indicator	145 (4th)
G	PTO Enable Output	130
	Signal Return	103

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid will be monitored electronically.

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad will be provided and located to the right of the driver within clear view and easy reach. The shift selector will have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector will provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and will alert you when a specific maintenance function is required.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission will automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

TRANSMISSION COOLING SYSTEM

The transmission will include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system will meet all transmission manufacturer requirements. The transmission cooling system will feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

TRANSMISSION DRAIN PLUG

The transmission will include an original equipment manufacturer installed magnetic transmission fluid drain plug.

TRANSMISSION WARRANTY

The Allison EVS series transmission will be warranted for a period of five (5) years with unlimited mileage. Parts and labor will be included in the warranty.

PTO LOCATION

The transmission will have two (2) power take off (PTO) mounting locations, one (1) in the 8:00 o'clock position and one (1) in the 4:00 o'clock position.

DRIVELINE

All drivelines will be heavy duty metal tube and equipped with MSI 1710 series universal joints. The shafts will be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint will be coated with Glide Coat®. The drivelines will include Meritor brand u-joints with thrust washers.

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline will be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions will be for a Hale QMAX pump.

MIDSHIP PUMP GEARBOX DROP

The Hale pump gearbox will have an "X" (extra long) drop length.

MIDSHIP PUMP RATIO

The ratio for the midship pump will be 2.32:1 (23).

MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE

The midship pump will be located so the dimension from the centerline of the suction to the centerline of the rear axle is 103.50 inches.

PUMP SHIFT CONTROLS

One (1) air pump shift control panel will be located on the left hand side of the engine tunnel, integrated with the shifter pod. The following will be provided on the panel: a three (3) position control lever; an engraved PUMP ENGAGED identification light; and an engraved OK TO PUMP identification light. The pump shift control panel will be black with a yellow border outline and will include pump instructions. An instruction plate describing the transmission shift selector position used for pumping will be provided and located so it can be read from the driver's position per NFPA 16.10.1.3. The road mode will be selected when the control lever is in the forward position and pump mode will be selected when the control lever is in the rearward position.

The control lever center position will exhaust air from both pump and road sides of the pump gear box shift cylinder.

PUMP SHIFT CONTROL PLUMBING

Air connections will be provided from the air supply tank to the pump shift control valve and from the pump shift control valve to the frame mounted bracket. The frame mounted bracket will include labeling identifying the pump and road connection points with threaded 0.25-inch NPT fittings on the solenoid for attaching the customer installed pump. The air supply will be pressure protected from the service brake system.

FUEL FILTER/WATER SEPARATOR

The fuel system will have a Fleetguard FS20121 fuel filter/water separator as a primary filter. The fuel filter will have a drain valve.

A water in fuel sensor will be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.

A secondary fuel filter will be included as approved by the engine manufacturer.

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine will be reinforced nylon tubing rated for diesel fuel. The fuel lines will be brown in color and connected with brass fittings.

ELECTRIC FUEL PRIMER

Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.

FUEL TANK

The fuel tank will have a capacity of fifty (50) gallons and will measure 35.00 inches in width X 15.00 inches in height X 24.00 inches in length.

The baffled tank will have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.
The tank is designed with dual draw tubes and sender flanges. The tank will have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug will be centered in the bottom of the tank.
The fuel tank will be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with "U" straps bolted midway on the fuel tank front and rear will be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads will be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body will not be acceptable.

FUEL TANK MATERIAL AND FINISH

The fuel tank will be constructed of 12-gauge aluminized steel. The exterior of the tank will be powder coated black and then painted to match the frame components.

All powder coatings, primers and paint will be compatible with all metals, pretreatments and primers used. The cross-hatch adhesion test per ASTM D3359 Method B, results to be 5B minimum. The pencil hardness test per ASTM D3363 will have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794, results to be 5B minimum.

Any proposals offering painted fuel tanks with variations from the above process will not be accepted. The film thickness of vendor supplied parts will also be sufficient to meet the performance standards as stated above.

FUEL TANK STRAP MATERIAL

The fuel tank straps will be constructed of ASTM A-36 steel. The fuel tank straps will be powder coated black and then painted to match the frame components if possible.

FUEL TANK FILL PORT

The fuel tank fill ports will be offset with the left fill port located in the rearward position and the right fill port located in the middle position on the fuel tank.

FUEL TANK DRAIN PLUG

A 0.5-inch NPT magnetic drain plug will be centered in the bottom of the fuel tank.

FRONT AXLE

The front axle will be a Meritor Easy Steer Non drive front axle, model number MFS-18. The axle will include a 3.74-inch drop and a 71.00 inch king pin intersection (KPI). The axle will include a conventional style hub with a standard knuckle. The weight capacity for the axle will be rated to 18,000 pounds.

FRONT AXLE WARRANTY

The front axle will be warranted by Meritor for five (5) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings will be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

FRONT SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled shock absorbers will be provided and installed as part of the front suspension system. The shocks will be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintaining consistent wall thickness. The monotubular design will provide superior strength while maximizing heat dissipation and shock life.

The ride afforded with a gas shock is more consistent and will not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks will include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design will feature fewer parts than most conventional twin tube and "road sensing" shock designs and will contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or "road sensing" designed shocks will not be considered.

FRONT SUSPENSION

The front suspension will include a four (4) leaf spring pack consisting of 54.00 inch long and 4.00-inch-wide taper leaf springs and will feature a military double wrapped front eye. Both spring eyes will have a case-hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity will be rated at 18,000 pounds.

STEERING COLUMN/ WHEEL

The cab will include a Douglas Autotech steering column which will include a seven (7) position tilt, a 2.25-inch telescopic adjustment, and an 18.00 inch, two (2) spoke steering wheel located at the driver's position. The steering wheel will be covered with black polyurethane foam padding.
The steering column will contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid will be monitored electronically and will send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.

POWER STEERING PUMP

The hydraulic power steering pump will be a TRW PS and will be gear driven from the engine. The pump will be a balanced, positive displacement, sliding vane type. The power steering system will include an oil to air passive cooler.

FRONT AXLE CRAMP ANGLE

The chassis will have a front axle cramp angle of 50-degrees to the left and right.

POWER STEERING GEAR

The power steering gear will be a TRW model TAS 85.

CHASSIS ALIGNMENT

The chassis frame rails will be measured to insure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles will be laser aligned. The front tires and wheels will be aligned and toe-in set on the front tires by the chassis manufacturer.

REAR AXLE

The rear axle will be a Meritor model RS-25-160 single drive axle. The axle will include precision forged, single reduction differential gearing, and will have a fire service rated capacity of 27,000 pounds.

The axle will be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle will include rectangular shaped, hot-formed housing with a standard wall thickness of 0.63 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.

The axle will have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential will be lubricated with oil.

REAR AXLE WARRANTY

The rear axle will be warranted by Meritor for five (5) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings will be lubricated with oil.

VEHICLE TOP SPEED

The top speed of the vehicle will be approximately 68 MPH +/-2 MPH at governed engine RPM.

REAR SUSPENSION

The single rear axle will feature a Reyco 79KB vari-rate, self-leveling captive slipper type conventional multi-leaf spring suspension, with 57.50 inch X 3.00 inch springs. One (1) adjustable and one (1) fixed torque rod will be provided.

The rear suspension capacity will be rated from 21,000 to 31,500 pounds.

TIRE INTERMITTENT SERVICE RATING

The chassis will be rated using Intermittent Service ratings provided to the emergency vehicle market by the tire manufacturers as the basis for determining the maximum vehicle load and speed.

FRONT TIRE

The front tires will be Michelin 385/65R-22.5 18PR "J" tubeless radial XZY3 mixed service tread.

The front tire stamped load capacity will be 18,740 pounds per axle with a nominal speed rating of 65 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity will be 20,052 pounds per axle with a maximum speed of 65 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity will be 18,740 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR TIRE

The rear tires will be Michelin 12R-22.5 16PR "H" tubeless radial XDN2 all-weather tread.

The rear tire stamped load capacity will be 27,120 pounds per axle with a nominal speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity will be 29,020 pounds per axle with a maximum speed of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity will match the nominal speed rating.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least

twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR AXLE RATIO

The rear axle ratio will be 5.13:1.

TIRE PRESSURE INDICATOR

There will be electronic chrome LED valve caps shipped loose for installation by the OEM which will illuminate with a red LED when tire pressure drops 8psi provided. The valve caps are self-calibrating and set to the pressure of the tire upon installation.

FRONT WHEEL

The front wheels will be Alcoa hub piloted, 22.50 inch X 12.25 inch aluminum wheels featuring a mirror polish on the outer face. The hub piloted mounting system will provide easy installation and will include two-piece flange nuts.

REAR WHEEL

The outer rear wheels will be Alcoa hub piloted, 22.50 inch X 9.00 inch aluminum wheels with a mirror polished outer surface. The inner rear wheels will be Alcoa hub piloted, 22.50 inch X 9.00 inch aluminum wheels with bright machine finish. The hub piloted mounting system will provide easy installation and will include two-piece flange nuts.

BRAKE SYSTEM

A rapid build-up air brake system will be provided. The air brakes will include, at a minimum, a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve will be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve will be installed to provide a controlled service brake application during an unlikely event including primary air supply loss. All air reservoirs provided on the chassis will be labeled for identification.

The rear axle spring brakes will automatically apply in any situation when the air pressure falls below 25 PSI and will include a mechanical means for releasing the spring brakes when necessary. An audible alarm will designate when the system air pressure is below 60 PSI.

A four (4) sensor, four (4) modulator Anti-lock Braking System (ABS) will be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn will allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system will incorporate diagonal circuitry which will monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp will be provided to notify the driver of a system malfunction. The ABS system will automatically disengage the auxiliary braking system device when required. The speedometer screen will be capable of reporting all active defaults using PID/SID and FMI standards.

FRONT BRAKES

The front brakes will be Meritor EX225 Disc Plus disc brakes with 17.00 inch vented rotors.

REAR BRAKES

The rear brakes will be Meritor 16.50 inch X 8.63 inch S-cam drum type. The brakes will feature a cast iron shoe.

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve will operate the parking brake.
The parking brake actuation valve will be mounted to the left side of the engine tunnel integrated into the transmission shift pod console within easy access of the driver.

REAR BRAKE SLACK ADJUSTERS

The rear brakes will include Meritor automatic slack adjusters installed on the axle which features a simple, durable design offering reduced weight. The automatic slack adjusters will feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.

REAR BRAKE DUST SHIELDS

The rear brakes will be equipped with brake dust shields.

AIR DRYER

The brake system will include a Wabco System Saver 1200 air dryer with an integral 100 watt heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle.
The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer will be located on the right-hand frame rail forward of the front wheel behind the right hand cab step.

FRONT BRAKE CHAMBERS

The front brakes will be provided with MGM type 24 long stroke brake chambers.

REAR BRAKE CHAMBERS

The rear axle will include TSE 30/36 brake chambers which will convert the energy of compressed air into mechanical force and motion. This will actuate the brake camshaft, which in turn will operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.

AIR COMPRESSOR

The air compressor provided for the engine will be a Wabco® SS318 single cylinder pass-through drive type compressor which will be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor will feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor will include an aluminum cylinder head which will improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology will reduce oil consumption and significantly increasing the system component life.

AIR GOVERNOR

An air governor will be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor will be calibrated to meet FMVSS requirements. The air governor will be located on the air dryer bracket.

MOISTURE EJECTORS

Manual pet-cock type drain valves will be installed on all reservoirs of the air supply system.

AIR SUPPLY LINES

The air system on the chassis will be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line will be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.
Push to connect type fittings will be used on the nylon tubing. All drop hoses will include fiber reinforced neoprene covered hoses.

WHEELBASE

The chassis wheelbase will be 181.00 inches.

REAR OVERHANG

The chassis rear overhang will be 56.00 inches.

FRAME

The frame will consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails will be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail will be constructed of 110,000 psi minimum yield high strength low alloy steel. Each double rail section will be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame will measure 35.00 inches in width.

Proposals calculating the frame strength using the "box method" will not be considered.

Proposals including heat treated rails will not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.
A minimum of seven (7) fully gusseted 0.25 inch thick cross members will be installed. The inclusion of the body mounting, or bumper mounting will not be considered as a cross member. The cross members will be attached using zinc coated grade 8 fasteners. The bolt heads will be flanged type, held in place by distorted thread flanged lock nuts. Each cross member will be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

Any proposals not including additional reinforcement for each cross member will not be considered.

All relief areas will be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

FRAME PAINT

The frame will be powder coated black prior to any attachment of components.

All powder coatings, primers and paint will be compatible with all metals, pretreatments and primers used. The cross-hatch adhesion test per ASTM D3359 will not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 will have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 will have an impact resistance of 120.00 inches per pound at 2 mils.

Any proposals offering painted frame with variations from the above process will not be accepted.
The film thickness of vendor supplied parts will also be sufficient to meet the performance standards as stated above.

FRAME ASSEMBLY STRUCTURAL

Purchaser will receive a Frame Assembly Structural Five (5) Years limited warranty in accordance with, and subject to, warranty certificate RFW0301. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

FRAME RAIL CORROSION

The purchaser will receive a Frame Rail Corrosion (Powder Coat) Three (3) Years or 48,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0311. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

FRAME COMPONENTS CORROSION

The purchaser will receive a Frame Components Corrosion (Powder Coat) One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0313. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless steel front bumper will be provided. The material will be 10 gauge 304 stainless steel, 12.00 inches high and 99.00 inches wide.

FRONT BUMPER EXTENSION LENGTH

The front bumper will be extended approximately 24.00 inches ahead of the cab.

FRONT BUMPER APRON

The 24.00 inch extended front bumper will include an apron constructed of 0.19 inch thick embossed aluminum tread plate.

The apron will be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.

FRONT BUMPER DISCHARGE

The chassis will include frame mounted 2.00-inch diameter plumbed pipe intended for use as a discharge trash line. The discharge pipe will be routed from the left hand front splay rail area behind the bumper to the area rear of the front axle, ahead of the battery box.

The discharge will pipe will be a, 2.00-inch stainless steel schedule 10 tube. The discharge will include a Victaulic groove for connecting to the pump and discharge hose plumbing on each end of the tube.

The apparatus manufacturer will plumb the discharge pipe to the pump and will provide all valves as required.

FRONT BUMPER COMPARTMENT CENTER

The front bumper will include a compartment in the bumper apron located in the center between the frame rails which may be used as a hose well. The compartment will be constructed of 0.13 inch 5052-H32 grade aluminum and will include drain holes in the bottom corners to allow excess moisture to escape. The compartment will include a cover constructed of 0.19-inch-thick bright embossed aluminum tread plate.

FRONT BUMPER COMPARTMENT COVER HARDWARE

The front bumper compartment cover(s) will include gas cylinder stays which will hold the cover open. Each cover will be held in the closed position via a D-ring style latch.

AIR HORN

The front bumper will include two (2) Hadley brand E-Tone air horns which will measure 21.00 inches long with a 6.00 inch round flare. The air horns will be trumpet style with a chrome finish on the exterior and a painted finish deep inside the trumpet.

AIR HORN LOCATION

The air horns will be recess mounted in the front bumper face, one (1) on the right side of the bumper in the inboard position relative to the right-hand frame rail and one (1) on the left side of the bumper in the inboard position relative to the left hand frame rail.

AIR HORN RESERVOIR

One (1) air reservoir, with a 1200 cubic inch capacity, will be installed on the chassis to act as a supply tank for operating air horns. The reservoir will be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

ELECTRONIC SIREN SPEAKER

There will be one (1) Federal Signal Inc. Dynamax® model ES100C, 100 watt speaker provided. The speaker will measure 5.90 inches tall X 5.50 inches wide X 2.30 inches deep. The speaker will include a Federal Signal "Electric F" style grille which will measure 6.61 inches tall X 6.78 inches wide.

ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker will be located on the front bumper face on the right side outboard of the frame rail in the far outboard position.

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted to match the frame components, will be installed below the front bumper in the forward position, bolted directly to the underside of each chassis frame rail with grade 8 bolts.

CAB TILT SYSTEM

The entire cab will be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly will be located on the right side of the chassis above the battery box.

The electric-over-hydraulic lift system will include an ignition interlock and red cab lock down indicator lamp on the tilt control which will illuminate when holding the "Down" button to indicate safe road operation.

It will be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit. Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame will be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it will take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders will be provided with velocity fuses in each cylinder port. The cab tilt pivots will be 1.90-inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly, painted safety yellow will be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly will fall over the lift cylinder when the cab is in the fully tilted position. A cable release system will also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.

CAB TILT CONTROL RECEPTACLE

The cab tilt control cable will include a receptacle which will be temporarily located on the right hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump will include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap.

The remote-control pendant will include 20.00 feet of cable with a mating Deutsch connector. The remote-control pendant will be shipped loose with the chassis.

CAB TILT LOCK DOWN INDICATOR

The cab dash will include a message located within the dual air pressure gauge which will alert the driver when the cab is unlocked and ajar. The alert message will cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts.
In addition to the alert message an audible alarm will sound when the cab is unlocked and ajar with the parking brake released.

CAB WINDSHIELD

The cab windshield will have a surface area of 2825.00 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield will include standard automotive tint. The left and right windshield will be fully interchangeable thereby minimizing stocking and replacement costs.

Each windshield will be installed using black self-locking window rubber.

GLASS FRONT DOOR

The front cab doors will include a window which is 27.00 inches in width X 26.00 inches in height. These windows will have the capability to roll down completely into the door housing. This will be accomplished manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly will be provided for severe duty use.

There will be an irregular shaped fixed window which will measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as "cozy glass" ahead of the front door roll down windows.

The windows will be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.

GLASS TINT FRONT DOOR

The windows located in the left and right front doors will have a standard green automotive tint which will allow seventy-five percent (75%) light transmittance.

GLASS REAR DOOR RH

The rear right hand side door will include a window which is 27.00 inches in width X 26.00 inches in height. This window will roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly will be provided for severe duty use.

GLASS TINT REAR DOOR RIGHT HAND

The window located in the right-hand side rear door will include a standard green automotive tint which will allow seventy-five percent (75%) light transmittance.

GLASS REAR DOOR LH

The rear left hand side door will include a window which is 27.00 inches in width X 26.00 inches in height. This window will roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly will be provided for severe duty use.

GLASS TINT REAR DOOR LEFT HAND

The window located in the left-hand side rear door will include a standard green automotive tint which will allow seventy-five percent (75%) light transmittance.

GLASS SIDE MID RH

The cab will include a window on the right side behind the front and ahead of the crew door which will measure 16.00 inches wide X 26.00 inches high. This window will be fixed within this space and will be rectangular in shape. The window will be mounted using self locking window rubber. The glass utilized for this window will include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID RIGHT HAND

The window located on the right-hand side of the cab between the front and rear doors will include a standard green automotive tint which will allow seventy-five percent (75%) light transmittance.

GLASS SIDE MID LH

The cab will include a window on the left side behind the front door and ahead of the crew door and above the wheel well which will measure 16.00 inches wide X 26.00 inches high. This window will be fixed within this space and will be rectangular in shape. The window will be mounted using self locking window rubber. The glass utilized for this window will include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID LEFT HAND

The window located on the left-hand side of the cab between the front and rear doors will include a standard green automotive tint which will allow seventy-five percent (75%) light transmittance.

CLIMATE CONTROL

The cab will include a 57,500 BTU @ 425 CFM front overhead heater/defroster which will be provided and installed above the windshield between the sun visors.

The cab will also include a combination heater air-conditioning unit mounted on the engine tunnel. This unit will offer eight (8) adjustable louvers, four (4) forward facing and four (4) rearward facing, a temperature control valve and two (2) blowers offering three (3) speeds which will be capable of circulating 550 cubic feet of air per minute. The unit will be rated for 42,500 BTU/Hr of cooling and 36,000 BTU/Hr of heating. All defrost/heating systems will be plumbed with one (1) seasonal shut-off valve at the front corner on the right side of the cab.

The air conditioner lines will be a mixture of custom bend zinc coated steel fittings and Aeroquip flexible hose with Aeroquip EZ clip fittings.

CLIMATE CONTROL DRAIN

The climate control system will include a gravity drain for water management. The gravity drain will remove condensation from the air conditioning system without additional mechanical assistance.

CLIMATE CONTROL ACTIVATION

The heating and defrosting controls will be located on the front overhead climate control unit. There will be additional heating and air conditioning controls located on the engine tunnel mounted climate control unit.

A/C CONDENSER LOCATION

A roof mounted A/C condenser will be installed centered on the cab forward of the raised roof against the slope rise.

A/C COMPRESSOR

The air-conditioning compressor will be a belt driven, engine mounted, open type compressor that will be capable of producing a minimum of 32,000 BTU at 1500 engine RPMs. The compressor will utilize R-134A refrigerant and PAG oil.

UNDER CAB INSULATION

The underside of the cab tunnel surrounding the engine will be lined with multi-layer insulation, engineered for application inside diesel engine compartments.

The insulation will act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation will assist in sustaining the desired temperature within the cab interior.

The engine tunnel insulation will measure approximately 0.30 inch thick including a multi-layer foil faced glass cloth and polyester fiber layer. The foil surface acts as protection against heat, moisture and other contaminants. The insulation will meet or exceed FMVSS 302 flammability test.

The insulation will be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation will be held in place by acrylic pressure sensitive adhesive.

INTERIOR TRIM FLOOR

The floor of the cab will be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering will be held in place by a pressure sensitive adhesive and aluminum trim molding. All exposed seams will be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

INTERIOR TRIM

The cab interior will include trim on the front ceiling, rear crew ceiling, and the cab walls. It will be easily removable to assist in maintenance. The trim will be constructed of insulated vinyl over a hard board backing.

REAR WALL INTERIOR TRIM

The rear wall of the cab will be trimmed with vinyl.

HEADER TRIM

The cab interior will feature header trim over the driver and officer dash constructed of 5052-H32 Marine Grade, 0.13-inch-thick aluminum.

TRIM CENTER DASH

The main center dash area will be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate. There will be four (4) holes located on the top of the dash near each outer edge of the electrical access cover for ventilation.

TRIM LH DASH

The left-hand dash will be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate for a perfect fit around the instrument panel. For increased occupant protection the extreme duty left hand dash utilizes patent pending break away technology to reduce rigidity in the event of a frontal crash. The left-hand dash will offer lower vertical surface area to the left and right of the steering column to accommodate control panels.

TRIM RH DASH

The right-hand dash will be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate and will include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 6.38 inches high X 5.88 inches deep. The MDT provision will be provided above the glove compartment.

ENGINE TUNNEL TRIM

The cab engine tunnel will be covered with a multi-layer mat consisting of 0.25 inch closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The mat will be held in place by pressure sensitive adhesive. The engine tunnel mat will be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.

STEP TRIM

Each cab entry door will include a three step entry. The first step closest to the ground will be constructed of polished 5032 H32 aluminum Grip Strut® grating with angled outer corners. The step will feature a splash guard to reduce water and debris from splashing in to the step. The splash guard will have an opening on the outer edge to allow debris and water to flow through rather than becoming trapped within the stepping surface. The lower step will be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step will be integral with the cab construction and will be trimmed with a Flex-Tred® adhesive grit surface material.

UNDER CAB ACCESS DOOR

The cab will include an access door in the left crew step riser constructed of DA finish aluminum with a push and turn latch. The under-cab access door will provide access to the diesel exhaust fluid fill.

INTERIOR DOOR TRIM

The interior trim on the doors of the cab will consist of an aluminum panel constructed of Marine Grade 5052-H32 0.13 of an inch thick aluminum plate. The door panels will include a painted finish.

CAB DOOR TRIM REFLECTIVE

The interior of each door will include high visibility reflective tape. A white reflective tape will be provided vertically along the rear outer edge of the door. The lowest portion of each door skin will include a reflective tape chevron with red and white stripes and a Spartan logo. The chevron tape will measure 6.00 inches in height.

INTERIOR GRAB HANDLE "A" PILLAR

There will be two (2) rubber covered 11.00 inch grab handles installed inside the cab, one on each "A" post at the left and right door openings. The left handle will be located 7.88 inches above the bottom of the door window opening and the right handle will be located 2.88 inches above the bottom of the door window opening. The handles will assist personnel in entering and exiting the cab.

INTERIOR GRAB HANDLE FRONT DOOR

Each front door will include one (1) ergonomically contoured 9.00-inch cast aluminum handle mounted horizontally on the interior door panels. The handles will feature a textured black powder coat finish to assist personnel entering and exiting the cab.

INTERIOR GRAB HANDLE REAR DOOR

A black powder coated cast aluminum assist handle will be provided on the inside of each rear crew door. A 30.00-inch-long handle will extend horizontally the width of the window just above the window sill. The handle will assist personnel in exiting and entering the cab.

INTERIOR SOFT TRIM COLOR

The cab interior soft trim surfaces will be gray in color.

INTERIOR TRIM SUNVISOR

The header will include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor will be constructed of Masonite and covered with padded vinyl trim.

INTERIOR FLOOR MAT COLOR

The cab interior floor mat will be gray in color.

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces will be painted with multi-tone silver gray texture finish.

HEADER TRIM INTERIOR PAINT

The metal surfaces in the header area will be coated with multi-tone silver gray texture finish.

TRIM CENTER DASH INTERIOR PAINT

The entire center dash will be coated with multi-tone silver gray texture finish. Any accessory pods attached to the dash will also be painted this color.

TRIM LH DASH INTERIOR PAINT

The left-hand dash will be painted with a multi-tone silver gray texture finish.

TRIM RIGHT HAND DASH INTERIOR PAINT

The right hand dash will be painted with multi-tone silver gray texture finish.

DASH PANEL GROUP

The main center dash area will include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel will be within comfortable reach of both the driver and officer.

SWITCHES CENTER PANEL

The center dash panel will include twelve (12) rocker switch positons in a single row across the top of the panel.

A rocker switch with a blank legend installed directly above will be provided for any position without a switch and legend designated by a specific option. The non-specified switches will be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends will have backlighting provided.

SWITCHES LEFT PANEL

The left dash panel will include eight (8) switches. There will be six (6) switches across the top of the panel and two (2) staggered on the left hand portion of the panel. Five (5) of the top row of switches will be rocker type and the left one (1) will be the headlight switch. The remaining switches will consist of one (1) windshield wiper/washer control switch and one (1) instrument lamp dimmer switch.

A rocker switch with a blank legend installed directly above will be provided for any position not designated by a specific option. The non-designated switches will be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends will have backlighting provided.

SWITCHES RIGHT PANEL
The right dash panel will include no rocker switches or legends.

SEAT BELT WARNING

A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, will be installed for each seat within the cab. The system will activate a digital seat position indicator with a seat position legend and integrated audible alarm in the switch panel.

The warning system will activate when any seat is occupied with a minimum of 60 pounds and the corresponding seat belt remains unfastened. The warning system will also activate when any seat is occupied, and the corresponding seat belt was fastened in an incorrect sequence. Once activated, the visual indicators and applicable audible alarm will remain active until all occupied seats have seat belts fastened.

SEAT MATERIAL

The USSC Valor seats will include military grade high strength, wear resistant fabric made of durable ballistic polyester. A synthetic coating will be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. The fabric will include the integration VALORTech XD®, a proprietary antimicrobial agent, designed to resist toxicity and contaminants.

If applicable, Theatre style seats located in the cab will be high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating will be bonded to the back side of the material to help protect the

seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

SEAT COLOR

All seats supplied with the chassis will be gray in color. All seats will include red seat belts.

SEAT BACK LOGO

The seat back will include the "Spartan" logo. The logo will be centered on the standard headrest of the seat back and on the left side of a split headrest.

SEAT DRIVER

The driver's seat will be a USSC Valor P1A air suspension. The four-way seat will feature a 3.00 inches vertical travel air suspension and manual fore and aft adjustment with 6.00 inches of travel. The suspension control will be located on the seat below the front of the cushion. The seat will also feature integral springs to isolate shock.

The seat will feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature will include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt will extend from the seat base towards the driver position within easy reach of the occupant.

This model of seat will have successfully completed the static load tests set forth by FMVSS 207/210. This testing will include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.

The materials used in construction of the seat will also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK DRIVER

The driver's seat will include a standard seat back incorporating the all belts to seat feature (ABTS). The seat back will feature a contoured head rest.

SEAT MOUNTING DRIVER

The driver's seat will be installed in an ergonomic position in relation to the cab dash.

SEAT OFFICER

The officer's seat will be a USSC Valor slide adjustment seat. The seat will feature a tapered and padded seat, and cushion. The two-way, manually adjustable tracks will include 9.40 inches of fore and aft travel.

The seat will feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature will include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt will extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position will be 35.00 inches.

This model of seat will have successfully completed the static load tests by FMVSS 207/210. This testing will include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, will have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used will be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats will also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK OFFICER

The officer seat back will include a Ziamatic brand model QM-EZL-F mechanical self-contained breathing apparatus (SCBA) bracket. The Mechanical walk away bracket will meet NFPA 1901-09 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs.

The bracket will secure a self-contained breathing apparatus with most sizes of cylinders. The bracket will feature a top clamp and a footplate which securely lock the SCBA. The top clamp will be PVC coated to prevent damage to the cylinder. The steel back plate and cast aluminum footplate will be powder coated. The bracket will also include a pull release cable with a handle which activates the lever on the bracket saving the occupant from reaching behind the SCBA in order to release the bracket. The handle will be located on the front of the seat in the center.

SEAT MOUNTING OFFICER

The officer's seat will be installed in an ergonomic position in relation to the cab dash.

SEAT BELT ORIENTATION CREW

The crew position seat belts will follow the standard orientation which extends from the outboard shoulder extending to the inboard hip. The seat belts will include Ready Reach belt extenders to present belt over shoulder.

SEAT REAR FACING OUTER LOCATION

The crew area will include two (2) rear facing crew seats, which include one (1) located directly behind the left side front seat and one (1) located directly behind the right-side front seat.

SEAT CREW REAR FACING OUTER

The crew area will include a seat in the rear facing outboard position which will be a USSC Valor ABTS Crew series. The seat will feature an 18.00 inches wide padded seat cushion. The seat and cushion will be hinged and compact in design for additional room and will remain in the stored position until occupied.

The seat will feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature will include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt will extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position will be 35.00 inches.

This model of seat will have successfully completed the static load tests by FMVSS 207/210. This testing will include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats will also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK REAR FACING OUTER

The rear facing outer seat back(s) will include a Ziamatic brand model QM-EZL-F mechanical self-contained breathing apparatus (SCBA) bracket. The Mechanical walk away bracket will meet NFPA 1901-09 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs.

The bracket will secure a self-contained breathing apparatus with most sizes of cylinders. The bracket will feature a top clamp and a footplate which securely lock the SCBA. The top clamp will be PVC coated to prevent damage to the cylinder. The steel back plate and cast aluminum footplate will be

SEAT MOUNTING REAR FACING OUTER

The rear facing outer seats will offer special mounting positions which will be 2.00 inches towards the rear wall offering additional space between the front seats and the outer rear facing seats.

SEAT FORWARD FACING CENTER LOCATION

The crew area will include two (2) forward facing center crew seats with both located at the center of the rear wall.

SEAT CREW FORWARD FACING CENTER

The crew area will include a seat in the forward-facing center position which will be a USSC Valor ABTS Crew series. The seat will feature an 18.00 inches wide padded seat cushion. The seat and cushion will be hinged and compact in design for additional room and will remain in the stored position until occupied.

The seat will feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature will include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt will extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position will be 35.00 inches.

This model of seat will have successfully completed the static load tests by FMVSS 207/210. This testing will include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats will also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK FORWARD FACING CENTER

The forward-facing center seat backs will include a Ziamatic brand model QM-EZL-F mechanical self-contained breathing apparatus (SCBA) bracket. The Mechanical walk away bracket will meet NFPA 1901-09 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs.

The bracket will secure a self-contained breathing apparatus with most sizes of cylinders. The bracket will feature a top clamp and a footplate which securely lock the SCBA. The top clamp will be PVC coated to prevent damage to the cylinder.

SEAT FRAME FORWARD FACING

The forward-facing center seating positions will include an enclosed seat frame located and installed on the rear wall. The seat frame will measure 42.38 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame will be constructed of Marine Grade 5052-H32 0.19-inch-thick aluminum plate. The seat box will be painted the same color as the remaining interior.

SEAT FRAME FORWARD FACING STORAGE ACCESS

There will be two (2) access points on the side of the storage area, one (1) on the driver side and one (1) on the officer side.

SEAT MOUNTING FORWARD FACING CENTER

The forward-facing center seats will be installed facing the front of the cab.

WINDSHIELD WIPER SYSTEM

The cab will include a triple arm linkage wiper system which will clear the windshield of water, ice and debris. There will be two (2) windshield wipers; each will be affixed to a radial arm. The wiper motor will be activated by an intermittent wiper control located within easy reach of the driver's position.

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level will be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel will illuminate and the message center in the dual air pressure gauge will display a "Check Washer Fluid Level" message.

CAB DOOR HARDWARE

The cab entry doors will be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles will be made of a fiber reinforced plastic composite with a black matt finish.
The interior exit door handles will be flush paddle type with a black finish, which are incorporated into the upper door panel.

All cab entry doors will include locks which are keyed alike. The door locks will be designed to prevent accidental lockout.

DOOR LOCKS

Each cab entry door will include a manually operated door lock. Each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.

GRAB HANDLES

The cab will include one (1) 18.00-inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle will be made of SAE 304 stainless steel and be 1.25-inch diameter to enable non-slip assistance with a gloved hand.

REARVIEW MIRRORS

Retrac West Coast style single vision mirror heads model 1171H will be provided and installed on each of the front cab doors. The mirrors will be mounted to the cab doors with tubular stainless-steel swing away arms and the mirror heads will be center mounted on the arms to provide rigid mounting to reduce vibration.

The flat mirrors will measure 7.00 inches wide x 16.00 inches high. A separate lower 8.00 inch round manually adjustable convex mirror model 980-4 will be provided below the flat mirror for a wider field of vision. The mirror glass will be held in a plastic housing with a stainless steel back. The mirrors will be manufactured with the finest quality non-glare glass.

The flat mirrors will be remotely adjustable vertically and horizontally via four way actuation switches. The control switches will be mounted in the cab with in easy reach of the driver. The flat mirrors will be heated for defrosting in cold weather conditions.

REARVIEW MIRROR HEAT SWITCH

The heat for the rearview mirrors will be controlled through a rocker switch on the dash in the switch panel.

CAB FENDER

Full width wheel well liners will be installed on the extruded cab to limit road splash and enable easier cleaning. Fender will consist of an inner liner 16.00 inches wide made of ABS composite and an outer fenderette 5.00 inches wide made of polished aluminum.

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab will include one (1) Spartan emblem installed on the front grille.
5109-001 Ign Mstr Sw w/Keyless Start

IGNITION

A master battery system with a keyless start ignition system will be provided. Each system will be controlled by a one-quarter turn Cole Hersee switch, both of which will be mounted to the left of the steering wheel on the dash. A chrome push type starter button will be provided adjacent to the master battery and ignition switches.

Each switch will illuminate a green LED indicator light on the dash when the respective switch is placed in the "ON" position.

The starter button will only operate when both the master battery and ignition switches are in the "ON" position.

BATTERY

The single start electrical system will include three (3) Harris BCI 31 925 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.

BATTERY TRAY

The batteries will be installed on a steel battery tray located on the left side of the chassis, securely bolted to the frame rails. The battery tray will be coated with the same material as the frame.

The battery tray will include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek will be installed in the bottom of the tray to allow for air flow and help prevent moisture build up. The batteries will be held in place by non-conducting phenolic resin hold down boards.

BATTERY BOX COVER

The battery box will include a steel cover which protects the top of the batteries on the left-hand side of the vehicle. The cover will include flush latches which will keep the cover secure as well as a black powder coated handle for convenience when opening.

BATTERY CABLE

The starting system will include cables which will be protected by 275 degree F. minimum high temperature flame retardant loom, sealed at the ends with heat shrink and sealant.

The battery terminals will not be utilized for auxiliary connections. The only acceptable auxiliary connections will be for the cross over link from the left bank to the right bank, power for jumper studs and starter cables. All other auxiliary connections will use remote studs mounted in the battery box area. There will be four (4) remote studs labeled as Common Power, Common Ground, Clean Power, and Clean Ground.

BATTERY JUMPER STUD

The starting system will include battery jumper studs. These studs will be located on the rear face of the left hand battery tray. The studs will allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

ALTERNATOR

The charging system will include a 320-amp Leece-Neville 12 volt alternator. The alternator will include a self-exciting integral regulator.

STARTER MOTOR

The single start electrical system will include a Delco brand starter motor.

BATTERY CONDITIONER

A Kussmaul Auto Charge Chief 4012 battery conditioner will be supplied. The battery conditioner will provide a 40-amp output for the chassis batteries and a 20 amp output circuit for accessory loads. The battery conditioner will be mounted in the cab in the LH rear facing outer seating position and will include a battery temperature sensor.

BATTERY CONDITIONER DISPLAY

A Kussmaul battery conditioner display with a digital status center display will be integrated into the electrical inlet.

AUXILIARY AIR COMPRESSOR

A Kussmaul Pump 12V air compressor will be supplied. The air compressor will be installed under the dashboard on the right-hand side, forward of the officer's seating position. The air compressor will be plumbed to the air brake system to maintain air pressure. The air compressor will include an auto drain as an extra precaution to prevent moisture from entering the air system. The automatic moisture drain will be plumbed into the system between the auxiliary air compressor pump and the air tanks.

ELECTRICAL INLET LOCATION

An electrical inlet will be installed on the left-hand side of cab over the wheel well.

ELECTRICAL INLET

A Kussmaul 20-amp super auto-eject electrical receptacle will be supplied. It will automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List: Kussmaul 40 LPC Charger - 5 Amps Kussmaul 40/20 Charger - 8.5 Amps Kussmaul 80 LPC Charger - 13 Amps Kussmaul EV-40 - 6.2 Amps
Blue Sea P12 7532 - 7.5 Amps Iota DLS-45/IQ4 - 11 Amps 1000W Engine Heater - 8.33 Amps 1500W Engine Heater - 12.5 Amps 120V Air Compressor - 4.2 Amps 120V Dometic HVAC - 15 Amps

ELECTRICAL INLET CONNECTION

The electrical inlet will be connected to the battery conditioner and the block heater.

ELECTRICAL INLET COLOR

The electrical inlet connection will include a yellow cover.

HEADLIGHTS

The cab front will include four (4) rectangular LED headlamps with separate high and low beams mounted in bright chrome bezels. Each lamp will include a heating system that de-ices the headlight.

FRONT TURN SIGNALS

The front fascia will include two (2) Techniq model K60 4.00 inch X 6.00 inch amber LED sequential arrow turn signals which will be installed in an outboard position within the front fascia chrome bezel.

HEADLIGHT LOCATION

The headlights will be located on the front fascia of the cab directly below the front warning lights.

SIDE TURN/MARKER LIGHTS

The sides of the cab will include two (2) Tecniq S170 LED side marker lights which will be provided just behind the front cab radius corners. The lights will be amber with chrome bezels.

MARKER AND ICC LIGHTS

In accordance with FMVSS, there will be five (5) Tecniq S170 LED cab marker lamps designating identification, center and clearance provided. These lights will be installed on the face of the cab within full view of other vehicles from ground level. The lights will be amber with chrome bezels.

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights will be controlled through a rocker switch within easy reach of the driver. There will be a dimmer switch within easy reach of the driver to adjust the brightness of the dash lights. The headlamps will be equipped with the "Daytime Running" light feature, which will illuminate the headlights when the ignition switch is in the "On" position and the parking brake is released.

INTERIOR OVERHEAD LIGHTS

The cab will include a LED dome lamp located over each door. The lights will include push switches on each lamp to activate both the clear and red portions of the light individually.

INTERIOR OVERHEAD LIGHTS ACTIVATION

The clear portion of each lamp will be activated by opening the respective door.

LIGHTBAR PROVISION

There will be a junction box located on the left hand side of the roof with electrical connections for a light bar. The light bar will be provided and installed by the body manufacturer.

LIGHTBAR SWITCH

The light bar will be controlled by a rocker switch located on the switch panel. This switch will be clearly labeled for identification.

GROUND LIGHTS

Each door will include a Tecniq T44 LED ground light mounted to the underside of the cab step below each door. The lights will include a polycarbonate lens, a housing which is vibration welded and LEDs which will be shock mounted for extended life.

GROUND LIGHTS

The ground lighting will be activated when the parking brake is set.

LOWER CAB STEP LIGHTS

The middle step located at each door will include a Tecniq T44 LED light which will activate with the opening of the respective door. The lights will include a polycarbonate lens, a housing which is vibration welded and LEDs which will be shock mounted for extended life.

INTERMEDIATE STEP LIGHTS

The intermediate step well area at the front doors will include a TecNiq D06 LED light within a chrome housing. The front egress step lights will provide visibility to the step well area for the first step exiting the vehicle. The Egress step lights will activate with entry step lighting.

ENGINE COMPARTMENT LIGHT

There will be a LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light will activate automatically when the cab is tilted.

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab will include a flashing red TecNiq K50 LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm will be included which will sound while the light is activated.
The flashing red light will be located centered left to right for greatest visibility.

The light and alarm will be interlocked for activation when either a cab door is not firmly closed, or an apparatus compartment door is not closed, and the parking brake is released.

MASTER WARNING SWITCH

A master switch will be included in the main rocker switch panel. The switch will be a rocker type, red in color and labeled “Master” for identification. The switch will feature control over all devices wired through it. Any warning device switch left in the “ON” position will automatically power up when the master switch is activated.

HEADLIGHT FLASHER

An alternating high beam headlight flashing system will be installed into the high beam headlight circuit which will allow the high beams to flash alternately from left to right.

Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled “On Scene” when the park brake is applied.

HEADLIGHT FLASHER SWITCH
]
The flashing headlights will be activated through a rocker switch on the switch panel. The rocker switch will be clearly labeled for identification.

INBOARD FRONT WARNING LIGHTS

The cab front fascia will include two (2) Whelen M6 Super LED front warning lights in the left and right inboard positions. The lights will feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights will be mounted to the front fascia of the cab within a chrome bezel

INBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the inboard positions will be red.

FRONT WARNING SWITCH

The front warning lights will be controlled via rocker switch on the panel. This switch will be clearly labeled for identification.

INTERSECTION WARNING LIGHTS
The chassis will include two (2) Whelen M6 series Super LED intersection warning lights, one (1) each side. The lights will feature multiple flash patterns including steady burn.

INTERSECTION WARNING LIGHTS COLOR

The intersection lights will be red.

INTERSECTION WARNING LIGHTS LOCATION

The intersection lights will be mounted on the side of the bumper in the rearward position.

SIDE AND INTERSECTOR WARNING SWITCH

The side and intersector warning lights will be controlled by a rocker switch on the switch panel. This switch will be clearly labeled for identification.

SIREN CONTROL HEAD

A Whelen 295HFS2 electronic siren control head with remote amplifier will be provided and flush mounted in the switch panel with a location specific to the customer's needs. The siren will feature 200-watt output, hands free mode and will be in "standby" mode awaiting instruction. The siren will offer radio broadcast, public address, wail, yelp, or piercer tones and hands-free operation which will
allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected.

STEERING WHEEL HORN BUTTON SELECTOR SWITCH

A rocker switch will be installed in the switch panel between the driver and officer to allow control of either the electric horn or the air horn from the steering wheel horn button. The electric horn will sound by default when the selector switch is in either position to meet FMCSA requirements.

BACK-UP ALARM

An ECCO model 575 backup alarm will be installed at the rear of the chassis with an output level of 107 dB. The alarm will automatically activate when the transmission is placed in reverse.

INSTRUMENTATION

An ergonomically designed instrument panel will be provided. Each gauge will be backlit with LED lamps. Stepper motor movements will drive all gauges. The instrumentation system will be multiplexed and will receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.

A twenty-eight (28) icon lightbar message center with integral LCD odometer/trip odometer will be included. The odometer will display up to 999,999.9 miles. The trip odometer will display 9,999.9 miles. The LCD message center screen will be capable of custom configuration by the users for displaying certain vehicle status and diagnostic functions.

The instrument panel will contain the following gauges:
One (1) three-movement gauge displaying vehicle speed, fuel level, and Diesel Exhaust Fluid (DEF) level. The primary scale on the speedometer will read from 0 to 100 MPH, and the secondary scale on the speedometer will read from 0 to 160 KM/H. The scale on the fuel and DEF level gauges will read from empty to full as a fraction of full tank capacity. Red indicator lights in the gauge and an audible alarm will indicate low fuel or low DEF at 1/8th tank level.

One (1) three-movement gauge displaying engine RPM, and primary and secondary air system pressures will be included. The scale on the tachometer will read from 0 to 3000 RPM. The scale on the air pressure gauges will read from 0 to 150 pounds per square inch (PSI) with a red line zone indicating critical levels of air pressure. Red indicator lights in the gauge and an audible alarm will indicate low air pressure.

One (1) four-movement gauge displaying engine oil pressure, coolant temperature, voltmeter, and transmission temperature will be included. The scale on the engine oil pressure gauge will read from 0 to 100 pounds PSI with a red line zone indicating critical levels of oil pressure. A red indicator light in the gauge and audible alarm will indicate low engine oil pressure. The scale on the coolant temperature gauge will read from 100 to 250 degrees Fahrenheit (°F) with a red line zone indicating critical coolant temperatures. A red indicator light in the gauge and audible alarm will indicate high coolant temperature. The scale on the voltmeter will read from 9 to 18 volts with a red line zone indicating critical levels of battery voltage. A red indicator light in the gauge and an audible alarm will indicate high or low system voltage. The low voltage alarm will indicate when the system voltage has dropped below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. The scale on the transmission temperature gauge will read from 100 to 300 degrees °F with a red line zone indicating critical temperatures. A red indicator light in the gauge and an audible alarm will indicate a high transmission temperature.

The light bar portion of the message center will include twenty-eight (28) LED backlit indicators. The lightbar will be split with fourteen (14) indicators on each side of the LCD message screen. The lightbar will contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:

RED INDICATORS

Stop Engine - indicates critical engine fault
Air Filter Restricted - indicates excessive engine air intake restriction Park Brake - indicates parking brake is set
Seat Belt - indicates a seat is occupied and corresponding seat belt remains unfastened Low Coolant - indicates critically low engine coolant
Cab Tilt Lock - indicates the cab tilt system locks are not engaged.

AMBER INDICATORS

Malfunction Indicator Lamp (MIL) - indicates an engine emission control system fault Check Engine - indicates engine fault
Check Transmission - indicates transmission fault
Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault High exhaust system temperature – indicates elevated exhaust temperatures Water in Fuel - indicates presence of water in fuel filter
Wait to Start - indicates active engine air preheat cycle Windshield Washer Fluid – indicates washer fluid is low
DPF restriction - indicates a restriction of the diesel particulate filter
Regen Inhibit-indicates regeneration of the DPF has been inhibited by the operator
Range Inhibit - indicates a transmission operation is prevented and requested shift request may not occur.
SRS - indicates a problem in the supplemental restraint system
Check Message - indicates a vehicle status or diagnostic message on the LCD display requiring attention.

South Florida Emergency Vehicles

GREEN INDICATORS

Left and Right turn signal indicators
ATC - indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system
High Idle - indicates engine high idle is active. Cruise Control - indicates cruise control is enabled
OK to Pump - indicates the pump is engaged and conditions have been met for pump operations Pump Engaged - indicates the pump transmission is currently in pump gear
Auxiliary Brake - indicates secondary braking device is active

BLUE INDICATORS

High Beam indicator

AUDIBLE ALARMS

Air Filter Restriction Cab Tilt Lock Check Engine Check Transmission
Open Door/Compartment High Coolant Temperature High or Low System Voltage
High Transmission Temperature Low Air Pressure
Low Coolant Level Low DEF Level
Low Engine Oil Pressure Low Fuel
Seatbelt Indicator Stop Engine Water in Fuel
Extended Left/Right Turn Signal On ABS System Fault
BACKLIGHTING COLOR
The instrumentation gauges and the switch panel legends will be backlit using red LED backlighting.

CAMERA REAR

One (1) Audiovox Voyager heavy duty box shaped HD camera will be shipped loose for OEM installation in the body to afford the driver a clear view to the rear of the vehicle.

The camera system will include a one-way communication device that will be an integral part of the rear camera for the use of voice commands directly to the driver. The rear camera display will activate when the vehicle's transmission is placed in reverse.

CAMERA DISPLAY

The camera system will be wired to a 7.00 inch flip down HD monitor which will include a color display and day and night brightness modes installed above the driver position.

CAB EXTERIOR PROTECTION

The cab face will have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.

FIRE EXTINGUISHER

A 2.50-pound D.O.T approved fire extinguisher with BC rating will be shipped loose with the cab.
8810-001 Door Keys for Manual Locks (4)

DOOR KEYS

The cab and chassis will include a total of four (4) door keys for the manual door locks.

CHASSIS WARRANTY

Purchaser will receive a Custom Chassis One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0101. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

CHASSIS OPERATION MANUAL

There will be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data will include a parts list specific to the chassis model.

ENGINE AND TRANSMISSION OPERATION MANUALS

The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:
(1) Hard copy of the Engine Operation and Maintenance manual with digital copy
(1) Digital copy of the Transmission Operator's manual
(1) Digital copy of the Engine Owner's manual

CAB/CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis will include two (2) digital copies of wiring schematics and option wiring diagrams.

PAINT CONFIRMATION

There will be a paint confirmation letter sent to the body manufacturer with paint spray outs to confirm the cab primary paint color or primary and secondary paint color as specified by the paint options.

HUB COVERS (front)

Stainless steel hub covers will be provided on the front axle.

HUB COVERS (rear)

A pair of stainless-steel high-hat hub covers will be provided on rear axle hubs.

COVERS, LUG NUT, CHROME

Chrome lug nut covers will be supplied on front and rear wheels.

DUAL USB PORT

One (1) Kussmaul model # 091-219-5 will be installed in the console. It will contain two (2) 2.4 amp USB charging ports.

PUMP, MODULE, AND RELATED ITEMS

NFPA 1901 COMPLIANT PUMP

The fire pump and related plumbing on the specified apparatus will be installed in accordance with applicable NFPA 1901 guidelines at the time the contract was placed.

HALE QMAX PUMP ASSEMBLY

The pump will be of a size and design to mount on the chassis rails of commercial and custom truck chassis.

The entire pump will be assembled and tested at the pump manufacturer's factory.

The pump will be driven by a drive line from the truck transmission. The engine will provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance.

The entire pump, both suction and discharge passages, will be hydrostatically tested to a pressure of 600 PSI. The pump will be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. Pump will be free from objectionable pulsation and vibration.

The pump body and related parts will be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI (2069 bar). All metal moving parts in contact with water will be of high quality bronze or stainless steel. Pump utilizing castings made of lower tensile strength cast iron not acceptable.

Pump body will be horizontally split, on a single plane in two (2) sections for easy removal of entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump in chassis.

The pump body will extend as one piece across the truck chassis from side mounting to side mounting and incorporate the discharge manifolding system with a minimum of (2) 4" ports and (7) 3" ports.

The pump will have one (1) double suction impeller. The pump body will have two opposed discharge volute cutwaters to eliminate radial unbalance. (No exceptions)

Pump shaft to be rigidly supported by three bearings for minimum deflection. One high lead bronze sleeve bearing to be located immediately adjacent to the impeller (on side opposite the gearbox). The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure balanced to exclude foreign material. (No exceptions.) The remaining bearings will be heavy-duty, deep groove ball bearings in the gearbox and they will be splash lubricated.

Pump impeller will be hard, fine grain bronze of the mixed flow design; accurately machined and individually balanced. The vanes of the impeller intake eyes will be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

Impeller clearance rings will be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency. (No exceptions.)

The pump shaft will be heat-treated, electric furnace, corrosion resistant stainless steel to be superfinished under for longer shaft life. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox.

ELECTRONIC PUMP MANUALS

Two (2) sets of electronic fire pump service and operation manuals will be provided with the completed apparatus.

PUMP WARRANTY

The pump will be covered by the Hale Pro-Tech 5-year pump warranty against workmanship and materials. Both parts and labor will be covered for the first 2 years and years 3-5 will have parts only coverage.

GEARBOX

Pump gearbox will be of sufficient size to withstand up to 16,000 lbs. ft. of drive through torque of the engine system. The drive unit will be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts will be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter, on both the input and output drive shafts. They will withstand the full torque of the engine.

All gears, both drive and pump, will be of highest quality electric furnace chrome nickel steel. Bores will be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut spur design will be provided to eliminate all possible end thrust. (No exceptions.)

The pump ratio will be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

If the gearbox is equipped with a power shift, the shifting mechanism will be a heat treated, hard anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift will be provided that locks in road or pump.

MIDSHIP PUMP RATIO

The ratio for the midship pump will be 2.32:1 (23).

MECHANICAL SEAL

The pump will have a mechanical seal. One (1) only required on the suction (inboard) side of the pump. The mechanical seal will be two (2) inches in diameter and will be spring loaded, maintenance free and self-adjusting. Mechanical seal construction will be a carbon sealing ring, stainless steel coil spring, Viton rubber cup, and a tungsten carbide seat with Teflon backup seal.

1500 GPM FIRE PUMP SPECIFICATIONS

The centrifugal type fire pump will be a Hale model QMAX midship mounted with a rated capacity of 1500 GPM. The pump will meet NFPA 1901 requirements.

The pump will be certified to meet the following deliveries:

1500 gpm (5678 L/M) @ 150 psi (10.3 bar)
1050 gpm (3974 L/M) @ 200 psi (13.8 bar)
750 gpm (2839 L/M) @ 250 psi (17.2 bar)

LEFT SIDE INLET - 6.00"

One (1) 6.00" steamer inlet with male NST threads will be provided on the left side of the pump module. The inlet will have a removable screen.

INLET CAP

One (1) 6.00" chrome plated cap with long handles and NST threads will be supplied. The cap will be capable of withstanding 500 PSI and be trimmed with the apparatus manufacturer's logo in the center of the cap.

RIGHT SIDE INLET - 6.00"

One (1) 6.00" steamer inlet with male NST threads will be provided on the right side of the pump module. The inlet will have a removable screen.

INLET CAP

One (1) 6.00" chrome plated cap with long handles and NST threads will be supplied. The cap will be capable of withstanding 500 PSI and be trimmed with the apparatus manufacturer's logo in the center of the cap.

FIRE PUMP SPLIT SHAFT DRIVESHAFTS AND INSTALLATION
The mid-ship split shaft fire pump will be installed and will include installation of the fire pump, modification and/or fabrication of new drivelines and all pump-mounting brackets.

PUMP DRIVELINE

The pump transmission driveline will be supplied with 1710 series yokes and bearings to match the cab chassis driveline.

TRANSMISSION LOCK-UP DEVICE

The automatic chassis transmission will be delivered to the body builder with high gear lock up device installed on the automatic transmission, to allow proper gear ratio for pump operation. The transmission will be programmed by the chassis manufacturer to include this feature.

PUMP SHIFT CONTROLS

The pump shift controls will be supplied with the custom chassis.

PIPING AND MANIFOLDS

All the plumbing and/or piping in the pump module will be of 304 stainless steel or flexible piping for long life. All stainless-steel castings will be a minimum of schedule 40. All NPT pipe thread connections larger than 0.75" connections will be avoided in the construction of the plumbing system. The following valves will have groove connection: rear discharge, tank fill, all 2.00" and 2.50" pre-connect valves.

The flexible piping will be black SBR synthetic rubber hose with 300 working pounds and 1,200 pounds burst pressure for sizes 1.50" through 4.00". Sizes 0.75", 1.00" and 5.00" are rated at 250 lb. working and 1,000 lb. burst pressure. All sizes are rated at 30 HG vacuum. Reinforcement consists of two (2) plies of high tensile strength tire cord for all sizes sand helix wire installed in sizes 1.00" through 5.00" for maximum performance in tight bend applications. The material has a temperature rating of –40 degrees F to 210 degrees F. Full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. 0.75" and 1.00" male and Victaulic couplings are brass

INDIVIDUAL DRAINS

All 2.00" or larger discharge outlets will be equipped with a 0.75" ball valve drain valve or larger.

HOSE THREADS- NST

All hose threads will be National Standard Thread (NST) on all base threads on the apparatus intake and discharges, unless otherwise specified.

MASTER PUMP DRAIN

The pump will be equipped with a Class 1 Master Pump drain to allow draining of the lower pump cavities, volute and selected water carrying lines and accessories. The drain will have an all brass body with a stainless steel return spring.

U.L. TEST POINTS

Two (2) U.L. test points will be mounted on the pump panel for testing of the vacuum and pressures. The test points will be a single piece with individual ports for suction and discharge.

PUMP CERTIFICATION

The fire pump will be tested to meet the flow requirements of the pump. A written certification will be provided with the completed vehicle.

RELIEF VALVE

There will be one (1) suction side stainless steel relief pump valve provided on the pump system. The valve will be configured with a 2.50" male NST discharge outlet.

FIRE PUMP PRIMING SYSTEM

A Trident Model #31.001.2 air operated priming system will be installed. The unit will be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,600 LPM) or more. The primer will be three-barrel design with direct connection to the Hale fire pump. The primer will automatically drain when the panel control actuator is not in operation. The connection to the pump will have an integral Hale strainer.

The priming system will be capable to a vertical lift to 22.00" of mercury and will be fully compliant to applicable NFPA standards for vertical lift. The system will create vacuum by using air from the chassis air brake system through a three-barrel multi-stage internal "venturi nozzles" within the primer body.

The primer control will have a manually operated, panel mounted "push to prime" air valve; which will direct air pressure from the air brake storage tank to the primer body. To prevent freezing, no water will flow to and from the panel control.

THERMAL RELIEF VALVE

A Hale Model TRV120 Thermal Relief Valve will be provided on the pump. If water temperature in the pump exceeds 120 degrees Fahrenheit, the thermal relief valve will automatically open and discharge pump water to the ground, through a 0.375" discharge line, routed below the pump module. The thermal relief valve will automatically close when the water temperature is lowered.

PUMP COOLING/BYPASS LINE

There will be a 0.25" line installed from the discharge side of the pump to the water tank. The line will be used to cool the pump during long periods of pumping when water is not being discharged. The pump cooler will be controlled with a quarter-turn ball valve on main pump panel, and will be clearly labeled "Pump Cooler".

CHASSIS ENGINE HEAT EXCHANGER COOLING SYSTEM

The apparatus will be equipped with a heat exchanger for supplementary chassis engine cooling during fire pump operations. The system will provide cooling water from the fire pump to circulate around the engine radiator coolant without mixing or coming in direct contact with the engine coolant. The unit will be installed by the chassis manufacturer and connected to the plumbing system by the fire apparatus manufacturer.

ANODES

The fire pump will be equipped with replaceable alloy anodes. The pump will have one (1) anode on each intake section and one (1) anode on the discharge section of the fire pump, for a total of three (3).

PRESSURE GOVERNOR and ENGINE MONITORING DISPLAY

Fire Research PumpBoss Max series PBA501-D00 pressure governor and control module kit will be installed. The kit will include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control knob will be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It will not extend more than 2" from the front of the control module. The control LCD will be 3.5" in size with a minimum brightness of 1000 nits and optically bonded to 3mm Borofloat Glass. Inputs for monitored engine information will be from a J1939 data bus or independent sensors. Outputs for engine control will be on the J1939 data bus. Inputs from the pump discharge and intake pressure sensors will be electrical.

The following continuous displays will be provided:
Engine RPM; shown on LCD screen
Check engine and stop engine warning; shown on LCD screen
Engine oil pressure; shown on LCD screen
Engine coolant temperature; shown on LCD screen
Transmission Temperature; shown on LCD screen
Battery voltage; shown on LCD screen
Pressure and RPM operating mode LEDs
Pressure / RPM setting; shown on LCD screen
Throttle ready / Ok to Pump LEDs.

On screen (LCD) message display will show diagnostic and warning messages as they occur. It will show monitored apparatus information, stored data, and program options when selected by the operator. LCD Screen and LED's intensity will be automatically adjusted for day and nighttime operation.

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

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

The program features will be accessed via push buttons located on the front of the control module. There will be a USB port located at the rear of the control module to upload future firmware enhancements.
The pressure governor will operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation will occur when switching between modes. A throttle ready and Ok to Pump LED will light when the interlock signal is recognized. The pressure governor will start in pressure mode and set the engine RPM to idle. In pressure mode the pressure governor will automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor will maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The pressure governor will limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features will include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor control module will be programmed at installation for a specific engine.

LEFT SIDE FORWARD AUXILIARY INTAKE

One (1) 2.50" gated suction intake will be installed on the left hand side pump panel in the forward position to supply the fire pump from an external water supply. The intake will have a 2.50" chrome plated female NST swivel connection with screen.

An Akron Brass 2.50" generation II swing-out valve will be provided for the left hand side auxiliary suction.

The side auxiliary inlet will incorporate a quarter-turn ball valve with a swing-type manual control located adjacent the intake.

The intake will also come equipped with a quarter-turn 0.75" drain valve and a matching color coded bezel.

One (1) 2.50" chrome plated plug will be provided. The plug will be equipped with MNST threads, rocker lugs, and chain.

TANK TO PUMP LINE

One (1) 3.00" tank to pump line will be provided for connection between the water tank and the fire pump.

An Akron Brass 3.00" generation II swing-out valve will be provided for the tank to pump line.

The quarter turn valve will be manually operated with a Class1 locking push pull control rod.

TANK FILL/ RECIRULATION LINE

One (1) 2.00" fire pump to water tank refill and pump bypass cooler line will be provided.

An Akron Brass 2.00" generation II swing-out valve will be provided for the tank fill line.

The quarter turn valve will be manually operated with a Class1 locking push pull control rod.

LEFT SIDE FRONT PANEL DISCHARGE

One (1) 2.50" discharge with valve will be located on the left side panel.

An Akron Brass 2.50" generation II swing-out valve will be provided for the discharge.

The quarter turn valve will be manually operated with a swing handle from the left hand side pump operator's panel.

The discharge will also come equipped with a quarter-turn 0.75" drain valve and a matching color coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) will be provided. The face of the gauge will be a WHITE dial with black letters.

The discharge will be equipped with an integral, stainless steel, 30-degree elbow terminating with 2.50" MNST threads.

One (1) 2.50" chrome plated cap with self-venting lungs will be provided. The cap will be equipped with FNST threads, rocker lugs, and chain.

LEFT SIDE REAR PANEL DISCHARGE

One (1) 2.50" discharge with valve will be located on the left side panel.

An Akron Brass 2.50" generation II swing-out valve will be provided for the discharge.

The quarter turn valve will be manually operated with a swing handle from the left hand side pump operator's panel.

The discharge will also come equipped with a quarter-turn 0.75" drain valve and a matching color coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) will be provided. The face of the gauge will be a WHITE dial with black letters.

The discharge will be equipped with an integral, stainless steel, 30-degree elbow terminating with 2.50" MNST threads.

One (1) 2.50" chrome plated cap with self-venting lungs will be provided. The cap will be equipped with FNST threads, rocker lugs, and chain.

RIGHT SIDE FRONT PANEL DISCHARGE

One (1) 3.00" discharge with valve will be located on the right side panel.

An Akron Brass 3.00" generation II swing-out valve will be provided for the discharge. The valve will be of the slow-close design so as not to allow the valve to open or close in less than 3 seconds.

The quarter turn valve will be manually operated with a Class1 locking push pull control rod. It will have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls will be locked in any position.

The discharge will also come equipped with a quarter-turn 0.75" drain valve and a matching color coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) will be provided. The face of the gauge will be a WHITE dial with black letters.

The 3.00" outlet will be equipped with an integral, stainless steel, 30-degree elbow terminating with 3.00" MNST threads.

STORZ ADAPTER

One (1) TFT model AA1ST-NL adapter will be provided. The adapter will be configured with a 5.00" rigid Storz coupling and a 3.00" female NST rigid rocker lug coupling.

STORZ CAP

One (1) TFT model #A01ST 5.00" Storz cap with lanyard will be provided.

RIGHT SIDE REAR PANEL DISCHARGE

One (1) 2.50" discharge with valve will be located on the right side panel.

An Akron Brass 2.50" generation II swing-out valve will be provided for the discharge.

The quarter turn valve will be manually operated with a Class1 locking push pull control rod. It will have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls will be locked in any position.

The discharge will also come equipped with a quarter-turn 0.75" drain valve and a matching color coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) will be provided. The face of the gauge will be a WHITE dial with black letters.

The discharge will be equipped with an integral, stainless steel, 30-degree elbow terminating with 2.50" MNST threads.

One (1) 2.50" chrome plated cap with self-venting lungs will be provided. The cap will be equipped with FNST threads, rocker lugs, and chain.

CROSSLAY PRE-CONNECT DISCHARGE #1

One (1) 1.75" crosslay pre-connect will be installed in the pump module above the pump. The crosslay will be plumbed using 2.00" stainless steel pipe, and/or flexible piping. A minimum of one (1) grooved pipe coupling will be furnished in this assembly, if necessary, to allow for flex and serviceability.

The crosslay discharge will terminate below the hose bed floor with a 1.50" NSTM chicksan swivel adapter. The crosslay hose bed floor will be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

Crosslay discharge #1 will be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1.75" fire hose.

An Akron Brass 2.00" generation II swing-out valve will be provided for crosslay #1 discharge.

The quarter turn valve will be manually operated with a Class 1 locking push pull control rod. It will have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls will be locked in any position.

The discharge will also come equipped with a quarter-turn 0.75" drain valve and a matching color coded bezel.

The discharge will also come equipped with a quarter-turn 0.75" drain valve and a matching color coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) will be provided. The face of the gauge will be a WHITE dial with black letters.

CROSSLAY PRE-CONNECT DISCHARGE #2

One (1) 1.75" crosslay pre-connect will be installed in the pump module above the pump. The crosslay will be plumbed using 2.00" stainless steel pipe, and/or flexible piping. A minimum of one (1) grooved pipe coupling will be furnished in this assembly, if necessary, to allow for flex and serviceability.

The crosslay discharge will terminate below the hose bed floor with a 1.50" NSTM chicksan swivel adapter. The crosslay hose bed floor will be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

Crosslay discharge #2 will be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1.75" fire hose.

An Akron Brass 2.00" generation II swing-out valve will be provided for crosslay #2 discharge.

The quarter turn valve will be manually operated with a Class 1 locking push pull control rod. It will have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls will be locked in any position.

The discharge will also come equipped with a quarter-turn 0.75" drain valve and a matching color coded bezel.

The discharge will also come equipped with a quarter-turn 0.75" drain valve and a matching color coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) will be provided. The face of the gauge will be a WHITE dial with black letters.

DUNNAGE AREA

A dunnage area will be provided above the pump enclosure for equipment mounting and storage. This area will be furnished with a 0.1875" aluminum floor and will be enclosed on the sides.

NOTE: The size of this storage area may vary when top mounted crosslays, booster reel(s), etc., are specified and located in this area.

CROSSLAY DIVIDER

One (1) crosslay divider will be provided, one (1) between the #1 and #2 crosslay.

The divider will be constructed from 0.188" thick abraded aluminum plate and will be mounted on a base T-extrusion that provides lower support the length of the divider.

ALUMINUM CROSSLAY COVER

A 0.1875" polished aluminum tread plate cross lay cover will be provided with a full length stainless steel hinge at the rear of the cover.

CROSSLAY COMPARTMENT ENDS - VINYL FLAPS

The crosslay compartment will be enclosed on each end using a heavy duty vinyl flap to prevent hose from accidently unloading. The cover will be secured with a black shock cord/ hook system on the bottom and permanently secured on the top.

The crosslay end flaps will be Red in color.

DECK GUN DISCHARGE

One (1) 3.00" discharge with valve will be located on the top of the pump. The valve will be a quarter turn ball type and fixed pivot design to allow easy operation at all pump pressures. The 3.00" outlet will be equipped with an integral, stainless steel flange terminating with 3.00" Victaulic. The discharge will be plumbed to the top of the module using 3.00" schedule 10 stainless steel pipe. The pipe will terminate in a 3.00" MNPT thread. The pipe will be held in place by a 2 piece stainless steel bracket.

An Akron Brass 3.00" generation II swing-out valve will be provided for the deck gun discharge. The valve will be of the slow-close design so as not to allow the valve to open or close in less than 3 seconds.

The quarter turn valve will be manually operated with a Class 1 locking push pull control rod. It will have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls will be locked in any position.

One (1) Class1 automatic 0.75" drain valve(s) will be installed. The valve will have an all brass body with heavy duty neoprene seal. The valve will be normally open and will close at 6 psi using an all brass check assembly with stainless steel spring.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) will be provided. The face of the gauge will be a WHITE dial with black letters.

DECK GUN MOUNTING ADAPTER

One (1) 3" FNPT 150# Ansi Companion Flange will be installed on the end of the deck gun outlet for mounting of a deck gun.

LEFT HAND SIDE REAR DISCHARGE

One (1) 2.50" discharge with valve will be plumbed to the left hand side rear of the apparatus.

An Akron Brass 2.50" generation II swing-out valve will be provided for the rear discharge.

The quarter turn valve will be manually operated with a Class1 locking push pull control rod. It will have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls will be locked in any position.

The discharge will also come equipped with a quarter-turn 0.75" drain valve and a matching color coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) will be provided. The face of the gauge will be a WHITE dial with black letters.

The discharge will have a 2.50" Female NST swivel rocker lug x 2.50" Male NST 30 degree chrome elbow adapter provided.

One (1) 2.50" chrome plated cap will be provided. The threads will be NST and the cap will be equipped rocker lugs and chain.

FRONT DISCHARGE

One (1) 1.50" discharge with 2.00" schedule 10 stainless steel piping, flexible hosing, 45 degree elbows, and a limited number of 90 degree sweep elbows in an assembly from the pump to the front of the apparatus. A minimum of one (1) grooved pipe coupling will be furnished in this assembly to allow for flex and serviceability. Automatic discharge drains will be provided at all low points in the plumbing.

An Akron Brass 2.00" generation II swing-out valve will be provided for the front discharge.

The quarter turn valve will be manually operated with a Class1 locking push pull control rod. It will have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls will be locked in any position.

The discharge will also come equipped with a quarter-turn 0.75" drain valve and a matching color coded bezel.

DISCHARGE ADAPTER

The disharge will terminate with a 1.50" NST mattydale swivel will be located through the center of the hose box flooring.

4.50" MASTER PRESSURE GAUGE

One (1) Class1, 4.50" liquid filled master pressure gauge with stainless steel bezel will be provided, reading from 0 Hg. to 400 psi. It will be accurate to within 1%. The gauge will have a white face and black markings. The gauge will be located on the pump operator's panel.

4.50" MASTER INTAKE GAUGE

One (1) Class 1, 4.50" liquid filled master intake gauge(s) with stainless steel bezel will be provided, reading from -30" Hg. to 400 psi. It will be accurate to within 1%. The gauge will have a white face and black markings. The gauge will be located on the pump operator's panel.

LED WATER LEVEL GAUGE (PUMP PANEL)

One (1) Hale model # "ITL-40R" Tank Level Gauge for indicating water level will be installed on the pump operator's panel. The tank level gauge will indicate the liquid level or volume on an easy to read LED display with a visual indicator at nine (9) precise levels, using one (1) color. The system will include the ability to

display "text messages" and have built-in diagnostic capabilities. Additional secondary displays (if requested) are to be easily integrated and will receive data from the same source as the Master Display.

The LED display will be red in color.

CLASS1 MINI WATER LEVEL GAUGE

One (1) Hale Intelli-Tank model # 610-00049 remote mini tank level gauge for indicating the water level of the tank will be provided in the cab. The tank level gauge will indicate the liquid level on an easy 4 light display and show increments of 1/4 of a tank.

PUMP, MODULE, AND RELATED ITEMS

ALUMINUM PUMP MODULE CONSTRUCTION

The pump module will be constructed entirely of extrusions and aluminum plate. The framework will be formed from beveled aluminum alloy extrusions 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 will consist of a welded framework, properly braced to withstand chassis frame flexing. The pump module support will be bolted to the frame rails of the chassis.

INDEPENDENT PUMP MODULE

The pump module will be fabricated as individual unit independent from the body.

PUMP PANEL -- SIDE MOUNT

The pump operator's control panel will be located on the left hand side of the apparatus. The pump enclosure side panels will be completely removable and designed for easy access and servicing.

HINGED GAUGE PANEL

A full width, horizontally hinged gauge access panel will be located on the left hand side of the pump module above the main control panel.. Two (2) black powder coated SouthCo. push type locks locks will be provided along with lanyards.

PUMP ENCLOSURE ACCESS DOOR -- RIGHT SIDE UPPER

A pump panel access door will be provided on the upper right side of the side mount pump enclosure. The access door will be approximately 24.00" high and as wide as possible. Three (3) black powder coated SouthCo. push type locks locks will be provided along with lanyards.

The drains located on the right-hand side panel will be fastened to the lower panel, which will be stationary.

PUMP PANEL MATERIAL

The pump module panels will be fabricated from 14 gauge 304L stainless steel with a brushed finish.

PUMP PANEL LIGHT SHIELD, LH SIDE PANEL

One (1) LED strip light will be installed under an instrument panel light hood on the left side pump panel.

PUMP PANEL LIGHT SHIELD, RH SIDE PANEL

One (1) LED strip light will be installed under an instrument panel light hood on the right side pump panel.

A weather resistant switch, located on the pump operator's panel will be provided to activate the lights.

PUMP COMPARTMENT LIGHT

One (1) LED strip light will be provided inside the pump compartment area. The light will activate with the switch on the pump operator's panel.

LEFT SIDE RUNNING BOARD

The left pump panel will be equipped with a side running board. The running board will be constructed of 0.125" embossed fire apparatus bright aluminum treadplate. It will be a minimum of approximately 11.00" deep x the width of the module. The running board will have an upward bend on the inside edge to act as a kick plate. The running board will be attached to a frame mounted outrigger support structure. The running board will have a 3.00" downward bend on the front and side faces with a 1.00" underside return for superior strength.

RIGHT SIDE RUNNING BOARD

The right pump panel will be equipped with a side running board. The running board will be constructed of 0.125" embossed fire apparatus bright aluminum treadplate. It will be a minimum of approximately 11.00" deep x the width of the module. The running board will have an upward bend on the inside edge to act as a kick plate. The running board will be attached to a frame mounted outrigger support structure. The running board will have a 3.00" downward bend on the front and side faces with a 1.00" underside return for superior strength.

FRONT PUMP HOUSE COVER

The front of the pump enclosure will be covered with .125" aluminum treadplate.

HOSE RESTRAINT LABEL - FAMA# 22

A permanent label will be provided near any hose storage area. The label will instruct the operator to insure that all hose is properly secured prior to placing the apparatus in motion and to provide warning of potential dangers, including injury or death, in failing to do so.

INTAKE/DISCHARGE CAP PRESSURE LABEL - FAMA# 18

A permanent label will be provided in all areas that intakes and discharges are capped. The label will give instruction on how to properly remove the cap. The label will also warn of potential dangers, injury or death that be caused by failing to follow proper cap removal procedures.

TRAINED OPERATOR ONLY LABEL - FAMA# 25]

A permanent label will be provided on the pump panel that states that only properly trained personnel should operate the apparatus and will indicate that injury or death could occur as a result.

PUMP PANEL ID PLATE

An identification plate will be installed on the pump operator control panel to identify the fire pump serial number, model number, and performance.

COLOR CODED PUMP PANEL LABELING AND NAMEPLATES

Discharge and intake valve controls will be color coded in compliance to guidelines of applicable sections of NFPA standards. Innovative Controls permanent type nameplates and instruction panels will be installed on the pump panel for safe operation of the pumping equipment and controls.

WATER TANK AND RELATED COMPONENTS

1000 GALLON POLY TANK- "L" DESIGN

The tank will have a capacity of 1000 US gallons / 832 Imperial gallons / 3785 liters.

TANK MATERIAL

This material will be a non-corrosive stress relieved thermoplastic and UV stabilized for maximum protection. Tank shell thickness may vary depending on the application and may range from 0.50" to 1.00" as required. Internal baffles are generally 0.375" in thickness.

CONSTRUCTION

The booster and/or foam tank will be of a specific configuration and is so designed to be completely independent of the body and compartments. Joints and seams will be fused using nitrogen gas as required and tested for maximum strength and integrity. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal. The transverse and longitudinal swash partitions will be manufactured of a minimum of 0.375" polypropylene.

All partitions will be equipped with vent and air holes to permit movement of air and water between compartments. The partitions will be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing will comply with NFPA 1901. Tolerances in design allow for a maximum variation of 0.125" on all dimensions.

The tank cover will be constructed of 0.50" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) will be flush or recessed 0.375" from the top of the tank and will be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers will have hold downs consisting of 2.00" minimum polypropylene dowels spaced a maximum of 40.00" apart. These dowels will extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two (2) lifting dowels will accommodate the necessary lifting hardware.

OUTLETS

There will be two (2) standard tank outlets: one (1) for the tank-to-pump suction line, which will be sized to provide adequate water flow to the pump; and one (1) for tank fill line, which will be sized according to the NFPA minimum size chart for booster tanks. All tank fill couplings will be backed with flow deflectors to break up the stream of water entering the tank and be capable of withstanding sustained fill rates of up to 1000 gpm.

CAPACITY CERTIFICATION

All water and foam tanks will be tested and certified as to capacity.

CENTER OF GRAVITY

A center of gravity calculation will be determined for each tank and provided as requested in order to provide the apparatus manufacturer with the necessary data to design and certify the apparatus with respect to the NFPA requirements regarding rollover stability. This information may be used by the apparatus manufacturer to assist in the calculation of the apparatus's ability to meet the tilt table static rollover threshold or calculated Center of Gravity requirements per NFPA.

WATER FILL TOWER AND COVER

The tank will have a combination vent and manual fill tower. The fill tower will be constructed of 0.50" polypropylene and will be a minimum dimension of 12.00" x 12.00" outer perimeter. The tower will have a 0.25" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank will be engraved on the top of the fill tower lid.

FILL TOWER LOCATION

The fill tower will be in the left front area of the tank.

Inside the fill tower there will be a combination vent/overflow pipe. The vent overflow will be a minimum of schedule 40 polypropylene pipe with a minimum I.D. of 4.00" that is designed to run through the tank and will be piped to discharge water behind the rear wheels as required in NFPA 1901 so as to not interfere with rear tire traction.

SUMP

There will be one (1) sump standard per tank. The sump will be constructed of a minimum of 0.50" polypropylene and be located in the left front quarter of the tank, unless specified otherwise. On all tanks that require a front suction, a 3.00" schedule 40 polypropylene pipe will be installed that will incorporate a dip tube from the front of the tank to the sump location. The sump will have a minimum 3.00" N.P.T. threaded outlet on the bottom for a drain plug per NFPA. This will be used as a combination clean-out and drain. All tanks will have an anti-swirl plate located approximately 3.00" above the inside floor.

WATER TANK CLEAN-OUT PLUG

A 3.00" cleanout plug will be provided in the bottom of the tank.

HOSE BED -72.00"- LOW DESIGN

The body will have an intergraded upper hose bed. The floor of the hose bed will be a removable welded assembly constructed of 6.00" wide aluminum hose bed slats and structural channel cross members. Two (2) cross car Unistrut style channels will be incorporated in the design for divider mounting.

ALUMINUM HOSEBED DIVIDER(S) (1)

There will be One (1) hosebed divider(s) provided. The hosebed divider(s) will be constructed of 0.25" smooth aluminum plate with an extruded aluminum base welded to the bottom. The divider(s) will be adjustable from side to side in the hose bed to accommodate varying hose loads.

HOSEBED PARTITION REINFORCEMENT

The top and rear edge of each of the hose bed partitions will have a 0.75" integral tubing reinforcement welded on for additional support.

HOSE BED COVER

A heavy duty 18 oz. vinyl hose bed cover will be provided to protect the hose load from the weather. The cover will extend from the front of the hosebed to the rear and then extend downward to cover the exposed rear of the bed and from the left side to the right side of the hosebed. The cover will be secured utilizing a velcro fastening system at the front and sides of the hosebed body.

The vinyl cover will be red in color.

APPARATUS BODY

BODY DESIGN AND CONSTRUCTION

The body will be modular in design, allowing it to be removed and remounted on a new chassis. The body will be fabricated using aluminum extrusions, angle, smooth aluminum sheet and aluminum treadplate. The apparatus body will have full height compartments on both sides.

The body will have a "L" tank design in order to incorporate a lowered hose bed.

FLOOR AND UNDERSTRUCTURE

The tank area floor will be a single piece design made of 0.1875" Aluminum Sheet. The floor will be supported by extruded 6061 aluminum alloy 2.00" x 4.00" x 0.250" wall structural tube crossmembers.

BODY AND COMPARTMENT FABRICATION - 3/16" ALUMINUM

All compartment panels and body side sheets will be fabricated entirely of 0.1875" aluminum (5052-H32).

COMPARTMENT CONSTRUCTION

The compartments will be completely formed of 0.1875" 5052-H32 aluminum alloy.

Compartment floors will be welded to the compartment walls and have a sweep out design for easy cleaning.

ACCESS PANELS

Removable access panels will be provided (if applicable) to access fuel tank sender, electrical junction compartment and rear body mounts.

Protective panels will be located in the rear compartments providing access to the lights and associated wiring. The covers will also serve as protective covers to prevent inadvertent damage to lights or wiring from tools or equipment located in the compartment.

COMPARTMENT LOUVERS

Ventilation between compartments to atmosphere will be provided and located to avoid water entry into compartments.

COMPARTMENT SHELF TRACKS - ALUMINUM

All side body compartments be furnished with adjustable shelving track installed. The shelving track will include a minimum of four (4) aluminum Uni-strut style channel tracks, mounted vertically on compartment side walls or vertical partitions.

COMPARTMENT SHELVING - SIDE COMPARTMENTS

Adjustable shelving will be installed in the side compartments as identified later in this specification. Each shelf will be made of 0.1875" smooth aluminum with a 2.00" high perimeter on the front and rear with side supports. Shelving will be vertically adjustable with spring nuts in aluminum strut channel.

FENDER PANELS

A single piece wheel well panel made of 0.1875" aluminum sheet will be installed with no sharp edges to cut or damage cleaning equipment used in the wheel well area. The wheel well design will provide for maximum wheel jounce and for use of tire chains without contacting the fender panel.

REAR WHEEL WELL LINERS

The rear wheel wells will be equipped with replaceable circular liners to prevent road debris damage to adjacent side compartments. The liners will be made from a single circular panel of 0.125" smooth aluminum and will be the full depth of the side compartments. They will be bolted in place and will feature end flange bottom drains.

REAR BODY FENDERETTES

A roll-formed, polished stainless steel fenderette will be installed around the outboard edge of the rear wheel well openings to protect the body sides from road debris. They will be bolted to the body and will be replaceable.

BODY FRONT WALL OVERLAY

The front face of the side compartments, next to the driver and officer pump panels will be overlaid with full height aluminum tread plate protection panels.

TOP PROTECTION

The top of the welded in compartment ceiling will be overlaid with aluminum tread plate to provide an NFPA compliant stepping surface.

BODY SIDE RUB RAILS

Replaceable extruded aluminum channel rub rails, 2.00" high x 0.75" deep x 0.125" wall, will be provided below the lower side compartments. Each rub rail will have a black rubber bumper strip and mounting stand-off spacers. All rub rail ends will be angle cut, back toward the body to eliminate the possibility of snagging crew clothing or equipment.

TOW HOOKS – REAR

Two (2) painted tow eyes will be furnished on the rear of the vehicle. The tow eyes will be made from plate steel and will be bolted directly to the chassis frame rails with grade 8 bolts and will extend below the body.

BODY WIDTH

The width of the apparatus body from the outside face of the left compartments to the outside face of the right compartments will be 100.00" wide.

COMPARTMENT HEIGHT, LH SIDE

The left-hand side body compartments will be 70.00".

COMPARTMENT HEIGHT, RH SIDE

The right-hand side body compartments will be 70.00".

COMPARTMENT DEPTH

The side compartments on the left and right hand side of the pumper body will have a useable depth of 28.00" in the lower 30.00" tall area and 13.75" in the upper portion.

The compartments above the wheel wells will have a useable depth of 13.75".

South Florida Emergency Vehicles

ROLL-UP DOORS

All lower compartment doors will be equipped with AMDOR brand roll-up doors. The slats will be 1.00" double wall aluminum with continuous ball and socket hinge joints designed to prevent water ingression and weather tight recessed dual durometer seals.

The interior door curtains will be smooth to prevent equipment hang-ups. The door tracks and side frames will each be one-piece aluminum. Each side seal will be recessed, and non-marring with UV stabilizers to prevent warping.

The bottom panel flange will have cut-outs for ease of access with gloved hands. The door strikers will provide support beneath the lift bar to prevent door curtain bounce and potential false door ajar indications.

DOOR LOCKS- KEYED, MANUAL

Each roll-up door door will have a cylindrical lock installed by the roll-up door manufacturer.

The lock key type will be: J-236

COMPARTMENT LIGHT(S)

One (1) full height Luma Bar LED strip light(s) will be installed inside each of the body compartments.

The compartment light(s) will be controlled by a magnetic "On-Off" switch located on each compartment door.

COMPARTMENTS- LEFT

LEFT SIDE COMPARTMENT IN FRONT OF REAR WHEELS, L1

There will be a full height/ split depth compartment located ahead of the rear wheels on the left side of the apparatus body. This compartment will be designated as L1 within these specifications.

- Compartment Dimensions: 46.50" wide x 62.00" high
- Door Opening: 41.50" wide x 57.00" high

ADJUSTABLE SHELVING TRACKS

There will be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There will be One (1) 0.1875" aluminum full depth adjustable shelf/ shelves located in the compartment.

LEFT SIDE ABOVE WHEEL COMPARTMENT, L2

There will be a standard height compartment located above the rear wheels on the left side of the apparatus body. This compartment will be designated as L2 within these specifications.

- Compartment Dimensions: 59.00" wide x 29.50" high
- Door Opening: 54.00" wide x 24.50" high

ADJUSTABLE SHELVING TRACKS

There will be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There will be One (1) 0.1875" aluminum half depth adjustable shelf/ shelves located in the compartment.

LEFT SIDE COMPARTMENT BEHIND REAR WHEELS, L3

There will be a full height compartment located behind of the rear wheels on the left side of the apparatus body. This compartment will be designated as L3 within these specifications.

- Compartment Dimensions: 56.50" wide x 62.00" high
- Door Opening: 51.50" wide x 57.00" high

ADJUSTABLE SHELVING TRACKS

There will be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There will be One (1) 0.1875" aluminum full depth adjustable shelf/ shelves located in the compartment.

PASSENGER'S SIDE COMPARTMENT DIMENSIONS:

RIGHT SIDE COMPARTMENT IN FRONT OF REAR WHEELS, R1

There will be a full height compartment located ahead of the rear wheels on the right side of the apparatus body. This compartment will be designated as R1 within these specifications.

- Compartment Dimensions: 46.50" wide x 62.00" high
- Door Opening: 41.50" wide x 57.00" high

ADJUSTABLE SHELVING TRACKS

There will be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There will be One (1) 0.1875" aluminum full depth adjustable shelf/ shelves located in the compartment.

RIGHT SIDE ABOVE WHEEL COMPARTMENT, R2

There will be a standard height compartment located above the rear wheels on the right side of the apparatus body. This compartment will be designated as R2 within these specifications.

- Compartment Dimensions: 59.00" wide x 29.50" high
- Door Opening: 54.00" wide x 24.50" high

ADJUSTABLE SHELVING TRACKS

There will be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There will be One (1) 0.1875" aluminum half depth adjustable shelf/ shelves located in the compartment.

RIGHT SIDE COMPARTMENT BEHIND REAR WHEELS, R3

There will be a full height compartment located behind of the rear wheels on the right side of the apparatus body. This compartment will be designated as R3 within these specifications.

- Compartment Dimensions: 56.50" wide x 62.00" high
- Door Opening: 51.50" wide x 57.00" high

ADJUSTABLE SHELVING TRACKS

There will be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There will be One (1) 0.1875" aluminum full depth adjustable shelf/ shelves located in the compartment.

REAR BODY CONFIGURATION

The CR1 compartment will form a “flat back” design with no recess at the rear of the body.

REAR CENTER COMPARTMENT, CR1

There will be a standard height compartment located at the rear of the apparatus body. This compartment will be designated as CR1 within these specifications.

- Compartment Dimensions: 42.00" wide x 26.00" high
- Door Opening: 38.00" wide x 20.00" high
- Compartment Depth: 28.00" deep

ADJUSTABLE SHELVING TRACKS

There will be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There will be One (1) 0.1875" aluminum full depth adjustable shelf/ shelves located in the compartment.

REAR STEP - 12 D X 100 W - TAPERED ENDS

The rear step will be 12.00" deep and extend beyond the body compartments. The step will be 100.00" wide and have tapered corners for improved clearance. The step will be fabricated from 0.1875" tread plate plate and will be rigidly reinforced. The rear edge of the step will be designed to accommodate the rear clearance lights. The rear step overlay will be bolted in place with an approximate 0.25" clearance gap between the step and rear body panel.

HARD SUCTION STORAGE

One (1) horizontally mounted aluminum hard suction hose trays with velcro straps will be provided above the left side body compartments.

HARD SUCTION STORAGE

One (1) horizontally mounted aluminum hard suction hose trays with velcro straps will be provided above the right side body compartments.

The ladder storage will have capacity for the following:

- One (1) Alco-Lite aluminum 24 ft. two-section extension ladder, model # PEL-24
- One (1) Alco-Lite aluminum 14 ft roof ladder, model # PRL-14
- One (1) Alco-Lite aluminum 10 ft. folding ladder, model # FL-10

LADDER SOURCE

The ladders will be provided by the manufacturer and will be detailed later in this specification.

PIKE POLE STORAGE

Two (2) pike pole storage tubes will be provided in the ladder compartment.

PIKE POLE SOURCE

The pike poles will be provided by the purchaser.

SCBA BOTTLE COMPARTMENTS

Four (4) SCBA bottle tube compartments will be installed, one (1) over each wheel well area. The compartments will be constructed of a black molded non-abrasive plastic polymer designed to provide SCBA scuff protection. The doors will be stainless steel with a brushed finish and have a black weatherproof SouthCo. latch assembly.

FUEL FILL

An aluminum cup style fuel fill will be installed in the left-hand side wheel well rear of the axle. It will be labeled "Ultra Low Sulphur Diesel Fuel Only".

STEPS

All steps will have a surface area of at least 35 square inches and will be able to withstand a load of at least 500 pounds. Steps will be provided at any area that personnel may need to climb and will be adequately lighted.

FOLDING STEPS- LH SIDE REAR

Two (2) Innovative Controls model 3004234 lighted folding steps will be provided on the left hand side rear of the body.

FOLDING STEP- RH SIDE REAR

One (1) Innovative Controls model 3004234 lighted folding step will be provided on the right hand side rear of the body.

FOLDING STEPS - RH SIDE FRONT OF BODY

Four (4) Innovative Controls model 3007732 lighted folding steps will be provided on the right hand side front of the body.

STEP LIGHTS ACTIVATION

The step light(s) will be wired to activate with the parking brake.

EXTERIOR GRAB RAILS

Each grab rail will be Hansen non-slip, 1.25" diameter extruded polished aluminum grab rails with rubber inserts designed to provide maximum gripping ability, strength, and durability.

TWO (2) VERTICAL RAILS ON REAR

Two (2) vertical grab rails will be mounted on the rear of the body, one (1) on each side.

GRAB RAIL, RH FRONT

One (1) grab rail will be mounted on the front of the body on the right hand side.

ONE (1) HANDRAIL, BELOW HOSE BED LEVEL

One (1) horizontal, full width handrail will be installed on the rear, below the level of the hose bed

NFPA 1901 CERTIFIED 12 VOLT ELECTRICAL SYSTEM

The 12-volt apparatus body electrical system will be provided and will be in compliance with NFPA 1901 testing and certification procedures as follows:

NFPA MINIMUM ELECTRICAL LOAD DEFINITION
The NFPA 1901 defined minimum electrical load will consist of the total amperage required to simultaneously operate the following in a stationary mode:

1. Propulsion engine and transmission.

2. The clearance and marker lights.

3. Communication equipment. 5 amp default.

4. Illumination of all walking surfaces, the ground at all egress points, control and instrumentation panels and 50% of total compartment lighting.

5. Minimum warning lights required for "blocking right of way" mode.

6. The current to simultaneously operate and fire pump and all specified electrical devices.

7. Anything defined by the purchaser, in the advertised specifications, to be critical to the mission of the apparatus.

RESERVE CAPACITY TEST

The first electrical test to be performed will be the Reserve Capacity Test. All items listed in NFPA Minimum Load Definition will be activated with the engine shut off. After 10 minutes of operation, the items 1-7 will be deactivated. After deactivation, the battery system will have ample reserve to start the engine.

ALTERNATOR PERFORMANCE TEST AT IDLE

The second electrical test to be performed will be Alternator Performance Test at Full Load. All electrical loads will be activated with the engine running up to the governed rpm for two hours. During the test, the system voltage will not drop below 11.7 volts or have excessive battery discharge for more than 120 seconds. Any loads not defined in the NFPA Minimum Electrical Load may be load managed to pass test.

TEST CONDITIONS

All electrical testing will be performed with the engine compartment at approximately 200 degrees.

12 VOLT ELECTRICAL SYSTEM

The electrical system will include all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The electrical equipment installed by the apparatus manufacturer will conform to current automotive electrical system standards, the latest Federal DOT standards, and the requirements of the applicable NFPA standards. All wiring will be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for the protected circuit. Voltage drops in all wiring from the power source to the device will not exceed 10 percent. The wiring and wiring harness and insulation will be in conformance to applicable SAE and NFPA standards. The wiring harness will conform to SAE J-1128 with GXL temperature properties. All exposed wiring will be protected in a loom with a minimum 289 degree Fahrenheit rating. All wiring looms will be properly supported and attached to body members. The electrical conductors will be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

The wiring connections and terminations will use a method that provides a positive mechanical and electrical connection and will be installed in accordance with the device manufacturer's instructions. Electrical connections will be with mechanical type fasteners and large rubber grommets where wiring passes through metal panels.

There will be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless they are enclosed in a junction box or covered with a removable electrical panel. The wiring will be secured in

place and protected against heat, liquid contaminants, and damage. Wiring will be uniquely identified every three inches (3") by color coding or permanent marking with a circuit function code.

The electrical circuits will be provided with low voltage overcurrent protective devices. Such devices will be accessible and located in required terminal connection locations or weather resistant enclosures. The overcurrent protection will be suitable for electrical equipment and will be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors will have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system will have electro-magnetic interference suppression provided as required in applicable SAE standards.

The electrical system will include the following:

Electrical terminals in weather exposed areas will have a non-conductive grease or spray applied. A corrosion preventative compound will be applicable to all terminal plugs located outside of the cab or body.
The electrical wiring will be harnessed or be placed in a protective loom.
Holes made in the roof will be caulked with silicone. Large fender washers will be used when fastening equipment to the underside of the cab roof.
Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it.
All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.

ROCKER SWITCHES

The warning lights and electrical functions will be controlled by switch panels as detailed in the chassis specification.

CAB GROUND LIGHTS

The cab ground lights will be supplied with the custom chassis.

PUMP PANEL GROUND LIGHTS -SUPPLIED WITH PUMP

Two (2) LED ground lights with an outward facing angle brackets will be installed under the pump panel running boards. One (1) light will be located on the driver side and one (1) light located on the officer side of the apparatus.

FRONT OF BODY GROUND LIGHTS

Two (2) LED ground lights with an outward facing angle brackets will be installed under the front of the body. One (1) light will be located on the driver side, and one (1) light will belocated on the officer side of the apparatus.

REAR STEP GROUND LIGHTS

Two (2) LED ground lights with an outward facing angle bracket will be installed under rear step of the apparatus, one (1) each side.

GROUND LIGHTS ACTIVATION

The ground lights will automatically activate when the parking brake is applied.

REAR DIRECTIONALS

Rear directional lighting will be supplied as follows:

Two (2) Whelen model M62BTT LED brake/tail lights will be installed on the rear of the body. Each light will have a red lens.

Two (2) Whelen model M62T Amber LED turn signal lights will be installed on the rear of the body. Each light will have a color lens.

Two (2) Whelen model M62BU LED reverse lights will be installed on the rear of the body.

HOUSINGS FOR DIRECTIONALS

The two (2) sets of Whelen rear signal lights will each be housed in a vertical chrome plated housing, designed to hold four (4) lights each. The fourth opening will be for the lower rear warning lights. The lights will be mounted in order, from top to bottom, as described above.

Two (2) amber LED side marker and turn lights will be provided on the apparatus lower side, forward of rear axle, one (1) each side if the apparatus is 30 feet long or longer.

MARKER LIGHTS

LED marker lights will be installed on the vehicle in conformance to the Department of Transportation requirements. The side and rear of the body will be provided with reflectors. All marker lights will be incorporated into the headlight circuit of the cab/chassis

Two (2) amber reflectors will be provided on the apparatus body lower side, as far forward and low as practical, one (1) each side if the apparatus is 30 feet long or longer.

Four (4) red reflectors will be provided on the apparatus rear, one (1) each side and two (2) on the rear.

LICENSE PLATE BRACKET

There will be a license plate bracket mounted on the rear of the apparatus. A clear LED light will be incorporated into the bracket

HOSE BED LOADING LIGHT

One (1) 12V LED hosebed floodlight will be installed on the front of the hosebed of the apparatus. This light will provide illumination of the hosebed area.

WORK LIGHTS ACTIVATION

The work light(s) will be wired to activate with the parking brake.

SIDE FACING UPPER CAB SCENE LIGHTS

One (1) pair of Whelen M92SLC EZ Series LED scene lights will be installed, one (1) each side of the cab. The light(s) will be supplied and installed with a chrome bezel.

SIDE FACING UPPER FRONT BODY SCENE LIGHTS

One (1) pair of Whelen M92SLC EZ Series LED scene lights will be installed. The lights will be located on the left and right sides of the upper front portion of the apparatus body. Each light will be supplied and installed with a chrome bezel.

SIDE FACING UPPER REAR BODY SCENE LIGHTS

One (1) pair of Whelen M92SLC EZ Series LED scene lights will be installed. The lights will be located on the left and right sides of the upper rear portion of the apparatus body. Each light will be supplied and installed with a chrome bezel.

REAR FACING UPPER BODY SCENE LIGHTS

One (1) pair of Whelen M92SLC EZ Series LED scene lights will be installed. The lights will be located on the rear of the apparatus body, one (1) each side. Each light will be supplied and installed with a chrome bezel.

SCENE ACTIVATION

The scene lights will be activated by individual rocker switches located in the switch panel, one (1) for each side of the apparatus.

SCENE LIGHT SWITCHING

The rear scene lights will activate automatically upon placing the transmission into reverse.

WARNING LIGHT FLASH PATTERN

All of the perimeter warning lights will be set to the default NFPA flash pattern as provided by the warning light manufacturer.

HEADLIGHT FLASHER

An alternating high beam headlight flashing system will be supplied with the custom chassis.

CAB FRONT LIGHTBAR

One (1) Whelen Freedom IV LED 72.00" lightbar will be mounted on the front of the cab roof. The lightbar will feature eight (8) red LED light modules and two (2) clear LED light modules. The entire lightbar will feature a clear lens. The clear lights will be disabled with park brake engaged.

LIGHT BAR SWITCH

The light bar will be controlled by a rocker switch located on the switch panel. The switch will be labeled "LIGHT BAR". The switch will only be active when the master warning switch is engaged.

SIDE FACING UPPER FRONT BODY WARNING LIGHTS

One (1) pair of Whelen model M9 LED warning lights will be installed, one (1) each side of the upper front portion of the apparatus body.

The driver side warning light will be a Whelen Model M9R red LED with red lens.

The officer side warning light will be a Whelen Model M9R red LED with red lens.

Each light will be mounted with a Whelen Model M9FC chrome flange.

SIDE FACING UPPER REAR BODY WARNING LIGHTS

One (1) pair of Whelen model M9 LED warning lights will be installed, one (1) each side of the upper rear portion of the apparatus body.

The driver side warning light will be a Whelen Model M9R red LED with red lens.

The officer side warning light will be a Whelen Model M9R red LED with red lens.

Each light will be mounted with a Whelen Model M9FC chrome flange.

UPPER REAR WARNING LIGHTS

One (1) pair of Whelen model M9 LED warning lights will be installed, one (1) each side of the upper rear of the apparatus body.

The driver side warning light will be a Whelen Model M9R red LED with red lens.

The officer side warning light will be a Whelen Model M9R red LED with red lens.

Each light will be mounted with a Whelen Model M9FC chrome flange.

UPPER WARNING SWITCH

The upper warning lights will be controlled by a rocker switch on the switch panel. The switch will be labeled "UPPER LEVEL WARNING". The switch will only be active when the master warning switch is engaged.

LOWER FRONT WARNING LIGHTS

The lower front warning lights will be supplied with the custom chassis.

LOWER INTERSECTION WARNING LIGHTS

The lower intersection warning lights will be supplied with the custom chassis.

LOWER CHASSIS SIDE WARNING LIGHTS

One (1) pair of Whelen model M6 LED warning lights will be installed, one (1) each side of the cab mounted over the front wheel well directly over the center of the front axle.

The driver side warning light will be a Whelen Model M6R red Super-LED with red lens.

The officer side warning light will be a Whelen Model M6R red Super-LED with red lens.

Each light will be mounted with a Whelen Model M6FC chrome flange.

LOWER MID-BODY WARNING LIGHTS

One (1) pair of Whelen model M6 Series LED warning lights will be installed, one (1) each side of the apparatus, mid-body.

The driver side warning light will be a Whelen Model M6R red Super-LED with red lens.

The officer side warning light will be a Whelen Model M6R red Super-LED with red lens.

Each light will be mounted with a Whelen Model M6FC chrome flange.

LOWER REAR WARNING LIGHTS

One (1) pair of Whelen model M6 Series LED warning lights will be installed, one (1) each side of the lower rear of the apparatus body.

The driver side warning light will be a Whelen Model M6R red Super-LED with red lens.

The officer side warning light will be a Whelen Model M6R red Super-LED with red lens.

The warning lights on the rear of the body will be mounted in lower section of each tail light casting.

LOWER WARNING SWITCH

The lower warning lights will be controlled by a rocker switch on the switch panel. The switch will be labeled "LOWER LEVEL WARNING". The switch will only be active when the master warning switch is engaged.

ELECTRIC SIREN AND CONTROL

The electric siren will be supplied with the custom chassis.

ELECTRONIC SIREN SPEAKER

The electronic siren speaker(s) will be supplied with the custom chassis.
PAINT, STRIPING, AND LETTERING SECTION

CHASSIS PAINT

The chassis will be painted by the OEM Chassis Manufacturer.

PAINT PROCESS

The body exterior will have no mounted components prior to painting to assure full coverage of treatments. Compartment doors (if applicable) will be painted separately to assure proper paint coverage on body, doorjambs and door edges.
All surfaces will be sanded to remove all burrs and imperfections before etching and treatment.

The body will be totally removed from the chassis during the painting process to insure the entire unit is covered.

PPG wax & grease solvent will be used to clean and prep the body surface prior to any sanding. The surface will then be rinsed with freshwater. This step removes wax, grease and other surface contaminants, thus leaving a bright, clean and conditioned surface.

PAINT FINISH

The body will be painted with a PPG Delfleet Evolution Paint System.

As part of the curing process the painted body will go through a baking process. The painted components will be baked at 185 degrees for 3 hours to achieve a complete coating cure on the finished product.

After bake and ample cool down time, the coated surface will be sanded using 3M 1000, 1200, and or 1500 grit sandpaper to remove surface defects. In the final step, the surface will be buffed with 3M Super-duty compound to add extra shine to coated surface. No more than .5 mil will be removed in this process.

All products and technicians will be certified by PPG every two (2) years.

ANTI-CORROSION PROTECTION

Where dissimilar metals must be joined, overlaid, share perforations or otherwise come in contact with each other to achieve construction, performance or aesthetic requirements, such items will be separated by a continuous contact, nonconductive coating or film to prevent or otherwise mitigate the effects of electrolysis. Only stainless-steel hardware and fasteners will be used in the construction of the apparatus. Where stainless steel fasteners pass through an aluminum component, the fastener contact surfaces, including the head, washer and nut will be coated with ECK anti-corrosion material.

UNDERCOATING

The body underside, including the sub-frame and the inside of the wheel wells, NOT THE WHEEL WELL LINERS, will be thoroughly coated with SWT commercial automotive undercoat and sound deadening material to protect the body module against corrosion. The coating will be black and will be tested to ASTM B117 Salt Spray test for 1,000 hours at 10-mils.

COMPARTMENT INTERIOR FINISH

The interior of the compartments will be finish painted with Multispec #344767 Gray Stone scuff resistant paint to provide a protective application over all of the compartment interior surfaces.

WHEEL RIMS

The chassis wheels will be as furnished by the chassis OEM. No additional finishes will be provided by apparatus manufacturer.

REFLECTIVE LETTERING - PURCHASER SUPPLIED

Reflective lettering will be installed by the purchaser.

REAR CHEVRON STRIPING

At least 50% of the rear facing vertical surface will be covered with alternating strips of reflective striping.

Each stripe will be a minimum of 6.00" in width and will be applied to the apparatus at 45° angle.

RED & FLUORESCENT YELLOW-GREEN ORALITE V98

The Oralite V98 reflective tape will be #12 red and #112 fluorescent yellow-green in color.

SUCTION HOSE

Two (2) 6.00" X 10' section(s) of KOCHEK, PVC type hard, suction hose will be provided on the apparatus. The hose(s) will be light weight type with pyrolite, long handle female x rocker lug male, NST threads. The hose will be black in color.

WHEEL CHOCKS

All NFPA required wheel chocks will be supplied and installed by the Purchaser before the apparatus is placed into service.

Per NFPA 1900 Section 8.15.2 Wheel chocks for structural apparatus will each hold the apparatus under the following conditions:

Apparatus loaded to its GVWR or GCWR
Road surface pitched to 10 percent for the length of the apparatus
Hard road surface such as asphalt or concrete
Transmission in neutral
Parking brake released

EXTENSION LADDER, 2 SECTION

One (1) 24 foot, Alco-Lite model# PEL-24, two (2) section aluminum extension Ladder will be supplied with the finished apparatus.

ROOF LADDER

One (1) 14 foot, Alco-Lite model # PRL-14, single section aluminum roof ladder with folding roof hooks will be supplied with the finished apparatus.

FOLDING ATTIC LADDER

One (1) 10 foot, Alco-Lite model# FL-10, aluminum folding attic ladder will be supplied with the finished apparatus.

ONE YEAR APPARATUS WARRANTY

The complete apparatus detailed herein will be warranted against defects in materials and workmanship for a period of twelve (12) months, effective upon pick up or delivery of the completed apparatus to the purchaser, as detailed in the respective warranty documents. Any unauthorized alterations or modifications to the apparatus will void this warranty.

Other warrantees, as provided by individual component manufacturers may extend beyond this warranty.

APPARATUS BODY WARRANTY, TEN YEAR

The apparatus body as detailed herein will have a structural warranty against defects in materials and workmanship for a period of ten (10) years, effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the body will void this warranty.

PLUMBING WARRANTY, TEN YEAR

A Stainless Steel Plumbing/Piping warranty will be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the plumbing will void this warranty.

PAINT WARRANTY, FIVE YEAR

The finish paint as used on the proposed apparatus will be warranted against defects in materials and workmanship for a prorated period of five (5) years, effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the apparatus will void this warranty.

South Florida Emergency Vehicles

TANK WARRANTY, LIFETIME

United Plastic Fabricating, Inc. (hereinafter called "UPF") warrants each POLY-TANK®, Booster/Foam Tank POLYSIDE® Wetside Tank, Integrator Tank/Body, ELLIPSE™ Elliptical Tank, Ellip-T-Tank Tank and DEFENDER™ Skid Tank to be free from defects in material and workmanship for the service life of the original vehicle (vehicle must be actively used in an emergency response for fire suppression). All UPF Tanks must be installed and operated in accordance with the UPF Installation and Operating Guidelines.

APPARATUS ELECTRICAL WARRANTY, TWO YEAR

The apparatus electrical system as detailed herein will have an electrical warranty against defects in materials and workmanship for a period of two (2) years, effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the electrical system will void this warranty.

AKRON BRASS WARRANTY

The Akron Brass valves will be warranted by Akron Brass for a period of ten (10) years from the date of delivery. The warranty for electronics will be warranted by Akron Brass for a period of five (5) years from date of delivery.

413 ABC Road, Lake Wales, FL 33859

Submitted To:

Mathew Luisi, Assistant Fire Chief

Formal Proposal for a 750-Gallon Type 4 Brush Truck w/ High Water Conversion

Date: 10/15/2025

Prepared By:
Jerry Brown

CCI/Fire Apparatus Division

Quoted Price as Specified: $349,398.00

Note: Chassis provided by sourcewell dealer, See attachment for additional chassis details

CHASSIS SPECIFICATION:
2027 FREIGHTLINER M2 106 4X4
CUM B6.7 325 HP @ 2400 RPM, 2600 GOV, 750 LB-FT @ 1800 RPM
CUMMINS ENGINE INTEGRAL BRAKE WITH VARIABLE GEOMETRY TURBO ON/OFF
RH OUTBOARD UNDER STEP MOUNTED HORIZONTAL AFTERTREATMENT SYSTEM ASSEMBLY WITH RH B-PILLAR MOUNTED VERTICAL TAILPIPE
ALLISON 3500 RDS AUTOMATIC TRANSMISSION WITH PTO PROVISION
MERITOR MTC 4210AC 2-SPEED TRANSFER CASE
MERITOR MX-12-120-EVO 12,000# 1790MM KPI SINGLE FRONT DRIVE AXLE
14,600# TAPERLEAF FRONT SUSPENSION
MERITOR MS-21-14X 21,000# R-SERIES SINGLE REAR AXLE
23,000# FLAT LEAF SPRING REAR SUSPENSION WITH HELPER AND RADIUS ROD
AIR BRAKE PACKAGE
9.5MM X 83.5MM X 284.0MM STEEL FRAME (.37 X 3.29 X 11.18 INCH) 140 KSI
THREE-PIECE 14 INCH CHROMED STEEL BUMPER WITH COLLAPSIBLE ENDS50
50-GALLON ALUM TANK W/ 6 GALLON DEF TANK
ALUM WHEELS ALL AROUND
12R22.5 RUBBER ALL AROUND
CHROME GRILLE AND SIDE AIR INTAKE
DUAL WEST COAST BRIGHT FINISH HEATED MIRRORS WITH LED LIGHTS AND LH AND RH REMOTE
AIR DRIVER & PASSENGER SEATS
BACK UP ALARM
7" B-PANEL INTERACTIVE TOUCHSCREEN DISPLAY RADIO W/ USB-C, APPLE CARPLAY, ANDROID AUTO, BLUETOOTH/AM/FM/SXM/WB, WITH MICROPHONE

PAINT:
Cab Color: Factory Freightliner Single Color
Secondary Color: N/A

TIRES:
Factory tires shall be removed and replaced with Hercules H-MD 18-Ply Tires for better off road capability. The tires shall be meet or exceed the speed and GVWR rating of the chassis. One (1) loose spare tire and wheel shall be provided.

FRONT BUMPER BRUSH GUARD
A heavy-duty bumper/brush guard with full protection and a winch mount tray shall be installed.

WARN WINCH
A Warn 16.5Ti self-recovery 16,500lb rated winch with remote control shall be installed on the front bumper.

REAR MUD FLAPS:
The chassis shall be supplied with mud flaps unless otherwise specified. The mud flaps shall be

installed behind the rearwheels.

HAVIS CONSOLE AND SWITCH PANEL:

A Havis electrical console and enclosure shall be located between the driver's and passenger's seats. It shall house the siren, switches, and auxiliary equipment.

FLAT-BED BODY – ALUMINUM:

The body will be a custom fabricated severe service flatbed type constructed of aluminum. The body shall be 140" long by 96" wide, designed for a 157" wheelbase M2 106 chassis. The body shall be specifically designed and engineered for off-road wildland firefighting.

MAIN FRAME

The body shall have 2" x 6" structural aluminum rectangle main frame rails. The body frame rails shall be isolated from the truck frame by .75" x 3.5" Poly isolators.

SUB-FRAME

The cross-members shall be 2" x 4" structural aluminum channel with cross-members on 16" centers.

MOUNTING

The body shall be spring mounted to the chassis frame rails at front and single bolted to the rear of the frame to allow for spring movement in the front. There shall be brackets installed at the middle of the body frame to prevent side to side movement.

HEADACHE RACK

The front of the body shall have a 2" X 4" rectangle aluminum headache rack. The rack shall extend the full width of the body and be attached to the front body corners. The assembly shall extend above the chassis cab and have mounting platform forinstallation of the light bar and two work lights. Wiring for the lights will be placed inside the tubing for protection.

FUEL FILLER

The fuel filler tube and cap shall be installed at the driver's side, rear of the body.

REAR BODY PANEL

A vertical body panel shall be installed at the rear of the body constructed of .125" smooth aluminum. The panel shall house the running lights, taillights, and back-up lights.

REAR RECEIVER:

The rear of the chassis shall be equipped with one (1) square steel tube receiver assembly for high or low angle rescue, trailer use, and winch applications. It shall be the same size as a Class III trailer hitch and shall be attached to the chassisframe assembly. The receiver shall be rated at approximately 10,000LB.

The rear receiver assembly shall be equipped with two (2) heavy duty rear tow loops, one (1) each side.

FIRE PUMP SPECIFICATIONS:

Hale HPX200-H20 Honda Powered Pump

Instrumentation

The pump shall be supplied with a mounted control panel. This panel shall include a throttle lever, master switch, starter button, choke control, a 2.5-inch liquid filled discharge gauge and an oil pressure warning light.

FUEL:

An aluminum fuel tank with a minimum capacity of 5-gallons shall be installed on the chassis bed and plumbed to the fire pump engine.

WATER TANK SPECIFICATIONS:

The water tank shall have a capacity of 750 gallons of water with a 10-gallon foam cell.

NFPA COMPLIANCE:

The water and foam tank construction shall be baffled and shall conform to applicable NFPA standards.

TANK SIGHT GAUGE:

The tank shall be equipped with translucent level sight gauges in the rear wall of the tank for both the water and foam portions of the tank.

VENT AND OVERFLOW

The fill tower shall incorporate a vent and overflow system shall be designed into the water tank. The system shall include a 3" diameter pipe that functions both as an air vent while emptying the tank and as an overflow when filling the tank. The overflow shall discharge excess water below the frame rails of the vehicle.

STAINLESS STEEL PLUMBING SYSTEM:

The auxiliary fire pump plumbing system shall be built mostly of stainless-steel piping, fittings, and connections. Flexible hose couplings shall be threaded stainless steel or Victaulic type connections.

VALVES:

All valves used in the plumbing installation shall be stainless steel quarter turn full flow type. The plumbing installation shall include quarter turn ball valves with local "on-valve" handle control.

HOSE THREADS:

The hose threads shall be National Hose Standard (NH) on all base threads on the apparatus intakes and discharges, unless otherwise specified.

ELECTRIC START WIRING TO CHASSIS:

The 12-volt positive and negative cables shall be provided from the chassis battery to the fire pump area, wired through the master disconnect solenoid system. The cables shall have a circuit breaker installed at the chassis battery.

AUXILIARY FIRE PUMP MOUNTING PROVISIONS:

The auxiliary fire pump shall be installed on the passenger's side rear of the body. It shall be set in from the side towards the center of the bed. The sub-structure shall have welded in mounting sub-plates between the structural members.

PUMP ENGINE OIL DRAIN:

The pump engine shall have an oil drain line installed and shall allow for easy oil draining. The drain line shall go through the deck and have a cap installed on the end.

VALVES & PLUMBING

All valves shall be full-flow 1/4 turn industrial ball valves. All valves and fittings shall be manufactured of stainless steel.

2-1/2" GATED INTAKE – REAR:

One (1) 2-1/2" gated suction intake shall be installed on rear area to supply the fire pump from an external water supply. The valve shall be controlled with a direct quarter-turn ball valve control handle and shall have 2-1/2" NH female thread with plug.

TANK TO PUMP LINE INSTALLATION:

The 2-1/2" tank to pump line shall be installed with stainless steel plumbing to the water tank. The valve shall be controlled with a manually operated handle directly on the valve.

DISCHARGE MANIFOLD

A stainless-steel manifold shall be plumbed to the fire pump discharge. The following discharges shall be included.

- (1) 1" tank fill/coolant line w/ valve
- (1) 1" to hose reel w/ valve
- (1) 1-1/2" valved discharge w/ NHT male thread, cap & chain
- (1) 2-1/2" valved discharge w/ NHT male thread, cap & chain

HOSE REEL:

One (1) Hannay polished aluminum hose reel shall be installed. The reel shall have leak proof ball bearing swing joint, adjustable friction brake, electric 1/2HP, 12-volt rewind and manual crank rewind provisions. The reel shall have a minimum capacity of 200' of 1" NFPA rated booster hose. The reel shall be mounted on the driver's side rear corner of the flatbed body.

HOSE REEL ROLLER:

The hose reel shall be provided with a Hannay center mounted stainless steel roller assembly.

REEL HOSE:

1" x 150' of red rubber hose with 1" NHT couplings shall be installed on the hose reel.

CLASS A FOAM SYSTEM:

A Scotty Model #4171 Class A through-the-pump foam system shall be installed to supply all discharges. The unit shall be mounted at the rear of the apparatus, within easy reach of pump operator.

FOAM SYSTEM PIPING:

A 3/4" fitting shall be provided on the foam tank for connection of the foam tank to the suction

side of the foam system.

FOAM TANK DRAIN AND VALVE PROVISIONS:

A 3/4" diameter connection, piping, and valve shall be installed for the foam tank for draining purposes.

CENTER BED COMPARTMENT

There shall be a compartment measuring approximately 30" wide x 6" high x 78" deep located at the rear center of the body. This compartment will include a pull-out tray for long tool and door with a latch installed.

KUSMAUL CHARGER

A Kussmaul 120V battery charge shall be installed for battery support. The charger shall include an auto-eject port mounted on the driver's side of the vehicle with a dual bar graph display.

12 VOLT ELECTRICAL SPECIFICATIONS:

The following describes the low voltage electrical system on the apparatus including all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The apparatus manufacturer shall conform to the latest Federal DOT standards, current automotive electrical system standards and the applicable requirements of the NFPA.

Wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the circuit is protected. Voltage drops shall not exceed 10 percent in all wiring from the power source to the using device. The wiring, wiring harness and insulation shall be in conformance to applicable SAE and NFPA standards. The wiring harness shall conform to SAE J-1128 with GXL temperature properties. Exposed wiring shall be run in a loom with a minimum 289-degree Fahrenheit rating. Wiring looms shall be properly supported and attached to body members. Electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

All wiring connections and terminations shall provide positive mechanical and electrical connections and be installed in accordance with the device manufacturer's instructions. When wiring passes through metal panels, electrical connections shall be secured with mechanical type fasteners and rubber grommets

Wiring between cab and body shall be split using connectors or enclosed in a terminal junction panel allowing body removal with minimal impact on the apparatus electrical system. Connections shall be crimp-type with heat shrink tubing with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather resistant connectors shall beprovided throughout the system.

Electrical junction or terminal boxes shall be weather resistant and located away from water spray

conditions. When required, automatic reset breakers and relays shall be housed in the main body junction panel.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless enclosed in an electrical junction box or covered with a removable electrical panel. Wiring shall be secured in place and protected against heat, liquid contaminants and damage.

Low voltage overcurrent protective devices shall be provided for the electrical circuits. The devices shall be accessible and located in required terminal connection locations or weather resistant enclosures. Overcurrent protection devices shall be automatic reset type suitable for electrical equipment and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. Electro-magnetic interference suppression shall be provided in the system as required in applicable SAE standards.

The electrical system shall include the following:

Electrical terminals in weather exposed areas shall have a non-conductive grease or spray applied. All terminal plugs located outside of the cab or body shall be treated with a corrosion preventative compound. All electrical wiring shall be placed in a protective loom or be harnessed. Exposed connections shall be protected by heat shrink material and sealed connectors. Large fender washers shall be used when fastening equipment to the underside of the cab roof and all holes made in the roof shall be caulked with silicone.
Electrical components installed in exposed areas shall be mounted in a manner that will not allow moisture to accumulate inside. A coil of wire must be provided behind an electrical appliance to allow them to be pulled away from mounting area for inspection and service work. All lights in a weather exposed area that have their sockets shall have corrosion preventative compound added to the socket terminal area.

ELECTRICAL HARNESS AND WIRING:

All wiring shall be hidden, enclosed, or protected under the body in protective material, or within the apparatus body components. In addition, split loom conduits shall be installed and enclosed, suitably secured and protected against heat and physical damage.

DOT IDENTIFICATION LIGHTS:

All LED identification lights shall be installed on the vehicle as required by applicable highway regulations.

LICENSE PLATE MOUNTING:

An LED license plate light shall be installed on the rear vertical wall of the body.

BRAKE, TURN, TAIL, BACKUP LIGHTS:

Brake, turn, tail and backup LED lights shall be installed on the rear of the body and shall be DOT compliant.

TRAILER WIRING HARNESS

A DOT approved trailer wiring harness shall be installed on the rear of the truck to allow for both 4-way and 7-way trailer connection.

GROUND LIGHTS, CAB, 2 DOOR LED STRIPS:

Two (2) 12" LED ground strip lights shall be installed in compliance with NFPA standards, one (1) underneath on each side of the apparatus to illuminate the driver's & passenger's door exit area.

SCENE LIGHTS:

Two (2) LED scene lights shall be installed, one on the top, rear of each upper body compartment. There will also be one (1) LED work light installed on the rear of the vehicle to illuminate the pump area of the apparatus. The LED scene/work lights shall incorporate clear LEDs with a clear optic polycarbonate lens for maximum illumination.

STEPS & GRAB HANDLES

Four (4) NFPA compliant lighted folding steps shall be provided for bed and equipment access. Four (4) handrails shall be installed to assist with safety and stability. The location of steps and handrails will be determined by the customer during a truck inspection visit.

BACK-UP CAMERA SYSTEM:

One (1) Rear View Systems camera system shall be furnished utilizing a camera which provides a wide field of view and picture quality. A sealed camera enclosure shall be utilized along with electronic connections. The color monitor shall be installed in cab.

One (1) camera shall cover the rear of the apparatus, which will activate during back-up mode and during normal operations if needed.

BACK-UP ALARM:

One (1) back up alarm shall be installed.

ELECTRONIC SIREN:

Whelen Model HHS3206 heavy duty 100/200-watt, six (6) function siren shall have the following features: hands-free operation, public address, park kill, push to talk, and radio re-broadcast. The siren shall have the following tones: wail, yelp, piercer and air horn.

The unit shall have solid-state over/under voltage shutdown and output short circuit protection. The siren shall have the "SI Test" self-diagnostic feature for silent speaker inspection. The siren shall have a hard-wired unidirectional microphone with a 17" extendable coil cord. The unit shall be installed in the center console.

SIREN SPEAKER:

One (1) Whelen Model SA315P Projector Series siren speaker shall be provided with bracket. The 100- w a t t siren speaker shall be designed in a black nylon composite housing with 123 decibel rating. Location

shall be: Behind the front grille.

MOUNTING OF LIGHTBAR:
The lightbar shall be mounted on the headache rack shelf.

LIGHTBAR:
A Whelen Legacy low profile NFPA lightbar shall be installed. The 54" lightbar shall be designed to meet the minimum clearing requirements for Zone A Upper. The internal components of the lightbar shall be housed within a two-piece extruded aluminum base/top. The outer shell shall be clear optic polycarbonate lenses designed to maximize light output and shield against environmental elements.

The lightbar shall utilize snap-in brackets to hold in the light heads. The brackets shall give the end user the ability to make quick repairs. The lightbar shall have all solid-state components. The lightbar shall have two wire harnesses exiting the unit: one (1) 17 conductor 22-gauge control cable which controls all internal light functions; and one (1) 2 conductor 10-gauge cable for main power and ground. Each cable shall be 15' long. The solid state 1/0 board shall be microprocessor controlled. The 1/0 board shall have built-in reverse-polarity protection and output-short protection. The board shall have the ability to flash sixteen (16) LED warning lights. There shall be a data bank of 13 Scan-Lock flash patterns including steady burn. The board shall also have outputs to add takedown and alley lights.

NFPA WARNING LIGHTS:
ZONE A -- LOWER FRONT WARNING LIGHTS
Two (2) Whelen ION T Series Duo Model TLI2D warning lights with black flanges shall be installed on the front forward facing area of the front grill. The warning lights shall incorporate Linear Super-LED and Smart LED technology. The light head configuration shall consist of Red/White Super-LEDs and a clear optic polycarbonate lens. The light heads shall be surface mountable via two screws.

ZONE BAND D -- INTERSECTION LIGHTS
Two (2)Whelen ION T Series Duo Model TLI2D warning lights with black flanges shall be installed on the front fenders as far forward as possible. The warning lights shall incorporate Linear Super-LED and Smart LED technology. The light head configuration shall consist of Red/White Super-LEDs and a clear optic polycarbonate lens. The light heads shall be surface mountable via two screws.

ZONE BAND D -- SIDE WARNING LIGHTS
Two (2)Whelen ION T Series Duo Model TLI2D warning lights with black flanges shall be installed on each side of the rear body area. The warning lights shall incorporate Linear Super-LED and Smart LED technology. The light head configuration shall consist of Red/White Super-LEDs and a clear optic polycarbonate lens. The light heads shall be surface mountable via two screws.

ZONE C -- REAR WARNING LIGHTS
Two (2)Whelen ION T Series Duo Model TLI2D warning lights with black flanges shall be installed on the rear bed rail of body. The warning lights shall incorporate Linear Super-LED and Smart LED technology. The light head configuration shall consist of Red/White Super-LEDs and a clear optic polycarbonate lens. The light heads shall be surface mountable via two screws.

Two (2) additional Whelen Ion T Series Duo Model TLI2D warning lights shall be installed on the front bumper.

Two (2) additional Whelen ION T Duo Series Model TLI2D warning lights shall be installed on the rear valance panel

RADIO INSTALLATION

One (1) customer provided radio & antenna shall be installed in the truck console. The customer provided antenna shall be installed on the vehicle cab. All flashing and programming will be the responsibility of the customer.

REAR CHEVRON STRIPING:

There shall be alternating chevron striping installed on the rear vertical body panel. The chevron striping shall consist of 6" diamond grade in the following colors:
The first color shall be red diamond grade.
The second color shall be lime yellow diamond grade.

HIGH WATER – RESCUE CONVERSION BED

- 96" x 140" Removable Bed
- All Welded Aluminum Construction
- Folding Aluminum Bench Seats in Front and Both Sides
- "SeaDek" Seat Padding on Bench Seats
- 44" High Aluminum Sides w/ Aluminum Railing
- Removable Fold Down Rear Step System
- Designed to quickly convert from a brush truck to a high water rescue vehicle

FINAL ASSEMBLY AND APPARATUS FINISHING PREP SPECIFICATIONS:

The apparatus shall be assembled in a high quality and controlled environment. Upon completion, the apparatus shall be ready for final inspection and road testing as required herein.

WARNING LABEL -- SEAT BELT USAGE:

A warning label for use of seat belts shall be installed in the cab by the chassis manufacturer.

Board Meeting Date

_____

Item Number: J.2.

Motion By: KA

Second By: TA

Nay By: Delaney

Commissioner	DISTRICT	AYE	NAY
Commissioner Delaney	1		✓
Vice Chair Goodson	2	✓	
Commissioner Adkinson	3	✓	
Commissioner Altman	5	✓	
Chairman Feltner	4	✓	