

INVITATION FOR BIDS

Sealed bids will be accepted for furnishing North Mason Regional Fire Authority with one (1) or more fire apparatus and equipment, in accordance with the plans and specifications outlined by the Fire Authority.

Bids will be received at North Mason Regional Fire Authority Headquarters until 5:00 p.m. on Thursday, February 6, 2020. Bids will be opened and read aloud at 1:00 p.m. on Friday, February 7, 2020, at the Fire Authority's Headquarters.

The outside of the sealed envelope must be properly marked with:

"Bid for North Mason Regional Fire Authority Fire Engine."

Bids to be on the basis of cash. Final payment will be issued upon final delivery and acceptance by the Fire Authority, in accordance with the specifications for this equipment. No bid may be withdrawn for a period of thirty (30) days after the bid closing date.

The Fire Authority reserves the right to reject any and all bids and to accept the bid it feels is in the best interest of the Fire Authority.

Special Note: Only Bidders and apparatus manufacturers conducting business inside North America shall be considered. The definition of a North American Bidder and manufacturer is: "The Company, who resides, pays taxes, manufacturers inside North America". There will be no exceptions to this requirement.

By: _____ Title _____

Any questions concerning the bid specifications shall be in writing and any exceptions must be approved by the Authority.

Phone: _____

Email: _____

NORTH MASON REGIONAL FIRE AUTHORITY - INSTRUCTIONS TO BIDDERS

FIRE ENGINE BID

Identification of Authority. North Mason Regional Fire Authority is the entity issuing this Invitation for Bids. The Fire Authority is a municipal corporation and a political subdivision of the state of Washington.

The Authority's physical address is: 460 NE Old Belfair Hwy
Belfair, WA 98528

The Authority's mailing address is: PO Box 277
Belfair, WA 98528

For further information, contact the Fire Authority at 360-275-6711 between the hours of 9:00 a.m. and 5:00 p.m. on all regular business days.

The Fire Authority representative for all matters relating to this invitation for bids is: Assistant Fire Chief Scott Cooper.

1. **Definitions.** The following terms shall have the meaning identified below when used in this document:
 - 1.1. **Apparatus.** Custom Designed Triple Combination Pumper.
 - 1.2. **Bidder.** Any person or entity that submits a qualified bid in response to the Invitation for Bids by the Fire Authority.
 - 1.3. **Qualified Bid.** Any bid submitted to the Fire Authority in response to the Invitation for Bids issued by the Fire Authority that complies with the bid specifications.
 - 1.4. **Authority.** North Mason Regional Fire Authority.
 - 1.5. **Supplier.** The Bidder who is awarded the contract to supply the material and construction labor described in the bid specifications issued by the Fire Authority, whether referred to as Successful Bidder, General Contractor or Manufacturer in subsequent documents.

- 1.6. **Acceptance.** The time at which the Fire Authority indicates the equipment, as received, substantially complies with the specifications issued by the Fire Authority.
 - 1.7. **Possession.** Physical custody only.
2. **Invitation for Bids.** North Mason Regional Fire Authority will accept bid proposals for the delivery of a custom designed triple combination pumper.
 - 2.1. **Time.** Bid proposals must be received by the Fire Authority on or before 5:00 p.m. on Thursday, February 6, 2020.
 - 2.2. **Place.** Bid proposals may be mailed to the Fire Authority's mailing address or hand delivered to the Fire Authority's Headquarters.
 - 2.3. **Bid Opening.** Bids will be opened and read aloud at 1:00 p.m. on Friday, February 7, 2020, at the Fire Authority's Headquarters.
 - 2.4. **Board Action.** The Board of Commissioners will review the submitted bid proposals at an open public meeting at 5:00 p.m. on Tuesday, February 11, 2020, at the Fire Authority, and may take formal action at that time or at a subsequent meeting.
3. **Acceptance/Rejection of Bids.** The Fire Authority reserves the right to reject any or all bids, to waive minor irregularities in any bids or in the bidding procedure, and to accept any bid presented which meets or exceeds the bid specifications and which the Board of Commissioners of the Fire Authority deems to be in the best interest of the Fire Authority. The Board of Commissioners reserves the right to accept the bid from the lowest Bidder, taking into consideration the interests of the Fire Authority and participating agencies as a whole. This may or may not be the bid with the lowest bid price.
4. **Instruction to Bidders and Specifications.** The invitation and instructions to Bidders and bid specifications may be obtained by contacting the Fire Authority between the hours of 9:00 a.m. and 5:00 p.m. on all regular business days or online at www.northmasonrfa.com. Any questions regarding bid specifications should be directed to Assistant Chief Scott Cooper prior to the bid due date. Clarifications, corrections and/or changes shall be sent in writing via email to all prospective Bidders.

5. **Bid Marking.** All bids must be submitted in a sealed envelope, clearly marked on the outside of the envelope, "Bid for North Mason Regional Fire Authority Fire Engine".
6. **Bid Submission.** A Bidder may, without prejudice to the Bidder, withdraw, modify or correct a proposal after it has been deposited with the Fire Authority, provided the request is filed with the Fire Authority in writing, before the time set for opening bid proposals. The original proposal, as modified by such writing, shall be considered as a proposal submitted by the Bidder.
7. **Contents of Bid Proposal.** All bid proposals shall contain or be accompanied by the following:
 - 7.1. **Proposal.** A written proposal to supply a custom manufactured fire engine described in the bid specifications in accordance with the instructions to Bidders.
 - 7.2. **Qualification of Bidder.** Satisfactory evidence of the Bidder's ability to construct the fire engine as specified.
 - 7.3. **Authority.** The bid must be signed by an authorized representative of the Bidder. The Bidder shall provide with the bid proposal, proof of such representative's authority to contractually bind the Bidder.
 - 7.4. **Price.** The total bid price exclusive of state and local sales or use tax, based on the estimated quantities, recognizing that the exact number of units purchased may vary from estimated quantities.
8. **Compliance.** The Fire Authority advises all prospective Bidders that compliance with the requirements outlined in these instructions to Bidders and bid specifications will be considered by the Board of Commissioners in determining whether to accept or reject any bid.
9. **Material Considerations.** Each of the requirements contained in this document are material, and the failure of a bidder to comply with each requirement may constitute grounds for rejection of the bid at the discretion of the Board of Commissioners.
10. **Bidding Errors.** The Fire Authority will not be liable for any errors in any Bidder proposal, and Bidders will not be allowed to alter or modify bids after the bid submittal deadline. The Fire Authority reserves the right to correct or amend errors such as typing,

transposition or other obvious errors; however, the Fire Authority is not required to make such corrections or amendments. If a Bidder claims error and asks to be relieved of an award, the Bidder will be required to promptly present certified worksheets documenting the error. If the Fire Authority, upon review of the worksheets, is convinced in the Fire Authority's sole discretion, that an honest, mathematically excusable error or omission of costs has been made, the Bidder may be relieved of bid. If a discrepancy exists between the price per unit and the extended amount of any bid item, the price per unit will control.

11. **Offer Irrevocable - Time Period.** All bid proposals shall be deemed to be offers to enter into a contract and shall be irrevocable for a period of thirty (30) days from the date of opening of the bids.
12. **Specifications.** The technical specifications provided by the Fire Authority are the minimum requirements. Any exceptions equivalent to or exceeding these specifications will be given due consideration. Bidders shall include their proposal specification sheets. **Any exceptions to strict compliance with the specifications must be noted. A List of Exceptions to Specifications shall be prepared by the Bidder and included with the bid, indicating any and all exceptions, explaining each exception, and describing the specification proposed to be met.**
13. **Completion.** The successful Bidder shall complete the Fire Authority's fire engine and provide delivery to the Fire Authority no later than April 30, 2021.
14. **Warranty.** If the warranty excludes warranties of any specific included components because such components are covered by the component manufacturer's warranty, the warranty of the component manufacturer shall be included with the bid proposal. The warranty obligation shall include the following:
 - 14.1. All materials and required labor.
 - 14.2. The term of the warranty or warranties.
15. **Statutes and Regulations.** The completed fire engine must comply with the requirements of applicable federal statutes and regulations, applicable Washington statutes and regulations of the Department of Labor and Industries, the Department of Transportation and all other applicable state regulatory agencies. In the event the specifications issued by the Fire Authority cannot be complied with without violating such requirements, the

Bidder shall so state; if not discovered until after the contract has been executed, the Supplier shall advise the Fire Authority prior to delivery.

16. **Patents.** The Supplier shall defend any and all suits and assume all liability for any claims against the Fire Authority, or any of its officials, employees and agents, for the use of any patented process, device or article forming a part of the equipment or any appliance to be furnished under the contract.
17. **Conflict of Interest.** Bidders must certify that no officer, agent or employee of the Fire Authority who has participated in the contract negotiations on behalf of the Fire Authority has a pecuniary interest in the bid proposal, and that the proposal is made in good faith without fraud, collusion or participation of any kind by any other Bidder under the same call for bids, and that the Bidder is submitting the bid on its own behalf and not as an undisclosed agent of any person or firm.
18. **Public Disclosure.** All documentation submitted to the Fire Authority may be considered public record under applicable laws and may be subject to disclosure. Bidders recognize and agree the Fire Authority will not be responsible or liable in any way for any losses the Bidder may suffer from the lawful disclosure of information or materials to third parties. Any materials requested to be treated as confidential documents, proprietary information or trade secrets must be clearly identified and readily separate from the balance of the bid submission. Such designations will not necessarily be conclusive, and Bidders may be required to justify why such material should not, upon written request, be disclosed by the Fire Authority under the applicable Public Records Act (RCW 42.56). The Fire Authority will attempt to provide at least two (2) business days' notice of a public records request for material submitted pursuant to this Invitation for Bid. Bidders must respond to the notice in writing with any objection to the production of the documents within two (2) business days of the receipt of the notice. All costs incurred by Bidders associated with any public records request are the responsibility of the Bidders.

BID SPECIFICATIONS

Table of Contents

	<u>Page</u>
FIRE APPARATUS SPECIFICATIONS	13
INTERLOCAL GOVERNMENT PURCHASING	13
GENERAL REQUIREMENTS	13
RELIABILITY OF BIDDER/CONTRACTOR.....	14
QUALIFICATIONS OF THE BIDDERS	15
SPECIAL INSTRUCTIONS TO BIDDERS	15
FINANCIAL STABILITY SPECIFICATIONS.....	15
SUBMISSION OF PROPOSALS.....	16
DELIVERY AND OPENING OF PROPOSAL	16
REJECTION OF PROPOSALS.....	16
CONTRACT AWARD.....	17
PROPOSAL GUARANTEE.....	17
PERFORMANCE BOND.....	17
DESIGN REQUIREMENTS	18
ENGINEERING BLUEPRINTS	18
ADDITIONAL ENGINEERING - TOP VIEW OF APPARATUS	19
PRE-CONSTRUCTION CONFERENCE AT THE AUTHORITY.....	19
INSPECTION TRIPS	19
IN PROCESS PHOTOS	19
COMPLETION DATE	20
APPARATUS AND EQUIPMENT.....	20
DELIVERY.....	20
ACCEPTANCE TESTS AND REQUIREMENTS	20
UNDERWRITERS LABORATORIES TESTING	20
FAILURE TO MEET TESTS.....	21
TRAINING	21
PAYMENT	21
AUTHORIZED REPAIR FACILITY	21
AUTHORIZED REPAIR PERSONNEL.....	21
LOCAL SERVICE CENTER & INSURANCE REQUIREMENTS	22
MANUFACTURER INSURANCE REQUIREMENTS	22
NFPA 2016 STANDARDS	23
ENGINEERED APPARATUS	23
CENTER OF GRAVITY	23
MAX HEIGHT	23
MAX LENGTH	24
MAX WIDTH.....	24
MAX WHEELBASE.....	24
ANGLE OF APPROACH.....	24
ANGLE OF DEPARTURE	24
NFPA PUMPER EQUIPMENT ALLOWANCE	24
CARRYING CAPACITY.....	24
STATIC LOAD SEAT TEST INFORMATION	25
CAB TEST INFORMATION.....	25
CAB INTEGRITY CERTIFICATION.....	26
USB STORAGE	26
ROAD SAFETY KIT	26
CAB – CUSTOM STYLE	26

ROOF STYLE - 8" RAISED 27

DRIP RAIL EXTENSION..... 28

DRIVER SIDE EMS COMPARTMENT 28

DRIVER SIDE EMS COMPARTMENT – EXTERIOR HINGED DOOR..... 28

EMS COMPARTMENT HANDLE 28

EMS COMPARTMENT LOCKS..... 28

COMPARTMENT SHELF..... 29

DRIVER EMS COMPARTMENT INTERIOR FINISH 29

DRIVER EMS CAB COMPARTMENT LIGHTING..... 29

OFFICER SIDE EMS COMPARTMENT 29

OFFICER SIDE EMS COMPARTMENT – EXTERIOR HINGED DOOR 29

EMS COMPARTMENT HANDLE 29

EMS COMPARTMENT LOCKS..... 29

COMPARTMENT SHELF..... 30

OFFICER EMS COMPARTMENT INTERIOR FINISH..... 30

OFFICER EMS CAB COMPARTMENT LIGHTING 30

CAB DOORS..... 30

CAB STEPS..... 30

CAB STEP TRIM..... 31

CAB STEP TRIM KICKPLATE..... 31

BARRIER FREE DOORS..... 31

DOOR HANDLES..... 31

CAB DOOR LOCKS..... 31

INTERIOR CAB DOORS 32

INTERIOR CAB DOOR FINISH..... 32

INTERIOR FRONT DOOR PULL..... 32

INTERIOR GRAB HANDLE REAR DOOR..... 32

GRAB HANDLES "A" PILLAR..... 32

WINDSHIELD 33

WINDSHIELD WIPER SYSTEM 33

WINDSHIELD WIPER ACTIVATION 33

POWER WINDOW - DRIVER DOOR..... 33

POWER WINDOW SWITCHES 33

POWER WINDOW - OFFICER DOOR 34

REAR DRIVER SIDE WINDOW..... 34

REAR OFFICER SIDE WINDOW 34

CAB INSULATION 34

DAMPING INSULATION..... 35

ENGINE TUNNEL INSULATION..... 35

INTERIOR TRIM MATERIAL 35

THROTTLE AND BRAKE PEDALS..... 35

INTERIOR CAB FINISH..... 35

REAR WALL INTERIOR MATERIAL 36

FLOOR MAT..... 36

SUN VISORS 36

ENGINE TUNNEL..... 36

CAB DASH 37

CAB DASH & ENGINE TUNNEL..... 37

PAC TRAC ON REAR OF ENGINE TUNNEL..... 37

CUP HOLDERS 38

INSTRUMENTATION PANEL INLAY 38

CAB HEADER 38

HVAC HEATING AND COOLING SYSTEMS..... 38

DEFROSTING SYSTEM..... 38

HEATING SYSTEM.....	39
AIR CONDITIONING	39
CAB PAINT AIR CONDITIONING CONDENSER COVER.....	40
HEATER HOSE	40
CONDENSER.....	40
REAR CREW AREA CONTROLS	40
SEAT AND SEATBELT COLOR	40
DRIVER SEAT.....	40
DRIVER SEATBELT DUAL RETRACTOR.....	41
DRIVER SEAT BACK.....	41
DRIVER SEAT MOUNTING.....	41
DRIVER SEAT MATERIAL.....	41
DRIVER SEAT BACK LOGO.....	41
DRIVER SEAT BOX STORAGE COMPARTMENT	41
ALUMINUM ACCESS DOOR.....	41
OFFICER SEAT	41
OFFICER SEATBELT DUAL RETRACTOR	42
OFFICER SEAT BACK.....	42
OFFICER SEAT MATERIAL.....	42
OFFICER SEAT BACK LOGO.....	42
OFFICER SEAT BOX STORAGE COMPARTMENT.....	42
FORWARD FACING CREW SEATS.....	42
CREW SEATBELT DUAL RETRACTOR.....	43
CREW SEAT BACKS.....	43
CREW SEAT MOUNTING FORWARD FACING CENTER.....	43
CREW SEAT MATERIAL	43
CREW SEAT BACK LOGOS.....	43
CREW SEAT FRAME FORWARD FACING.....	43
CREW SEAT COMPARTMENT FINISH.....	43
CREW SEAT MOUNTING TRACK.....	43
FORWARD FACING OUTER THEATER SEAT-DRIVER SIDE	44
EXTERIOR GRAB HANDLES	44
CAB FASCIA	44
FRONT GRILLE	44
LIGHT BEZEL	45
GRILLE LOGO	45
FRONT GRILLE INLAY.....	45
FLUID FILLS.....	45
HEADLIGHTS	45
HEADLIGHT LOCATION.....	45
HEADLIGHT FLASHER.....	45
HEADLIGHT FLASHER SWITCH	45
DAYTIME RUNNING LIGHTS.....	46
FRONT TURN SIGNALS.....	46
TURN SIGNAL LOCATION.....	46
SIDE MARKER LIGHTS	46
FRONT MARKER LAMPS.....	46
HEADLIGHT AND MARKER LIGHT ACTIVATION	46
CAB FENDERS.....	46
MANUFACTURER LOGO	46
FRONT MUD FLAPS	46
CAB TILT SYSTEM.....	47
CAB TILT LIMIT SWITCH	48
CAB TILT LOCK DOWN INDICATOR.....	48

REARVIEW MIRRORS.....	48
REARVIEW MIRROR REMOTE ACTIVATION.....	48
CAB TWO TONE PAINT.....	48
CAB PAINT UPPER.....	49
CAB PAINT LOWER.....	49
CAB PAINT EXTERIOR BREAKLINE.....	49
CAB UNDERCOAT.....	49
PAINT SPRAY OUT.....	49
FRONT AXLE.....	49
FRONT WHEEL BEARING LUBRICATION.....	50
FRONT SUSPENSION.....	50
POWER STEERING GEAR WITH ASSIST.....	50
CHASSIS ALIGNMENT.....	50
FRONT AXLE CRAMP ANGLE.....	51
FRONT TIRES.....	51
TIRE BALANCING.....	51
FRONT WHEELS.....	51
WHEEL PAINT.....	51
FRONT BRAKES.....	51
FRONT BRAKE SLACK ADJUSTERS.....	51
FRONT BRAKE DUST SHIELDS.....	52
STEERING COLUMN AND WHEEL.....	52
REAR AXLE.....	52
REAR AXLE DIFFERENTIAL LUBRICATION.....	52
REAR SUSPENSION.....	52
REAR BRAKES.....	52
REAR BRAKE DUST SHIELDS.....	53
REAR BRAKE SLACK ADJUSTERS.....	53
REAR SHOCK ABSORBERS.....	53
REAR TIRES.....	53
TIRE BALANCING.....	53
REAR WHEELS.....	53
WHEEL PAINT.....	53
VALVE STEM EXTENSION - SINGLE AXLE.....	54
VEHICLE TOP SPEED.....	54
BRAKE SYSTEM.....	54
MUD / SNOW SWITCH.....	54
AIR TANK BRACKETS & STRAPS.....	55
PARK BRAKE.....	55
PARK BRAKE CONTROL.....	55
AIR DRYER.....	55
AUXILIARY AIR TANK.....	55
MOISTURE EJECTORS.....	56
AIR SUPPLY LINES.....	56
FRAME.....	56
UNDER-FRAME REINFORCEMENT.....	57
CROSS MEMBERS.....	57
FRONT FRAME EXTENSION.....	57
FRAME FINISH.....	57
FRONT BUMPER SUCTION PROVISION.....	58
ENGINE.....	58
ENGINE PLACEMENT.....	58
HORSEPOWER.....	59
ENGINE FAN DRIVE.....	59

AUXILIARY ENGINE BRAKE	59
TRANSMISSION PRE-SELECT	60
AUXILIARY ENGINE BRAKE CONTROL	60
ENGINE HIGH IDLE CONTROL	60
ENGINE PROGRAMMING HIGH IDLE SPEED	60
ENGINE AIR INTAKE	60
ENGINE EXHAUST SYSTEM	61
DIESEL EXHAUST FLUID TANK	61
DIESEL EXHAUST FLUID TANK ACCESS	61
ENGINE EXHAUST ACCESSORIES	62
ENGINE EXHAUST WRAP	62
DIESEL PARTICULATE FILTER CONTROLS	62
ENGINE COOLING SYSTEM	62
COOLANT HOSES	63
ADDITIONAL COOLANT SHUT OFF VALVE	63
ENGINE PUMP HEAT EXCHANGER	63
TRANSMISSION	63
TRANSMISSION DRAIN PLUG	64
AUTOMATIC NEUTRAL	64
TRANSMISSION FILTERS & FLUID	64
TRANSMISSION SHIFT SELECTOR	64
TRANSMISSION MODE PROGRAMMING	64
TRANSMISSION PROGRAMMING	64
DRIVELINE	65
FUEL FILTER/WATER SEPARATOR	65
FUEL SYSTEM	65
FUEL LINES	66
FUEL SHUTOFF VALVE	66
FUEL COOLER	66
ALTERNATOR	66
ELECTRICAL SYSTEM	67
EMI/RFI PROTECTION	67
ELECTRICAL HARNESSING INSTALLATION	68
BATTERY CABLE INSTALLATION	69
ELECTRICAL COMPONENT INSTALLATION	69
12V POWER POINTS-DRIVER	70
12V POWER POINTS-OFFICER	70
DRIVER SWITCH PANEL	70
MASTER WARNING SWITCH	70
ACCESSORY POWER DISTRIBUTION PANEL	70
COMMUNICATION ANTENNA BASE	70
COMMUNICATION ANTENNA CABLE ROUTING	70
VEHICLE DATA RECORDER	71
CAB INSTRUMENTATION	71
ALARMS	73
INDICATOR LAMP AND ALARM PROVE-OUT	73
DIAGNOSTIC PANEL	73
BACKLIGHTING COLOR	74
BATTERIES	74
BATTERY COMPARTMENTS	74
BATTERY CABLES	74
BATTERY JUMPER STUD	74
IGNITION	74
POWER & GROUND STUD	75

DOOR GROUND LIGHTS.....	75
DOOR GROUND LIGHT ACTIVATION.....	75
CAB STEP LIGHTING.....	75
CAB STEP LIGHT ACTIVATION.....	75
ENGINE COMPARTMENT LIGHTING.....	75
INTERIOR OVERHEAD CAB LED LIGHTING.....	75
DO NOT MOVE APPARATUS LIGHT.....	76
DOOR OPEN ALARM.....	76
BACKUP ALARM.....	76
REAR FACING CAMERA.....	76
REAR FACING CAMERA MONITOR MOUNT.....	76
BATTERY CHARGER.....	76
BATTERY CHARGER LOCATION.....	76
EJECTION UNIT.....	77
ELECTRIC SIREN AND CONTROL.....	77
SPEAKER.....	77
SPEAKER LOCATION.....	77
SPEAKER GRILLE.....	77
FEDERAL MECHANICAL SIREN.....	77
SIREN CONTROL - HORN.....	77
SIREN CONTROL - FLOOR.....	78
SIREN BRAKE.....	78
AIR HORNS.....	78
AIR HORN LANYARD.....	78
LIGHTBAR.....	78
LIGHTBAR ACTIVATION.....	78
TRAFFIC LIGHT CONTROL.....	79
UPPER REAR WARNING/SCENE LIGHTS.....	79
UPPER REAR SCENE LIGHT SWITCHING.....	79
UPPER REAR SCENE LIGHT ACTIVATION.....	79
UPPER SIDE FRONT WARNING/SCENE LIGHTS.....	79
UPPER SIDE FRONT SCENE LIGHT SWITCHING - LEFT.....	80
UPPER SIDE FRONT SCENE LIGHT SWITCHING - RIGHT.....	80
UPPER SIDE REAR WARNING/SCENE LIGHTS.....	80
UPPER SIDE REAR SCENE LIGHT SWITCHING - LEFT.....	80
UPPER SIDE REAR SCENE LIGHT SWITCHING - RIGHT.....	80
UPPER WING FRONT WARNING LIGHTS.....	80
INBOARD WARNING LIGHTS.....	81
INTERSECTION WARNING LIGHTS.....	81
UPPER MID CHASSIS WARNING LIGHTS.....	81
LOWER MID-BODY WARNING LIGHTS.....	82
LOWER REAR SIDE WARNING LIGHTS.....	82
LOWER REAR WARNING LIGHTS.....	82
LOW VOLTAGE ELECTRICAL SYSTEM SPECIFICATIONS.....	82
NFPA REQUIRED TESTING OF ELECTRICAL SYSTEM.....	84
WEATHER RESISTANT ELECTRICAL JUNCTION BOX.....	85
DASH MOUNTED EMERGENCY ELECTRICAL SWITCH PANEL.....	85
SWITCHES.....	85
PUMP ENCLOSURE LIGHTS.....	85
PUMP ENCLOSURE LIGHT MOUNTING LOCATION.....	86
BROW SCENE LIGHT.....	86
BROW SCENE LIGHT SWITCHING.....	86
BROW SCENE LIGHT MOUNTING LOCATION.....	86
SCENE LIGHTS.....	86

LIGHT SWITCH ON LAMPHEAD 86

SCENE LIGHT SWITCHING - LEFT 86

SCENE LIGHT SWITCHING - RIGHT 87

MARKER LIGHTS 87

TAIL LIGHTS 87

REAR TURN SIGNALS 87

BACKUP LIGHTS 87

FOUR LIGHT HOUSING 87

MID-BODY LED TURN SIGNALS 87

GROUND LIGHTS – RUB RAIL 87

GROUND LIGHTS – REAR STEP 88

REAR TAILBOARD LIGHTS 88

HAND LIGHTS 88

LICENSE PLATE BRACKET 88

SETCOM INTERCOM SYSTEM 88

DATA & WARNING LABELS 88

FLUID DATA PLAQUE 88

HEIGHT, LENGTH & WEIGHT 89

NO RIDE LABEL 89

CAB SEATING POSITION LIMITS 89

HELMET WARNING TAG 89

REAR TOWING PROVISIONS 89

REAR BUMPER 90

TIRE PRESSURE INDICATOR 90

EXHAUST OUTLET PROVISION 90

REAR MUD FLAPS 90

SCBA BRACKET 90

AIR SHORELINE CONNECTION 90

SHORELINE LOCATION 90

AIR INLET SHUTOFF VALVE 91

WATEROUS CXVC20 SINGLE STAGE PUMP 91

IMPELLER 91

PUMP TRANSMISSION 91

PUMP MOUNTING 91

DRIVELINE 91

1500 GPM FIRE PUMP SPECIFICATIONS 92

GATED 6" INTAKE -- LEFT SIDE 92

GATED 6" INTAKE -- RIGHT SIDE 92

FIRE PUMP MECHANICAL SHAFT SEAL 93

IMPELLER HUBS 93

ELECTRIC/PNEUMATIC PUMP SHIFT 93

PRIMER – AUTOMATIC 94

PRIMER CONTROL 94

PRESSURE GOVERNOR AND ENGINE-PUMP MONITORING 94

APPROVED PUMP PANEL DRAWING 95

PUMP ANODES 95

PUMP PLUMBING SYSTEM 96

FIRE PUMP MASTER DRAIN 96

ADDITIONAL LOW POINT DRAINS 96

STAINLESS STEEL INTAKE MANIFOLD 96

STAINLESS STEEL DISCHARGE MANIFOLD 96

FIRE PUMP & PLUMBING SYSTEM PAINTING 97

HOSE THREADS 97

WATER TANK TO PUMP LINE 97

FIRE PUMP TO WATER TANK FILL LINE.....	97
FIRE PUMP SPLIT SHAFT DRIVESHAFTS AND INSTALLATION	97
FIRE PUMP COOLING	98
CHASSIS ENGINE HEAT EXCHANGER COOLING SYSTEM	98
UNDERWRITERS LABORATORIES FIRE PUMP TEST	98
FIRE PUMP TEST LABEL.....	98
GATED 5" INTAKE -- FRONT RIGHT BUMPER	99
FRONT RIGHT SIDE INTAKE -- HORIZONTAL THROUGH BUMPER	99
LEFT SIDE 2-1/2" GATED INTAKE.....	99
1-1/2" SPEEDLAY DISCHARGES	100
2-1/2" SPEEDLAY DISCHARGE	101
SPEEDLAY COVER.....	101
SPEEDLAY HINGED COVER	102
ROLLERS FOR PRE-CONNECTED SPEEDLAY HOSEBED	102
REMOVABLE TRAY FOR PRE-CONNECTED HOSEBEDS	102
REMOVABLE TRAY FOR PRE-CONNECTED HOSEBEDS.....	102
LEFT SIDE DECON LINE -- 1" DISCHARGE	102
LEFT SIDE PUMP PANEL -- 2-1/2" DISCHARGE	103
RIGHT SIDE PUMP PANEL -- 2-1/2" DISCHARGE	104
RIGHT SIDE PUMP PANEL -- 3" x 4" DISCHARGE	104
RIGHT SIDE FRONT OF HOSEBED -- 2-1/2" DISCHARGE	105
REAR LEFT SIDE -- 3" x 4" DISCHARGE.....	106
3" MONITOR DISCHARGE	106
PORTABLE MONITOR PACKAGE	107
PORTABLE DECK GUN MONITOR TOP	107
MONITOR STORAGE BRACKET & SCREWS.....	107
MASTER STREAM NOZZLE.....	108
SAFE-TAK PORTABLE MONITOR BASE.....	108
STREAM STRAIGHTENER	108
MASTER STREAM STACK TIP SET	108
MONITOR STORAGE BRACKET & SCREWS.....	108
TELESCOPING MONITOR PIPE	109
ELECTRIC REWIND HOSE REEL	109
HOSE REEL PAINTING	110
FOAM PRO FOAM SYSTEM.....	110
CONTROL CONNECTION CABLE -- FOAM SYSTEM.....	111
PUMP PANEL CONTROL -- FOAM SYSTEM	111
FLOWMETER AND TEE -- FOAM SYSTEM.....	112
LOW-LEVEL TANK SENSOR FOAM TANK.....	112
MAIN WATERWAY CHECK VALVE -- FOAM SYSTEM	112
FOAM SYSTEM -- INJECTOR FITTING	112
INSTRUCTION AND RATING LABEL -- FOAM SYSTEM	112
SCHEMATIC LABEL -- FOAM SYSTEM.....	112
1" FOAM TANK CONTROL -- CLASS A.....	112
INTEGRAL CLASS A FOAM TANK -- 20 GALLON.....	113
FOAM TANK DRAIN -- UNDER TANK.....	113
FOAM SYSTEM DESIGN AND PERFORMANCE REQUIREMENTS.....	113
SIDE MOUNT PUMP ENCLOSURE.....	114
OPEN DUNNAGE COMPARTMENT -- OVER PUMP ENCLOSURE	115
LEFT SIDE RUNNING BOARD -- SIDE MOUNT PANEL	115
FLOATING HOSEWELL COMPARTMENT -- LEFT SIDE	115
HOSEWELL SECUREMENT - LEFT.....	116
RIGHT SIDE RUNNING BOARD -- SIDE MOUNT PANEL	116
FLOATING HOSEWELL COMPARTMENT -- RIGHT SIDE.....	116

HOSEWELL SECUREMENT - RIGHT	116
PUMP ENCLOSURE ACCESS DOOR -- RIGHT SIDE UPPER.....	116
PUMP PANEL -- SIDE MOUNT.....	116
HINGED PUMP PANEL -- LEFT SIDE	117
HINGED PUMP PANEL -- RIGHT SIDE.....	117
PUMP PANEL STAINLESS STEEL TRIM PANELS.....	117
LABELS	117
COLOR CODED PUMP PANEL LABELING AND NAMEPLATES.....	117
MIDSHIP PUMP PANEL LIGHTS -- LEFT SIDE	117
MIDSHIP PUMP PANEL LIGHTS -- RIGHT SIDE.....	118
PUMP ENGAGED LIGHT	118
MASTER DISCHARGE AND INTAKE GAUGES.....	118
TEST TAPS	118
WATER/FOAM TANK LEVEL GAUGE - PUMP PANEL.....	118
WATER TANK LEVEL LIGHTS	119
AIR HORN PUSH-BUTTON.....	119
WATER TANK - 750 GALLON.....	119
WATER TANK	119
WATER TANK FILL TOWER.....	119
HOSEBED SINGLE AXLE	121
HOSEBED STORAGE CAPACITY.....	121
ALUMINUM HOSEBED DIVIDER	121
BULKHEAD DIVIDER	122
ALUMINUM HOSEBED COVER	122
MAIN HOSEBED DIVIDER.....	122
POWER OPERATED ALUMINUM HOSEBED COVER	122
HOSEBED LIGHTS.....	122
BACKBOARD STORAGE AREA	122
REAR VINYL FLAPS FOR ALUMINUM COVER.....	123
3/16" ALUMINUM BODY	123
FASTENERS	124
ELECTROLYSIS CORROSION CONTROL.....	124
COMPARTMENT FLOORS.....	124
GALVANIZED SUBFRAME	124
BODY CONFIGURATION	125
SINGLE AXLE WHEEL AREA.....	125
FENDERETTES	125
BODY WIDTH.....	125
HOSEBED WIDTH.....	125
COMPARTMENT DEPTH.....	125
COMPARTMENT HEIGHT - LEFT	125
COMPARTMENT HEIGHT - RIGHT.....	126
HINGED COMPARTMENT FLUSH DOOR CONSTRUCTION	126
EXTERIOR DOOR HANDLES	126
LEFT FRONT COMPARTMENT	127
ADJUSTABLE SHELVING TRACKS.....	127
ADJUSTABLE SHELVES.....	127
250 POUND ROLLOUT TRAY	127
LEFT FRONT COMPARTMENT LIGHTS	127
LEFT OVERWHEEL COMPARTMENT.....	127
ADJUSTABLE SHELVING TRACKS.....	128
SWING-OUT PAC TRAC TOOL BOARD.....	128
LEFT OVERWHEEL COMPARTMENT LIGHTS	128
LEFT REAR COMPARTMENT.....	128

ADJUSTABLE SHELVING TRACKS..... 128

ADJUSTABLE SHELF 129

ROLLOUT ALUMINUM TOOL BOARDS..... 129

LEFT REAR COMPARTMENT LIGHTS..... 129

RIGHT FRONT COMPARTMENT..... 129

ADJUSTABLE SHELVING TRACKS..... 129

ADJUSTABLE SHELVES..... 129

500# ROLLOUT TRAY 130

RIGHT FRONT COMPARTMENT LIGHTS 130

RIGHT OVERWHEEL COMPARTMENT 130

ADJUSTABLE SHELVING TRACKS..... 130

SWING-OUT PAC TRAC TOOL BOARD..... 130

RIGHT OVERWHEEL COMPARTMENT LIGHTS..... 131

RIGHT REAR COMPARTMENT 131

ADJUSTABLE SHELVING TRACKS..... 131

500# ROLLOUT TRAY 131

RIGHT REAR COMPARTMENT LIGHTS..... 131

REAR BODY CONFIGURATION..... 132

REAR CENTER COMPARTMENT..... 132

ADJUSTABLE SHELVING TRACKS..... 132

500# ROLLOUT TRAY 132

COMPARTMENT LIGHTS..... 132

REAR STEP - 12" BOLT-ON..... 133

SLIDE OUT VERTICAL LADDER MOUNTINGS 133

INTERNAL FOLDING ATTIC LADDER MOUNTING 133

LADDER SOURCE..... 133

PIKE POLE MOUNTING BRACKET 133

PIKE POLE SOURCE..... 133

HARD SUCTION MOUNTING - TOP 133

HARD SUCTION MOUNTING - REAR 134

SUCTION HOSE SOURCE..... 134

SUCTION HOSE..... 134

HOSE COUPLINGS..... 134

FOLDING STEPS LEFT SIDE FRONT 134

FOLDING STEPS RIGHT SIDE FRONT 134

HANDRAIL TOP OF BODY SIDES..... 135

FRONT BODY PANELS 135

CATWALKS 135

REAR BODY PROTECTION PANELS..... 135

POLISHED COMPARTMENT TOP WELDS 135

ACCESS LADDER EZ CLIMB - LEFT REAR 135

HANDRAILS EZ-CLIMB LADDER 136

HANDRAIL REAR STEPS..... 136

HANDRAIL BELOW HOSEBED 136

EXTRUDED ALUMINUM RUB RAILS 136

NYLON SPACERS FOR RUB RAILS..... 136

WHEEL WELL PROVISION LOCATION..... 136

WHEEL WELL PROVISION LOCATION..... 137

FUEL FILL DOOR..... 137

WHEEL WELL PROVISION LOCATION..... 137

WHEEL WELL PROVISION LOCATION..... 137

POWER DISTRIBUTION STRIPS..... 138

WINCH RECEIVER - FRONT 138

WINCH RECEIVER - REAR..... 138

WINCH RECEIVERS - SIDE BODY.....	138
BODY PAINT PROCESS.....	138
APPARATUS COLOR.....	139
INTERIOR COMPARTMENT FINISH.....	139
TOUCH-UP PAINT.....	139
UNDERCOATING.....	139
LETTERING.....	139
REFLECTIVE STRIPING.....	139
COLOR OF STRIPING MATERIAL.....	140
CHEVRON STRIPING – FRONT BUMPER.....	140
CHEVRON STRIPING – REAR BODY.....	140
INTERIOR CAB DOOR CHEVRON.....	140
YELLOW SAFETY TAPE - STANDING & WALKING SURFACES.....	140
WHEEL CHOCKS WITH MOUNTS.....	140
ROOF LADDER.....	140
EXTENSION LADDER.....	140
FOLDING LADDER.....	141
PIKE POLE.....	141
PIKE POLE.....	141
TOLL FREE SERVICE NUMBER.....	142
DOCUMENTATION.....	142
COMPLETE PRINTED MANUAL.....	142
OPERATION AND FAMILIARIZATION MANUAL.....	143
ENGINE AND TRANSMISSION MANUALS.....	143
AS BUILT WIRING DIAGRAMS.....	143
ONLINE SERVICE MANUAL SUPPORT.....	144
BUMPER TO BUMPER WARRANTY – ONE YEAR.....	146
ALUMINUM BODY WARRANTY - FIVE YEAR.....	146
FRAME WARRANTY - LIFETIME.....	146
GALVANIZED SUBFRAME WARRANTY - LIFETIME.....	146
LETTERING WARRANTY – ONE YEAR.....	146
PAINT WARRANTY TEN YEAR - PRO RATED.....	146
CAB STRUCTURE WARRANTY – TEN YEAR.....	147
TRANSMISSION WARRANTY – FIVE YEAR.....	147
ENGINE WARRANTY – FIVE YEAR.....	147
FRONT AXLE WARRANTY – FIVE YEAR.....	147
REAR AXLE WARRANTY – FIVE YEAR.....	147
CAB AND CHASSIS WARRANTY – ONE YEAR.....	147
WATEROUS PUMP WARRANTY.....	147
STAINLESS STEEL PLUMBING WARRANTY – TEN YEAR.....	147
UPF FOAM TANK WARRANTY.....	148
UPF WATER TANK WARRANTY.....	148

BID FORM

Each Bidder shall check either Yes or No for the full compliance of the following. This allows the Fire Authority to easily compare each bid specification.

Review of Special Instructions to Bidders:

Bidder Complies: Y ___ N ___
Body Builder Supplied 10% Bid Bond

Bidder Complies: Y ___ N ___
Body Builder Supplied 100% Performance Bond

Bidder Complies: Y ___ N ___
Detailed scaled drawing of the proposed and completed apparatus

Bidder Complies: Y ___ N ___
Weight distribution chart of the proposed and completed apparatus

Bidder Complies: Y ___ N ___
Local Dealer Insurance Certificate for Warranty Repair Facility

Bidder Complies: Y ___ N ___
Warranty descriptions written into the bid specifications in full.

Bidder Complies: Y ___ N ___
Manufacturer operated at a profit for each of the past twenty (20) years;
Refer to "CONTRACT AWARD" section for each Bidder's copies of financial statements. (Please provide with proposal.)

Y__N__

FIRE APPARATUS SPECIFICATIONS

Information for Bidders/Contractors

Sealed bids are desired from reputable makers of automobile fire apparatus in accordance with the specifications outlined in this document, for the piece of apparatus listed as follows: **Custom Designed Triple Combination Pumper**

Y__N__

INTERLOCAL GOVERNMENT PURCHASING

It is the purpose of the Interlocal Cooperation Act (RCW 39.34) to allow local governmental units to cooperate with other governmental units in order to procure certain products and services under the same terms, conditions and pricing as each other. With this agreement, each party agrees to extend to the other party the right to purchase supplies, materials, equipment and services from its contracts with vendors, suppliers, providers and contractors for such supplies, materials, equipment and services to the full extent permitted by law.

Other contracting agencies are allowed to establish contracts or price agreements under the terms, conditions and prices of any contract resulting from this Invitation for Bids. Bidders shall agree to extend terms and conditions offered, pursuant to this Invitation for Bids to other contracting agencies, if awarded the contract, for a period of time as agreed upon by all parties. Pricing over this time period may be adjusted only on documented manufacturer price increases, chassis drivetrain upgrades and changes required by National Fire Protection Association (NFPA), U.S Department of Transportation (DOT), U.S. Environmental Protection Agency (EPA) and other federal regulatory agencies.

Chapter 39.34 RCW allows cooperative purchasing between public agencies (political subdivisions). For the purposes of this chapter, the term "public agency" means any agency, political subdivision or unit of local government of this state including, but not limited to, municipal corporations, quasi municipal corporations, special purpose districts and local service districts; any agency of the state government; any agency of the United States; any Indian tribe recognized as such by the federal government; and any political subdivision of another state. Public agencies which have filed an Intergovernmental Cooperative Purchasing Agreement (ICPA) with each other may make purchases from each other's contract awards, if the Vendor has agreed to such participation. The Authority does not accept any responsibility for orders placed by other public agencies. A public agency purchasing under another agency's contract accepts responsibility for compliance with statutes (including bid limits) governing purchase by or on behalf of itself.

Other agencies interested in purchasing through a cooperative procurement shall submit inquires to the Authority and comply in all respects with other notice and contracting requirements as set forth in Title 39 RCW of the State of Washington Statutes, Chapter 39.34 RCW Interlocal Cooperation Act.

Y__N__

GENERAL REQUIREMENTS

Each bid must be accompanied by the Bidder's accurate and Authority-specific written specifications covering the apparatus and equipment which it is proposing to furnish and to which the apparatus furnished under the contract must conform.

It is the intent of these specifications to cover the furnishing and delivery to the Authority, complete apparatus equipped as specified. All specifications herein contained are considered as minimum. Some items have been specified by brand name or model number. These have been carefully selected because of their reliability, compatibility with present equipment and local availability of parts.

No exceptions will be allowed relating to the make and model of the fire pump, valves and plumbing, gauge and types of materials, size of compartments, methods of construction and overall design features of the apparatus.

Exceptions taken in areas other than listed above must be listed on a separate page and marked "Exceptions to Specifications". Every exception taken shall be listed as to page number and paragraph. Failure to provide the required exception list with the bid proposal will be cause for rejection of that proposal. This requirement shall allow the Authority to easily compare the Bidder's specifications and proposals.

Where questions arise during construction between these specifications and the Bidder's proposal, these Authority specifications shall prevail.

Such details and other construction features not specifically covered herein shall conform to all State and Federal requirements and the NFPA Pamphlet No. 1901 "Standard for Automotive Fire Apparatus" in effect at the time the contract is signed.

Y__N__

RELIABILITY OF BIDDER/CONTRACTOR

Bidder/Contractor shall furnish satisfactory evidence documenting the ability to construct the apparatus specified and shall state in the bid proposal the location of the factory where the apparatus is to be built, as well as where future service work will be performed.

Proposals will only be considered when submitted by full-time fire apparatus manufacturers who are current members of the Fire Apparatus Manufacturers Association (FAMA). FAMA is a nonprofit organization designed to keep fire truck manufacturers abreast with the latest technologies and governing standards, and to act as a liaison to the IAFC and NFPA.

The Bidder shall provide with their proposal, pictures of twenty (20) completed deliveries, where similar apparatus has been furnished and is in service. Bidders shall also provide the names, telephone numbers and contact persons for each Fire District supplied. Failure to provide pictures and required users list with the bid proposal will be cause for rejection of that proposal.

The local representative shall state the number of years they have been representing the manufacturer, the location of their main office, any local offices, main service center and any local service centers authorized to repair this particular fire apparatus.

A signed and notarized letter from the manufacturing company shall be included in the Bidder's proposal to verify this requirement.

The Bidder shall provide with their proposal, pictures of and the names, telephone numbers and contact persons, of any local service centers, where the company has been in service for a minimum of ten (10) years. Failure to provide this with the bid proposal will be cause for rejection of that proposal.

Y__N__

QUALIFICATIONS OF THE BIDDERS

Bids will only be considered from manufacturers with an established reputation in fire apparatus construction of twenty (20) or more years. Each Bidder shall furnish satisfactory evidence of continuous legal corporate entity for a minimum of twenty (20) years.

Y__N__

SPECIAL INSTRUCTIONS TO BIDDERS

Bidders are requested to read the complete bid invitation carefully and submit their proposals in strict accordance with the requirements set forth. Any questions regarding this specification must be submitted in writing and received by the Assistant Fire Chief a minimum of five (5) business days prior to the bid opening date. Clarifications, corrections and/or changes will be sent out in writing to all prospective Bidders. The Authority reserves the right to reject any or all bids, or to accept any bid presented that meets or exceeds these specifications, and which the Authority deems is in the best interest of the Authority, regardless of the amount proposed.

The complete apparatus body shall be manufactured and assembled within North America. Apparatus that are manufactured and assembled outside of North America will not be considered. (NO EXCEPTIONS)

Y__N__

FINANCIAL STABILITY SPECIFICATIONS

Ensuring the financial stability of the proposed body builder is a paramount consideration to the Authority. Financial strength directly relates to the body builder's ability to successfully produce an apparatus without jeopardizing Authority funds. In addition, financial strength is vital to the Authority to ensure a body builder will be able to provide warranty service, along with replacement parts and service for the life of the apparatus. Failure to be able to provide these lifelong services may cause future increases in maintenance expenses and create undue burden on the Authority's budget and tax base. This is a situation that the Authority is unwilling to risk. The body builder, therefore, shall meet certain minimum financial ratios in order to qualify for a bid award. The financial ratios presented shall be that of the consolidated entity; not the consolidated entity's parent company; for the body builder.

The financial ratios required to be met shall be derived from the most recent audited financial statements of the body builder proposed.

Under no circumstance shall a bid be considered where the Bidder submits a letter of explanation taking exception to this requirement in lieu of providing the required documentation, nor shall consideration be given to Bidders that refuse to submit the required information on the basis that the body builder proposed is a private company.

The three (3) critical financial indicators to be met are as follows:

Debt-to-Equity Ratio: The debt-to-equity ratio of the entity must not exceed a 2.0 rating. A debt-to-equity ratio is defined as that of total liabilities divided by total owner's equity.

Debt Coverage Ratio: The debt coverage ratio of the entity must exceed a 100.0 rating. The higher the number, the better able a company is to meet its payment obligations with banks and creditors.

Equity Ratio: The equity ratio of the body builder must exceed a .30 rating. A higher equity ratio indicates that the body builder has increased flexibility to meet its financial obligations which translates into greater financial stability.

Equity Ratio: The equity ratio of the body builder must exceed a .30 rating. A higher equity ratio indicates that the body builder has increased flexibility to meet its financial obligations which translates into greater financial stability.

All financial indicators required by this section must be verified by Dun and Bradstreet, the nationally-recognized, independent financial analysis company. Bids furnished without the required financial information shall render the bid nonresponsive and the Bidder dismissed from further consideration.

Y__N__

SUBMISSION OF PROPOSALS

Each proposal shall be submitted in sequence with the attached specifications for ease of checking compliance of bids with Bidder's specifications.

All proposals shall be submitted on manufacturer's letterhead and not a reproduction of these specifications. Each bid proposal shall be signed by an Officer of the manufacturing company being bid.

Y__N__

DELIVERY AND OPENING OF PROPOSAL

Each proposal and all papers bound and attached thereto, together with the Proposal Guarantee, shall be placed in an envelope and securely sealed therein.

Proposals will be received at or prior to the time set for the opening of bids. Proposals received after the "bid deadline" will be returned unopened. The bids will be opened publicly and read aloud at the time and date stated on the Invitation for Bids.

Y__N__

REJECTION OF PROPOSALS

The Authority reserves the right to reject any or all proposals, or to accept such proposal as is in the best interest of the Authority.

All bid requirements and specifications as written are considered minimum.

Bids which substitute less substantial materials and/or methods of body construction than those specified will be rejected. Since all manufacturers have the ability to purchase the materials described as well as to shear, fabricate and assemble body panels as specified, these areas are considered a strict requirement of the specification.

Bidders taking "total exception" to these specifications, providing specifications not in this order, or sub-standard offers for in-stock apparatus are hereby advised that any such offer will result in immediate rejection of the bid proposal.

The Authority does not, in any way, obligate itself to accept the lowest bid.

Proposals may be rejected for any alteration, erasures or penciled entries. No Bidder may withdraw their proposal for at least thirty (30) days after the scheduled closing time for the receipt of bids.

Y__N__

CONTRACT AWARD

The contract will be awarded to the most "responsible Bidder" provided that bid is in the best interest of the Authority.

When analyzing bid proposals and in recommending a successful Bidder, superior design, workmanship, materials, operating costs, location of factory, past experience, length of incorporation and compliance to specifications will be taken into consideration.

A Dun & Bradstreet financial rating will be used at the discretion of the Authority, as a determining factor of the financial strength and stability of the manufacturing company being bid. The Bidder shall include in their bid proposal the Dun & Bradstreet number and contact person at the Body Builder's financial banking company. This documentation shall demonstrate to the Authority the financial stability of the manufacturing company and display an example of future service and customer support.

These specifications, together with any other documents required herein, shall be included in the contract executed between the Authority and successful Bidder. Each Bidder shall submit a copy of their proposed contract form. If there is any deviation or misunderstanding of the published specification, the Authority's published specifications will override the vendor's specification in all cases.

The Authority reserves the right to waive any formality in the bids received, when such waiver is in the best interest of the Authority and, also, to accept any item in the bid found to be of superior quality or otherwise preferred by the Authority. In no way will the Authority assume any liability for the contractor's negligence.

Y__N__

PROPOSAL GUARANTEE

Each proposal must be accompanied by a Bidder's Bond or Cash in the amount of **10%** of the bid submitted as a proposal guarantee, which is agreed by the Bidder/Contractor will be forfeited in the event this proposal is accepted and the contract is not executed. The Bid Bond shall be signed by an Officer of the manufacturing company being bid. Personal or Company checks are not acceptable as a Bonding medium.

All Bidders must have the ability to provide the requested Bidder's Bond and Performance Bonds when called for in these specifications. Companies who are only able to provide Supply Bonds in lieu of Performance Bonds will not be considered.

The bid bonds shall be provided only by the fire apparatus manufacturer and not by a local supplier or chassis company.

Y__N__

PERFORMANCE BOND

A 100% Performance Bond, which guarantees delivery AND performance **must be supplied** by the successful Bidder at the time of award of contract. Supply Bonds will not be accepted in place of the requested Performance Bond. The Bond must be supplied by the manufacturer of the apparatus. Bonds furnished by salesmen or other agents will not be accepted. THE BIDDER SHALL INDICATE THE INTENTION TO PROVIDE THE REQUIRED PERFORMANCE BOND IN THE PROPOSAL PACKET.

The Performance Bond shall be supplied by the apparatus body builder and not by the dealer or any other sub-contractor. The surety company must be listed in United States Treasury District Circular #570 and licensed in the State of Washington.

Y__N__

DESIGN REQUIREMENTS

Specified design features of the apparatus have been carefully selected because of their safety, integrity and consistency with existing apparatus. It is expected that all Bidders will adhere to the compartmentation layout, etc., since these features can be produced by all fire apparatus manufacturers.

All aspects of the vehicle shall be properly engineered with priority given to firefighter safety, as well as ease of operation and maintenance of the apparatus. The vehicle shall be free from hazardous protrusions, angles or sharp corners that might bring injury to a firefighter or equipment. Previously delivered units will be judged for compliance to these factors.

All water, air, fuel, hydraulic and/or oil lines on the chassis and apparatus shall be properly located and securely tie wrapped, to prevent scuffing or abrasion. Durable-type grommets or loom material shall be used to protect the lines wherever a line passes through the apparatus body or frame rail sections.

All grease fittings, bleeders, filler plugs, drains and check points shall be located so as to be easily accessible. No special tools shall be required to access these components for normal service or maintenance of the vehicle.

All parts and components on the vehicle shall be positioned for ease of inspection and recognition of wear or failure. Easily removable access or cover plates shall be provided for all items requiring periodic service or adjustment. Access panels shall be of the hinged or quick disconnect design, allowing ease of access.

Design of the apparatus shall be such that no disassembly of the body or any of its parts is required for normal maintenance.

All components of the chassis and apparatus shall be protected against rain, snow or other adverse weather conditions.

Y__N__

ENGINEERING BLUEPRINTS

The manufacturer must submit "proposal" blueprints which are "representative" of the vehicle being proposed, and these have been generated on computer-aided-design (CAD) equipment. The blueprints submitted shall be on "B" size paper, 11" x 17" in size and views are on 1/16" to 1" scale.

The blueprints are provided as follows:

Sheet No. 1: Left side exterior view
 Right side exterior view
 Rear exterior view

The manufacture shall provide construction drawings for approval prior to actual construction of the vehicle.

The design of the equipment is in accordance with the best engineering practices. The equipment design and accessory installation shall permit accessibility for use, maintenance and service. All components and

assemblies shall be free of hazardous protrusions, sharp edges, cracks or other elements, which might cause injury to personnel or equipment.

All oil, hydraulic and air tubing lines and electrical wiring shall be located in protective positions properly attached to the frame or body structure and shall have protective loom or grommets at each point where they pass through structural members, except where a through-frame connector is necessary.

Parts and components will be located or positioned for rapid and simple inspection and recognition of excessive wear or potential failure. Whenever functional layout of operating components determines that physical or visual interference between items cannot be avoided, the item predicted to require the most maintenance shall be located for best accessibility.

Y__N__

ADDITIONAL ENGINEERING - TOP VIEW OF APPARATUS

The manufacturer shall submit additional engineering blueprints which have been produced by the manufacturer on CAD equipment. The blueprints submitted are exactly to Authority's specifications and are on "B" size paper, 11" x 17" in size and views are on 1/16" to 1" scale.

The blueprints are provided as follows:

Sheet No. 1: A top view of the exterior of the apparatus.

Y__N__

PRE-CONSTRUCTION CONFERENCE AT THE AUTHORITY

A pre-construction conference shall be conducted at the North Mason Regional Fire Authority Headquarters, at which time all final designs and equipment mounting locations will be approved, prior to any sheet metal being cut. A factory-trained dealer shall be present during the pre-construction conference to answer any design questions relating to the layout of the apparatus. All expenses for travel, meals and lodging shall be included. THE BIDDER SHALL INDICATE THE INTENTION TO PROVIDE THE REQUIRED PRE-CONSTRUCTION CONFERENCE IN THE PROPOSAL PACKET.

Y__N__

INSPECTION TRIPS

One (1) Final Inspection trip for two (2) Authority personnel shall be made to the facility during the course of construction of the apparatus. The successful Bidder shall consult with the Authority committee chairperson as to the proper timing of the inspection trip. Air travel (for distances over 250 miles), meals and lodging expenses shall be included. THE BIDDER SHALL INDICATE THE INTENTION TO PROVIDE THE REQUIRED INSPECTION TRIP IN THE PROPOSAL PACKET.

Y__N__

IN PROCESS PHOTOS

The vehicle manufacturer shall provide a series of photos of the apparatus as it progresses through the production process. There will be a minimum of four (4) photos per interval and a minimum of six (6) intervals, one (1) upon chassis arrival, four (4) during construction and one (1) upon completion.

Y__N__

COMPLETION DATE

Bidders shall indicate in their proposals, the number of working days for delivery of the completed apparatus, from the date of bid acceptance and signed production specifications by the Authority. Any Bidder who "exaggerates or submits false statements of delivery" shall be held liable to the Authority.

Y__N__

APPARATUS AND EQUIPMENT

Responsibility for the apparatus and all equipment shall remain with the Bidder/Contractor until the apparatus and equipment is delivered to the Authority. The Authority will be responsible for providing all equipment items required by NFPA that are not otherwise addressed in these specifications. These items shall be installed by the Authority.

Y__N__

DELIVERY

The apparatus shall be delivered complete and ready for operation. To ensure proper break-in of all components, the apparatus shall be delivered under its own power; rail or truck freight is not acceptable. Final delivery of the completed apparatus shall be made free on board (FOB) North Mason Regional Fire Authority Headquarters.

Y__N__

ACCEPTANCE TESTS AND REQUIREMENTS

Acceptance tests on behalf of the Authority shall be prescribed and conducted prior to delivery or within ten (10) days after delivery, by the manufacturer's representative, in the presence of such person or persons as the Authority may designate in the requirements for delivery.

The apparatus, loaded with a full complement of hose and personnel, a full water tank and equipment as specified in "Carrying Capacity" on this page, shall meet the tests on paved roads, dry and in good condition. Tests shall be on the basis of two runs, in opposite directions over the same route, the engine not operating in excess of the manufacturer's maximum rpm.

From a standing start, through the gears, the vehicle shall attain a true speed of 35 mph within 25 seconds. From a steady speed of 15 mph the vehicle shall accelerate to a true speed of 35 mph within 30 seconds.

The vehicle shall attain a minimum top speed of 50 mph on a level road. The apparatus shall be able to maintain a speed of at least 20 mph on any grade up to and including 6%.

The manufacturer's pump test and certification tests shall be conducted by the manufacturer in accordance with requirements of NFPA 1901. Certificate of testing shall be furnished to the Authority.

Y__N__

UNDERWRITERS LABORATORIES TESTING

Any test equipment required or expense incurred for the ULI pump test shall be borne by the Bidder/Contractor supplying this equipment.

Underwriters Laboratories (UL) will be the only testing authority approved by the Authority. Any statements of "Third Party Tested" will not be acceptable. The original notarized copy shall be delivered to the Authority upon completion.

There will be no exceptions to this requirement due to legal obligations by the North Mason Regional Fire Authority.

Y__N__

FAILURE TO MEET TESTS

In the event the apparatus fails to meet the test requirements on the first trial, a second trial may be made at the option of the Bidder/Contractor within thirty (30) days of the date of the first trial. Such trials will be final and conclusive, and failure to comply with these requirements will be cause for rejection. Failure to make changes as the Fire Chief and/or the Authority may consider necessary to conform to any clause of the specifications within thirty (30) days after notice is given to the Bidder/Contractor, shall also be cause for rejection of the apparatus.

Y__N__

TRAINING

North Mason Regional Fire Authority personnel shall be properly instructed as to the proper use of the apparatus including, but not limited to, chassis, fire pump system, the apparatus and all equipment. Training shall be made by a factory-trained specialist who will be responsible for complete instruction on operation and maintenance of the chassis and the completed vehicle.

The training specialist shall remain at the Authority for a sufficient amount of time to provide thorough training of all personnel, or as instructed by the Fire Chief. All meals, motel and travel costs shall be the responsibility of the successful Bidder.

Y__N__

PAYMENT

The final payment amount, as per the proposal contract of the completed fire apparatus, will be due at the time of physical possession of the completed apparatus. Due to insurance liability, the apparatus will not be left at the Authority's location without full acceptance and payment or prior agreement between the Authority and Bidder. Final delivery price shall not include any Local, State or Federal taxes. The Bidder shall not be liable for any State or Federal mandated tax or program after sale or delivery of the apparatus.

Y__N__

AUTHORIZED REPAIR FACILITY

All Bidders must specify in their bid proposal the location of the authorized Warranty and Repair Facility nearest the Bidder. Enclosed in the bid packet will be the name of the company, person or persons of contact to authorize the repairs, the complete address with City, State and Zip Code and the phone number including area code. There shall be an Insurance Certificate identifying the coverage made available to the Authority to protect the interest of the new fire apparatus while undergoing possible repairs at the Bidder's facility. In no way will the Authority assume any liability for the contractor's service facility negligence. The Authority reserves the right to inspect the facilities to be made available for possible repairs.

Y__N__

AUTHORIZED REPAIR PERSONNEL

All Bidders shall show they are in a position to render prompt service and furnish replacement parts throughout the useful life of the apparatus. All repair personnel shall be professionally trained on all components on the completed apparatus. The factory-trained personnel shall provide and serve in the best interests of the Authority. The Authority reserves the right to make the final determination as to the Bidder's ability.

Y__N__

LOCAL SERVICE CENTER & INSURANCE REQUIREMENTS

The local warranty service center and dealer must submit with their bid proposal their company's Certificate of Insurance indicating their insurance coverage. The insurance shall be a minimum amount of one (1) million dollars with coverage attained with a minimum of one (1) million dollars underlying insurance. The submitted certificate shall name the Bidding company, insurance company, policy number and effective dates of the insurance policy. Bids submitted without the required Certificate, or for Certificates listing less than one (1) million dollars of underlying coverage, will be considered nonresponsive and automatically rejected. No exceptions are allowed to the minimum insurance coverage requirement. This protects the interest of the purchaser and equipment.

Y__N__

MANUFACTURER INSURANCE REQUIREMENTS

Each Bidder must submit with their bid proposal a Certificate of Insurance listing the proposed manufacturer's product liability insurance coverage. **The insurance certificate must be made with the purchaser's legal name and full description.** Liability insurance shall be a minimum amount of fifteen (15) million dollars. The submitted Certificate shall name the apparatus manufacturer, insurance company, policy number and effective dates of the insurance policy. Bids submitted without the required Certificate, or for Certificates listing less than fifteen (15) million dollars, will be considered nonresponsive and automatically rejected. No exceptions are allowed to the minimum insurance coverage requirement.

The manufacturer shall maintain full insurance coverage on the purchaser's cab and chassis from time of first possession by the manufacturer until the apparatus is delivered to the Authority. No exceptions. The Authority reserves the right to require proof of insurance from the manufacturer's insurance carrier prior to entering into a contract for the apparatus.

Y__N__

NFPA 2016 STANDARDS

The apparatus shall comply with the NFPA standards effective January 1, 2016.

Certification of slip resistance of all stepping, standing and walking surfaces shall be supplied with delivery of the apparatus.

A plate that is highly visible to the driver while seated shall be provided stating the overall height, length and gross vehicle weight rating.

The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications.

Y__N__

ENGINEERED APPARATUS

The apparatus shall be designed and the equipment mounted with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and equipment will be carried without injury to the apparatus. **Weight balance and distribution shall be in accordance with the NFPA and the Society of Automotive Engineers.**

Special consideration will be given to accessibility of various components that require periodic maintenance, ease of operations and symmetrical proportions. A detailed, accurate weights and balance chart will be submitted with the proposal for the exact apparatus as proposed.

The completed apparatus shall be designed for all vehicles weight laws in the state of operation by the Authority.

Y__N__

CENTER OF GRAVITY

The center of gravity (CG) is defined as the center of an object's weight distribution, where the force of gravity can be considered to act. It is the point in any object about which it is in perfect balance, no matter how it is turned or rotated around that point.

A calculated CG chart and documentation shall be provided in the Bidder's proposal. The calculated or measured CG shall be no higher than 80% of the rear axle track width.

The apparatus, prior to acceptance, must meet the vehicle stability requirements of the applicable NFPA Automotive Fire Apparatus Standard.

The vehicle shall be designed and equipment mounted with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including a full complement of personnel, shall be carried safely without injury to the vehicle. The complete vehicle must comply with the requirements of the RCW 46.44.190.

Y__N__

MAX HEIGHT

The maximum height of the apparatus shall not exceed: 10'

Y__N__

MAX LENGTH

The maximum length of the apparatus shall not exceed: 31' 11"

Y__N__

MAX WIDTH

The maximum width of the apparatus shall not exceed: 96"

Y__N__

MAX WHEELBASE

The maximum wheelbase of the apparatus shall not exceed: 191"

Y__N__

ANGLE OF APPROACH

The angle of approach for the apparatus shall not be less than eight (8) degrees as specified by the current edition of NFPA 1901.

Y__N__

ANGLE OF DEPARTURE

The angle of departure for the apparatus shall not be less than eight (8) degrees as specified by the current edition of NFPA 1901.

Y__N__

NFPA PUMPER EQUIPMENT ALLOWANCE

In compliance with NFPA 1901 standards, the apparatus shall be engineered to provide and allow of 2,500 pounds of Authority provided loose equipment.

Y__N__

CARRYING CAPACITY

The GAWR and GCWR or GVWR of the chassis shall be adequate to carry the fully equipped apparatus, including full water and other tanks, the specified hose load, unequipped personnel weight, ground ladders and miscellaneous equipment allowance according to NFPA recommendations.

A permanent placard shall be affixed and visible to the driver stating the maximum number of personnel the vehicle is designed to carry.

The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit.

A CAD produced weight chart of the exact apparatus being proposed must be furnished with the bid. Since the weight chart is required of all Bidders, any bid submitted without a drawing as specified will be considered nonresponsive and automatically rejected.

The weight chart must be a large size, 8-1/2" X 11" minimum and shall be of the exact apparatus as proposed, not a chart of another similar unit. All submitted charts will become a part of the bid proposal.

Y__N__

STATIC LOAD SEAT TEST INFORMATION

The model of seats installed shall have successfully completed the static load tests set forth by FMVSS 207/210. This testing shall include a simultaneous forward load of 3,000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats installed in the cab, as specified, shall 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 shall be a 95th percentile hybrid III male weighing 225 pounds, rather than the 50th percentile male dummy weighing 165 pounds.

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

Y__N__

CAB TEST INFORMATION

The cab as built shall have successfully completed the pre-load 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.

Roof Crush

The cab shall be subjected to a roof crush test of 120,000 pounds, exceeding the requirements of ECE 29 criteria. The 120,000 pound requirement is important to ensure the most structurally sound and safe cab, in the event of a crash or rollover incident.

Side Impact

The cab shall be subjected to a dynamic moving barrier slammed into the side of the cab at 7.5 mph, striking with an impact of 15,157 foot pounds of energy. This test will closely represent the forces a cab would incur in a rollover incident.

Frontal Impact

The cab shall withstand a frontal force produced from a moving barrier slammed into the front of the cab, traveling at 10.5 mph, striking with an impact of 42,587 foot pounds of energy.

The same cab shall withstand all tests without any measurable intrusion into the survival space of the occupant area.

The above tests shall have been witnessed by and attested to by an independent third party. The test results shall have been recorded using cameras, high speed imagers, accelerometers and strain gauges.

Documentation of the testing shall be provided upon request by the Authority.

One (1)

Y__N__

CAB INTEGRITY CERTIFICATION

The manufacturer shall provide a cab crash test certification with this proposal, including SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading for Heavy Trucks and SAE J2420 COE Frontal Strength Evaluation - Dynamic Load for Heavy Trucks.

One (1)

Y__N__

USB STORAGE

The chassis shall come with an on-board USB flash drive. The flash drive shall have a minimum of 8 GB of storage capacity and be located behind the access panel on the driver side kick panel, next to the data port for the engine.

The following items shall be stored on the Flash Drive. (NO EXCEPTION)

- As built wiring diagrams
- Plumbing diagram
- Chassis, body and aerial manuals

The USB shall be accessible through a USB-A to USB-B cable.

One (1)

Y__N__

ROAD SAFETY KIT

One (1) 2-1/2# ABC DOT approved fire extinguisher shall be provided. The fire extinguisher shall be shipped loose with the chassis.

One (1) set of DOT approved hazard triangles shall be supplied with the chassis. They shall be stored in a plastic case and shipped loose with the chassis.

One (1) first aid kit.

One (1)

Y__N__

CAB – CUSTOM STYLE

The cab shall be a custom, cab-over-engine style, with the driver and officer positions ahead of the engine and front axle. The cab shall be specifically designed and manufactured for the fire service industry, to meet the unique, heavy-duty construction specifications.

The raw cab will be fabricated by a company with no less than fifty (50) years' experience building custom cabs. All aspects of the cab will be quality reviewed by the manufacturer's personnel, and all cab and chassis customization and assembly will take place on the manufacturer's premises.

The cab shall be of a totally-enclosed full tilt design, with the interior area completely open, improving visibility and verbal communication between the occupants. The cab shall be capable of tilting 45-degrees, allowing the chassis engine to be removed, if required, without tilting the cab beyond 45-degrees. (NO EXCEPTION)

The cab shall include a four (4)-point rubber isolated cab pivot and mounting system. The rear histic mounts shall be isolated from the chassis frame, to reduce the transfer of road vibrations

and frame torque into the cab, while providing superior handling characteristics. No solid mounted rear lock downs are acceptable. (NO EXCEPTION).

The front cab pivot assemblies shall be 1/2" A36 steel plate with a .31" thick 2-1/2" diameter tube cross member mechanically attached to the cab and frame. There shall be two (2) greaseable rubber isolated engineered bushings to reduce the transfer of road vibrations into the cab.

The cab shall be locked down by a two (2)-point automatic spring-loaded hook mechanism that actuates after the cab has been lowered.

The cab super-structure shall be designed with high strength 6061-T6 Aluminum extrusions. This shall include the "A", "B", "C" and "D" extruded pillars, triple wall front end reinforced by 3/16" thick x 2"x3" extrusion tubes, 3/16" side walls and 3/16" flat Aluminum plate rear wall and roof.

The "A" pillar shall be of a closed section, one (1)-piece extrusion extending from the cab header to the bottom of the cab, to ensure strength and superior resistance to buckling in the event of a frontal impact. Additional cab strength shall be obtained through closed section, dual extrusions in the construction of the "D" pillars.

The rear wall of the cab shall offer a seamless wrap around style on each of the rear corners, to prevent water entering the cab and provide additional rigidity.

The outside cab width shall measure 96" across. The interior cab width shall measure 90".

The cab length shall measure 77.3" from the center of the front axle to the front cab skin and 60" from center of the front axle to the back of the cab, for a total cab length of 137.3".

The cab shall also feature ample driver and officer foot room, with a minimum of three (3) square feet for the driver and four (4) square feet for the officer. (NO EXCEPTION)

The crew floor shall feature a complete flat floor design, including provisions for a one o'clock PTO inclusion, while maintaining a minimum of 21 uninterrupted total square feet of space.

The leading edge of the cab floor from the steps shall meet NFPA 15.7.4 slip resistance requirements on both the front and rear cab doors. (NO EXCEPTION)

The cab shall meet or exceed cab impact test (SAE J-2420), cab rollover test (SAE J2422) and cab seating requirements (FMVSS 210, and FMVSS 208).

Y ___ N ___

ROOF STYLE - 8" RAISED

The cab roof design shall incorporate an angled front roof, transitioning into a rolled extrusion for a swept back design.

The roof height shall feature an 8" raise starting over the driver and officer positions and continuing back to the roof and rear wall joint. The roof of the cab shall feature dual 3/16" thick interlocked structural member extrusions running the entire width of the cab, to defend against buckling in the event of a rollover.

The cab header shall feature dual 6061-T6 Aluminum extrusions for superior rigidity and strength.

The raised roof shall offer a crew head height area of 63-1/2” from the floor to the ceiling in the crew areas, for optimum headroom. The crew roof super structure shall include a reinforcement extruded stock tubing structure 1/8” thick 5052-H32 Aluminum bracing. The for-aft support braces will be 22” on center apart; the side-to-side support braces will stretch from cab side to cab side and be centered between the dual 3/16” extruded and plate reinforced roll-cage section.

The forward cab roof section shall include a combination of 1/8” 6061-T6 extruded tube reinforcements and an extruded tube structure 1/8” thick 5052-H32 Aluminum bracing. The bracing shall wrap the entire perimeter of the cab forward roof and the condenser support structure.

A drip rail shall be provided along the top radius of each cab side, to prevent water from the cab roof running down the cab side.

One (1)

Y__N__

DRIP RAIL EXTENSION

The cab shall have a drip rail extension in front of the driver and officer doors. The drip rail shall be connected to the rail along the roof and run midway down the “A” pillar, to prevent water from entering the cab when the front doors are open. The rail shall be painted to match the cab exterior paint and paint break.

One (1)

Y__N__

DRIVER SIDE EMS COMPARTMENT

The driver side of the cab shall feature a compartment designed for housing emergency medical equipment. The compartment shall be located immediately behind the driver's seat; the interior shall measure 23"wide x 36" tall x 24" deep (measured from the exterior door).

The compartment shall have a minimum of 11 cubic feet of storage. (NO EXCEPTION)

One (1)

Y__N__

DRIVER SIDE EMS COMPARTMENT – EXTERIOR HINGED DOOR

The EMS compartment shall feature:

- A hinged box pan style exterior compartment door
- A hidden, piano style stainless steel door hinge, mounted inside the panel of the door to prohibit dirt and debris from becoming trapped in the hinge
- A clear door opening of 17-1/2 " wide x approximately 36" tall
- The compartment floor shall be a sweep out design with a minimum of 11.5 cubic feet of storage. (NO EXCEPTION)

One (1)

Y__N__

EMS COMPARTMENT HANDLE

The EMS compartment handle shall be a die cast steel, black door handle.

One (1)

Y__N__

EMS COMPARTMENT LOCKS

The door handle shall include an integral manual door lock, which may be unlocked from the exterior with a key.

One (1) Y__N__
COMPARTMENT SHELF

One (1) adjustable shelf, constructed from aluminum, shall be installed in the interior cab compartment.

One (1) Y__N__
DRIVER EMS COMPARTMENT INTERIOR FINISH

The interior of the driver side EMS compartment shall be finished with the same product and color as the cab coating.

One (1) Y__N__
DRIVER EMS CAB COMPARTMENT LIGHTING

The driver side EMS compartment shall include one (1) 18" strip of LED lighting, located in the inside front corner of the compartment near the door.

One (1) Y__N__
OFFICER SIDE EMS COMPARTMENT

The officer side of the cab shall feature a compartment designed for housing emergency medical equipment. The compartment shall be located immediately behind the officer seat; the interior shall measure 18-1/2" wide x 36" tall x 23" deep (measured from the exterior door). The compartment shall feature an opening on the exterior of the cab.

The compartment shall have a minimum of 8.9 cubic feet of storage. (NO EXCEPTION)

One (1) Y__N__
OFFICER SIDE EMS COMPARTMENT – EXTERIOR HINGED DOOR

The EMS compartment shall feature:

- A hinged box pan style exterior compartment door
- A hidden, piano style stainless-steel door hinge, mounted inside the panel of the door to prohibit dirt and debris from becoming trapped in the hinge
- A clear door opening of 14.5" wide x approximately 36" tall
- The compartment floor shall be a sweep out design. (NO EXCEPTION)

One (1) Y__N__
EMS COMPARTMENT HANDLE

The EMS compartment handle shall be a die cast steel, black door handle.

One (1) Y__N__
EMS COMPARTMENT LOCKS

The door handle shall include an integral manual door lock, which may be unlocked from the exterior with a key.

One (1) Y__N__

COMPARTMENT SHELF

One (1) adjustable shelf, constructed from aluminum, shall be installed in the interior cab compartment.

One (1) Y__N__

OFFICER EMS COMPARTMENT INTERIOR FINISH

The interior of the officer side EMS compartment shall be finished with the same product and color as the cab coating.

One (1) Y__N__

OFFICER EMS CAB COMPARTMENT LIGHTING

The officer side EMS compartment shall include one (1) 18" strip of LED lighting, located in the inside front corner of the compartment near the door.

Four (4) Y__N__

CAB DOORS

The cab shall include a total of four (4) doors: two (2) forward and two (2) rear crew doors.

The forward cab doors shall be a minimum of 45" wide and have a cab structure opening of 42-1/2" wide; the rear crew doors shall be a minimum of 35" wide and have a minimum cab structure opening of 32-1/2" wide.

Each cab door shall feature:

- Superior strength and rigidity from 3/16" closed section extruded door frames
- Damping inside each door
- A rolled rubber bulb seal style gasket around the door
- Integrated, mechanical door stop
- Two (2) stainless steel door hinges with a 3/8" pin, mounted inside the panel of the door to prohibit dirt and debris from becoming trapped in the hinges
- An integrated one (1)-piece inner door assembly that includes a glass track, mounting provisions for window regulator, door handle and door panel. The inner door assembly shall be easily removed with nut inserts. Self-tapping screws will not be acceptable.

Eight (8) Y__N__

CAB STEPS

The cab steps shall meet NFPA 13-7.3 in size and slip resistance requirements.

The cab shall incorporate a two (2)-step design at each door, with a first step height of approximately 22" from the ground. The leading edge of the first step shall be 5" further outboard than the second step, to provide a staircase design for safer egress.

The front cab first step shall measure a minimum of 31" wide x 9-1/2" deep. The front cab intermediate step shall measure a minimum 33" wide x 8-1/2" deep.

The crew cab first step shall measure a minimum of 20-1/4" wide x 9-1/2" deep. The crew cab intermediate step shall measure a minimum 22-1/2" wide x 9-1/2" deep.

The top crew step shall incorporate an angle approximately midway from the rear wall to the crew door hinge, extending out of the flooring under the rear facing outer seat positions, to offer foot placement for safety while seated in this position.

Y__N__

CAB STEP TRIM

The cab steps shall include a 16-gauge 304 stainless steel construction, on the first step, closest to the ground. The stainless steel finish shall be a number 8 mirror. The step shall include a frame which is integral with the construction of the cab, for rigidity and strength. The step shall be furnished with large extruded holes to allow water and other debris to flow through, rather than becoming packed under the step. A custom diamond pattern with extrusions shall be used, offering a stylish look with plenty of grip. The middle step shall be integral with the cab in construction and shall be trimmed in 3003-H22 embossed aluminum tread plate that is 0.084" thick.

One (1)

Y__N__

CAB STEP TRIM KICKPLATE

The cab step risers at all doors, the vertical section of the steps, shall include an aluminum tread plate finish.

One (1)

Y__N__

BARRIER FREE DOORS

The cab doors shall be "barrier free" style, meaning the door shall be constructed to cover the entry down to the intermediate step, leaving the bottom step open. Each door shall provide approximately 30" of clearance from the ground to the bottom of the door, so the door may be opened without stopping due to guard rails.

The lower step well of the cab shall be painted to match the lower primary color of the cab.

Four (4)

Y__N__

DOOR HANDLES

The exterior door handles shall be constructed of die cast steel, featuring heavy duty pull style handles extended out, suitable for easy grasping with a gloved hand. The handles shall be complimentary to the cab exterior, black in color.

The interior door handle shall be a paddle style, chrome in color. The paddle shall be hinged towards the rear of the cab.

Four (4)

Y__N__

CAB DOOR LOCKS

All cab doors shall include manual door locks with keys. The door lock shall include a toggle and shall be an integral part of the interior door handle, which is red in color. The exterior door lock is integral with the door latch. The cab doors may be unlocked from the exterior with a key or through a thumb turn from inside the cab.

Four (4)

Y__N__

INTERIOR CAB DOORS

All cab doors shall feature an aluminum interior panel.

Y__N__

INTERIOR CAB DOOR FINISH

All cab doors shall be finished with a polyurethane coating for durability. The finish shall be gray in color.

Two (2)

Y__N__

INTERIOR FRONT DOOR PULL

The interior driver and officer cab doors shall each include one (1) customized cast aluminum single piece door grab pull, designed specifically for the fire service.

Each single piece door pull shall have a curved design in an "L" formation, to provide multiple points for grasping with a gloved hand. The horizontal dimension shall be a minimum of 28" and the vertical dimension shall be a minimum of 20". The door pulls shall have an ergonomic curve, making them easier to grasp when entering and exiting the cab. (NO EXCEPTION)

Each door pull shall feature secure mounting in three (3) separate locations, utilizing stainless-steel fasteners with nut inserts in each location. Self-tapping screws or other mounting techniques shall not be allowed for interior door pulls or grab handles.

Each pull shall be constructed of A356 Aluminum casting, featuring a red powder coated finish.

Two (2)

Y__N__

INTERIOR GRAB HANDLE REAR DOOR

One (1) red powder coated cast aluminum grab handle shall be provided on the inside of each rear crew door. Each handle shall extend horizontally the width of the window just above the windowsill.

The interior driver and officer rear cab crew doors shall each include one (1) customized cast aluminum single piece door grab pull, designed specifically for the fire service. Each door pull shall have an ergonomic curve, making them easier to grasp when entering and exiting the cab. (NO EXCEPTION)

Each door pull shall feature secure mounting with stainless steel fasteners with nut inserts in each location. Self-tapping screws or other mounting techniques shall not be allowed for interior door pulls or grab handles.

Each handle shall be constructed of A356 Aluminum casting, featuring a red powder coated finish.

Two (2)

Y__N__

GRAB HANDLES "A" PILLAR

There shall be two (2) additional molded 9" rubberized grab handles installed inside the front cab doors. These handles shall be located one on the driver side A Pillar and one on the officer side A Pillar.

One (1)

Y__N__

WINDSHIELD

A heated one (1)-piece, safety glass full width windshield with more than 3,228 square inches of area will be provided. (NO EXCEPTION)

The windshield shall feature:

- A completely uninterrupted view from both the driver and officer positions
- The windshield will consist of three (3) layers: the outer layer, middle safety laminate and inner layer. The .114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage.
- The windshield shall be equipped with an electronically controlled 12-volt heating element embedded in the windshield, to assist in rapid defogging and defrosting. (NO EXCEPTION)
- Easily removable for replacement using standard automotive techniques
- A frit band will be provided along with an outer trim seal on the outside perimeter of the windshield.

One (1)

Y__N__

WINDSHIELD WIPER SYSTEM

A single windshield wiper system shall be incorporated in conformance with FMVSS and SAE requirements. The outer two (2) wiper arms shall be 24" in length and include a 22" wiper blade for each arm. The inner wiper arm shall be 28" in length and include a 14" wiper blade.

The windshield wiper fluid reservoir can be filled with raising of the cab.

One (1)

Y__N__

WINDSHIELD WIPER ACTIVATION

The windshield wipers shall be activated through a switch on the driver's panel, with intermittent control.

One (1)

Y__N__

POWER WINDOW - DRIVER DOOR

The driver door shall include a window measuring a minimum of 25-3/4" wide x 25-1/8" high, from the midpoints left to right and top to bottom. The window shall have a minimum clear viewing area of 647 square inches. The glass shall include a standard automotive tint and shall completely roll into the door housing through a powered operation.

The window shall be trimmed in a black anodized aluminum ring and rubber seal, to prevent water from entering the cab when closed.

One (1)

Y__N__

POWER WINDOW SWITCHES

The driver shall have switches for each of the cab door windows. The powered windows of the officer door and each respective crew door, shall be activated by a switch on the respective door.

The switches for the driver and officer door windows shall be located in a customized door grab handle. (NO EXCEPTION)

One (1)

Y__N__

POWER WINDOW - OFFICER DOOR

The officer door shall include a window measuring a minimum of 25-3/4" wide x 25-1/8" high, from the midpoints left to right and top to bottom. The window shall have a minimum clear viewing area of 647 square inches. The glass shall include a standard automotive tint and shall completely roll into the door housing through a powered operation.

The window shall be trimmed in a black anodized aluminum ring and rubber seal, to prevent water from entering the cab when closed.

One (1)

Y__N__

REAR DRIVER SIDE WINDOW

The rear driver side crew door shall include a window measuring 25-3/4" wide x 23-1/2" high, from the midpoints left to right and top to bottom. The window shall have a minimum clear viewing area of 608 square inches. The glass shall include a standard automotive tint and shall completely roll into the door housing through a powered operation. The power window shall be activated through a switch located on the top of the door panel.

One (1)

Y__N__

REAR OFFICER SIDE WINDOW

The rear officer side crew door shall include a window measuring 25-3/4" wide x 23-1/2" high, from the midpoints left to right and top to bottom. The window shall have a minimum clear viewing area of 608 square inches. The glass shall include a standard automotive tint and shall completely roll into the door housing through a powered operation. The power window shall be activated through a switch located on the top of the door panel.

One (1)

Y__N__

CAB INSULATION

The cab shall be completely insulated from road and vehicle resonance, exterior sound and thermal intrusion. The cab insulation system shall be comprised of three separate components, each designed to ensure optimal thermal and acoustic properties are achieved. Two layers of insulation material shall be utilized in conjunction with a .2" air barrier.

The cab shall utilize at a minimum 10 mils of flexible extensional visco elastic vibration damping insulation. A minimum of .8" of SCbond Polyurethane Foam insulation shall be applied as an additional insulation between the cab skin and all interior ceiling surfaces. The insulation shall have a density of 10 lb/ft³ +/- .5 to provide better thermal and acoustic reduction properties.

The interior cab insulation system shall ensure that no seated position within the cab exceeds 72dB as certified by the manufacture. This decibel rating shall be measured with the apparatus traveling at 45 mph with all climate control settings off.

All insulation used in the construction of the cab shall be marine grade featuring longevity and resistance to degradation. Use of open cell material as the primary insulation will not be acceptable. (NO EXCEPTION)

The interior of the cab, including the rear wall and ceiling panels, shall be insulated.

One (1)

Y__N__

DAMPING INSULATION

The entire cab, including the ceiling and walls, shall include additional insulation to reduce structure-borne noise from vibration, impact and resonance within the cab.

One (1)

Y__N__

ENGINE TUNNEL INSULATION

The engine tunnel shall include an insulated barrier from noise on the underside of each tunnel surface. This barrier shall be engineered for surrounding engines. The insulation barrier shall provide an acceptable decibel level within the cab, meeting or exceeding the recommendations of NFPA 1901.

The thickness of the engine tunnel insulation shall be 1". The insulating material shall be open cell polyether-based foam with a textured surface, specifically designed for acoustic absorption. Use of aluminized faced material on the engine tunnel shall not be acceptable. (NO EXCEPTION)

The engine tunnel insulation shall be precisely cut and sealed to fit each segment on the underside of the tunnel surface. The insulation shall then be affixed by a pressure sensitive adhesive.

The insulation shall meet or exceed FMVSS 302 flammability testing.

One (1)

Y__N__

INTERIOR TRIM MATERIAL

The interior trim shall feature a 31 oz. marine grade vinyl with a tensile strength of ASTM D751 of excellent tear strength, meeting the Federal standard 191-5134 of excellent, and shall be oil resistant passing the CID-A-A-2950A requirement for no permeation.

Due to the excellent qualities of the marine grade vinyl material, no other type of interior trim shall be acceptable. (NO EXCEPTION)

The soft trim vinyl shall feature mildew resistance passing ASTM G21-90 and shall be rated to - 25 degrees Fahrenheit. The vinyl shall be flame retardant meeting California Fire Code 117, UFAC Class 1 and BIFMA Class 1 and shall have a high resistance to abrasion.

The interior of the cab and ceiling panels shall feature this soft trim and shall be gray in color.

One (1)

Y__N__

THROTTLE AND BRAKE PEDALS

The apparatus shall have suspended throttle and brake pedals.

One (1)

Y__N__

INTERIOR CAB FINISH

The interior cab shall be finished in a high-performance polyurethane coating, including the interior A, B, C and D pillars, all occupant seat frames and any surrounding surfaces extending to the ball seal around each door. This type of coating shall feature:

- Durability, scratch, chemical and abrasion resistance
- Consistent, even coverage and a uniform texture
- Resistance from fading from exposure to UV light
- Gray in color

One (1)

Y__N__

REAR WALL INTERIOR MATERIAL

The rear wall of the cab shall be coated with a polyurethane coating for a durable finish. The color shall be gray.

One (1)

Y__N__

FLOOR MAT

The interior flooring of the cab shall be covered with an advanced gray multi-layer acoustic dampening mat. The matting 3/8" thick with .19" matting and .19" closed cell foam. The floor matting shall be an open/closed cell, flexible polyurethane polyamide material with frictional dampening and dissipation properties. The mat shall be a fire and skid resistant non-wicking material.

The crew floor shall feature a complete flat floor design, including provisions for a one o'clock PTO inclusion, while still offering an uninterrupted 25 total square feet of space.

Two (2)

Y__N__

SUN VISORS

The driver and officer seats shall feature a sun visor mounted in the header over each seating position. The sun visors shall be gray tinted plastic.

One (1)

Y__N__

ENGINE TUNNEL

The distance from the back of the tunnel to the interior wall shall be 56" measured at floor level, and 61-1/2" at top of the engine tunnel. (NO EXCEPTION)

The engine tunnel shall be constructed of aluminum, offering superior durability in addition to thermal and acoustic resistance. The tunnel shall feature a polyurethane coating which shall match the dash and header in texture and color, for a consistent appearance and robust finish.

The engine tunnel shall feature:

- A low-profile design, measuring approximately 41" wide x 23" in height, measured from the crew floor.(NO EXCEPTION)
- The engine tunnel at the driver position shall be tapered design, featuring 24" clear width at floor level; the taper shall start 16" from floor level, taper inward and end at the top of the engine tunnel for a clear width of 29-1/2".
- The engine tunnel at the officer position shall be tapered design, featuring 22-1/2" clear width at floor level; the taper shall start 16" from floor level, taper inward and end at the top of the engine tunnel for a clear width of 28-1/2".
- The design shall offer a minimum of 30" for the driver and 30" for the officer, as measured from the inside door pan to the top edge of the tunnel.

One (1)

Y__N__

CAB DASH

The cab dash shall offer heavy duty, durable construction from formed aluminum. The cab dash shall be finished with an advanced polyurethane coating. The polyurethane finish shall provide a tough, flexible, impact-absorbing, chemical and abrasion-resistant, even-textured and skid-resistant surface, as well as durability and scratch resistance, even against today's advanced firefighting turnout materials. The polyurethane coating finish shall resist fading from UV light.

Cab construction shall allow for a clean, seamless dash area that reduces unnecessary joining of dash components. The design shall allow for the following features:

- For optimal heating and cooling of cab occupants, HVAC louvers shall be integrated into the gauge panel with a total of six (6) louvers – three (3) louvers pointing at the driver and three (3) louvers pointing at the officer.
- For improved safety, cab switches and controls shall be ergonomically located within easy reach of the driver when in the seated position with seatbelts fastened. This design will reduce driver distraction and increase safety.
- The officer side cab dash shall house the three (3) HVAC louvers on the officer side. This panel will also provide ergonomically located switches and controls for the officer. All controls shall be within easy reach while in the seated position with seatbelts fastened.
- Access panels on the top of the dash for both the driver and officer sides, to ease maintenance access to controls, components and gauge assemblies.
- The driver side dash shall include gauges for primary air pressure, secondary air pressure, a Pacific Insight instrumentation gauge panel and the DEF gauge as standard.
- The driver side dash shall also include two (2) lower panels to the left and right of the steering column for FMVSS switches, such as the Off/Ignition and start switches and the park brake assembly.
- The dash shall include a provision for switches to the right of the driver.
- The officer dash shall include a flat area for optional mounting cradles or brackets for a laptop computer, mobile data terminal, map compartment or clip board.
- The officer dash shall include a provision for switches to the left of the officer.

One (1)

Y__N__

CAB DASH & ENGINE TUNNEL

The cab dash and engine tunnel of the cab shall be coated with polyurethane coating for a durable finish. The color shall be black.

Two (2)

Y__N__

PAC TRAC ON REAR OF ENGINE TUNNEL

There shall be two (2) pieces of 7000 Series Pac Trac provided on the rear of engine tunnel, for the purpose of mounting equipment. The Pac Trac shall be the full width of the engine tunnel, and Pac Trac 3-Section Z-Mount brackets shall be used for installation.

Equipment brackets to be attached to the Pac Trac shall be provided by the Authority.

Two (2)

Y__N__

CUP HOLDERS

Two (2) cup holders shall be provided. There shall be one mounted on both the driver and officer sides and shall be in the forward outer portion on the upper portion of the dash.

One (1)

Y__N__

INSTRUMENTATION PANEL INLAY

The instrumentation panel inlay shall be powder coat black.

One (1)

Y__N__

CAB HEADER

The cab header shall offer heavy duty, durable construction using aluminum. The material shall be .13" thick. Non-metal construction shall not be acceptable. (NO EXCEPTION)

The cab header shall offer a finish of a polyurethane coating for a rugged design and finish. (NO EXCEPTION). The polyurethane finish shall provide a tough, flexible, impact-absorbing, chemical and abrasion-resistant, even-textured and skid-resistant surface, as well as durability and scratch resistance, even against today's advanced firefighting turnout materials. The polyurethane coating finish shall resist fading from UV light.

One (1)

Y__N__

HVAC HEATING AND COOLING SYSTEMS

The interior cab climate control shall be comprised of a triple system that shall include a defroster, a cab and crew heater and air conditioner for a complete HVAC system. The air conditioning system shall be comprised of compressor, condenser and a minimum of three (3) evaporators to provide consistent temperature control throughout the entire cab.

The system shall be rated as an Emergency Vehicle grade for the use in Fire and Rescue style vehicles and shall provide environmental air treatment in accordance with published SAE standards.

The HVAC system shall be tested and certified by the component manufacturer and a third party independent certified testing laboratory, including all three (3) systems. Documentation of test results shall be provided with the bid. (NO EXCEPTION)

The HVAC system shall be a total and complete system, providing sufficient defrosting, heating and cooling to the entire cab. The HVAC system shall meet or exceed all specified items without the use of auxiliary heating and cooling systems.

Y__N__

DEFROSTING SYSTEM

The defrosting system shall feature:

- Maximum defrost and heating performance, a 30,000 BTU heater-defroster unit with 718 CFM of air flow will be provided inside the cab.
- Easy access, a removable cover and strategic location under the center portion of the instrument panel.

- Six (6) vents located in the top forward portion of the dash, for superior defrosting properties across the entire windshield.
- A system capable of clearing 90% or more of the windshield in fifteen (15) minutes or less after a three (3) hour cold soak at 0 degrees Fahrenheit.
- A system that exceeds Flash Fogging standards set forth in the SAE Heavy duty Cab with Sleeper specifications. Documentation from a third-party testing facility shall be available upon request. (NO EXCEPTION)
- An integral aluminum frame air filter, high performance dual scroll blowers and ducts designed to provide maximum defrosting capabilities for the one (1) piece windshield.

Y ___ N ___

HEATING SYSTEM

The heating system shall feature:

- Delivery of a minimum of 82,000 BTU/hour of heat to the entire cab.
- Heat and air circulation shall be provided to the driver and officer foot area of the cab as standard through ducting in the foot well area of both positions. (NO EXCEPTION)
- Substantial air movement and heating provided to the driver and officer positions, with six (6) adjustable louvers, located in the dash, three (3) adjustable louvers directed at the driver and three (3) adjustable louvers directed at the officer.
- Dual overhead units, with five (5) adjustable louvers shall be mounted above the rear facing seat positions on the driver and officer sides of the cab.
- A minimum of 880 CFM of air flow measured at the front seated positions and 1580 CFM of air flow per side in the rear seated positions for a combined total of 4040 CFM of air flow in the cab. (NO EXCEPTION)
- The heater shall be plumbed with a shut-off valve at the engine, so that the coolant bypasses the heaters.

Y ___ N ___

AIR CONDITIONING

The air conditioning system shall feature:

- A minimum of 96,000 BTU/hour of cooling capacity to the entire cab.
- One (1) evaporator shall be located under the center dash and two (2) crew overhead evaporators located near the B-pillar on each side of the cab, allowing for greater frontal visibility for the forward-facing crew seating and more interior mounting of accessories.
- A gravity condensation drain system shall be utilized. These drains shall remove all condensation from the evaporator units and direct it to the exterior of the chassis cab for optimal performance. Systems utilizing pumps to remove condensation or gravity systems with poles or other obstructions located within the cab to route drains through shall not be acceptable. (NO EXCEPTION)
- Substantial air movement for optimum cooling shall be provided to the driver and officer positions, with six (6) adjustable louvers, located in the dash, three (3) adjustable louvers shall be directed at the driver and three (3) adjustable louvers shall be directed at the officer.
- The air conditioning system shall be capable of cooling the cab from 110 degrees Fahrenheit to 70 degrees Fahrenheit at 60% humidity in less than 30 minutes, with an engine RPM of 1400 and cool the cab from 100 degrees Fahrenheit to 73 degrees Fahrenheit at 80% humidity, after a three (3) hour heat soak. A certification document from the testing facility shall be available upon request. (NO EXCEPTION)

Proposals offering ceiling mounted evaporator units in the center of the cab above or on the engine tunnel shall not be accepted, as this is a safety consideration due to the lack of visibility and communication within the cab.

One (1) Y__N__
CAB PAINT AIR CONDITIONING CONDENSER COVER

The air conditioning condenser cover shall be constructed out of aluminum and shall be painted to match the roof color. Plastic condenser covers will not be acceptable. (NO EXCEPTION)

One (1) Y__N__
HEATER HOSE

The heater hose inside the cab for the HVAC system shall be premium silicone hose.

One (1) Y__N__
CONDENSER

The cab air conditioning system shall include one (1) low profile HE-condenser, centered forward on the roof of the cab.

One (1) Y__N__
REAR CREW AREA CONTROLS

The controls for the crew area heat shall be mounted overhead, centered between the rear facing seating positions.

One (1) Y__N__
SEAT AND SEATBELT COLOR

Each seat in the cab shall be black in color, with a red seatbelt.

One (1) Y__N__
DRIVER SEAT

The driver seat shall be a 911 Seats XL, wide series seat.

Standard features of this ten (10)-way Non SCBA 3pt ABTS (all belts to seats) include 108 degree recline, adjustable headrest, wide contoured back with two (2)-way adjustable lumbar. Electronic adjustments include fore/aft, up/down, front/rear tilt.

The seat shall feature an XL 21” wide comfort cushion, including Seats Incorporated exclusive EVC (elastomeric vibration control) to ease tailbone pressure and enhance comfort while reducing vibration by up to 50%. This system has Seats Inc’s D2 (dual density) foam, combining a soft topper foam pad and a high-density bottom foam base, to enhance comfort and promote longevity.

This seat shall have a seven (7) year manufacturer’s warranty. (NO EXCEPTION)

The cushion shall be reinforced with French seaming and is NFPA compliant with an occupancy sensor.

One (1) Y__N__
DRIVER SEATBELT DUAL RETRACTOR

The seat shall feature 3pt ABTS (all belts to seats). The seatbelt shall feature Ready Reach, to ensure the seatbelt is easy to see and grab while in full turnout gear, as well as a dual seatbelt retractor.

One (1) Y__N__
DRIVER SEAT BACK

The seat back shall incorporate a standard style headrest.

One (1) Y__N__
DRIVER SEAT MOUNTING

The driver's electric seat shall be installed in an ergonomic position in relation to the cab dash. The power seat installed in the cab shall be wired directly to battery power.

One (1) Y__N__
DRIVER SEAT MATERIAL

The seat shall include a covering of Endurance Vinyl; the vinyl shall be high strength and easy to clean.

One (1) Y__N__
DRIVER SEAT BACK LOGO

The seat back shall include the manufacturer's logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

One (1) Y__N__
DRIVER SEAT BOX STORAGE COMPARTMENT

There shall be a storage area under the driver seat. The compartment shall be 21-1/4" wide x 22-1/2" long x 6-1/4" high. The access opening shall be 15" wide x 4-1/2" high.

One (1) Y__N__
ALUMINUM ACCESS DOOR

There shall be an aluminum door cover provided for the driver and officer seat compartment. The door shall be coated to match the interior of the cab and equipped with a piano style hinge and manual latch.

One (1) Y__N__
OFFICER SEAT

The officer's seat shall be a 911 Seats Incorporated XL, wide series seat.

Standard features of this six (6)-way 3pt ABTS non-SCBA (all belts to seats) include 108 degree recline, adjustable headrest, wide contoured back. Electronic adjustments include fore/aft and up/down.

The seat shall feature an XL 21” wide comfort cushion, including Seats Incorporated exclusive EVC (elastomeric vibration control) to ease tailbone pressure and enhance comfort while reducing vibration by up to 50%. This system has Seats Inc’s D2 (dual density) foam, combining a soft topper foam pad and a high-density bottom foam base, to enhance comfort and promote longevity.

This seat shall have a seven (7) year manufacturer’s warranty. (NO EXCEPTION)

The cushion shall be reinforced with French seaming and is NFPA compliant with an occupancy sensor.

One (1) Y__N__

OFFICER SEATBELT DUAL RETRACTOR

The seat shall feature 3pt ABTS (all belts to seats). The seatbelt shall feature Ready Reach, to ensure the seatbelt is easy to see and grab while in full turnout gear, as well as a dual seatbelt retractor.

One (1) Y__N__

OFFICER SEAT BACK

The seat back shall incorporate a standard style headrest.

One (1) Y__N__

OFFICER SEAT MATERIAL

The seat shall include a covering of Endurance Vinyl; the vinyl shall be high strength and easy to clean.

One (1) Y__N__

OFFICER SEAT BACK LOGO

The seat back shall include the manufacturer's logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

One (1) Y__N__

OFFICER SEAT BOX STORAGE COMPARTMENT

There shall be a storage area under the officer’s seat. The compartment shall be 19-3/4” wide x 17-1/2” long x 6-1/4” high. The access opening shall be 9” wide x 4-1/2” high.

Two (2) Y__N__

FORWARD FACING CREW SEATS

Two (2) forward facing crew area seats shall be 911 Seats Incorporated XL, wide series fixed bottom seat.

The seats shall feature a 21” wide XL comfort cushion including Seats Incorporated exclusive EVC (elastomeric vibration control), to ease tailbone pressure, enhance comfort and reduce vibration by up to 50%. This system has Seats Inc’s D2 (dual density) foam, combining a soft topper foam pad and a high-density bottom foam base, to enhance comfort and promote longevity. Seats to include wide comfort back with contoured foam.

The seats shall have a seven (7)-year manufacturer’s warranty. (NO EXCEPTION)

The cushion shall be reinforced with French seaming and is NFPA compliant with an occupancy sensor.

The seatbelts shall be oriented from outboard in.

Two (2) Y__N__
CREW SEATBELT DUAL RETRACTOR

Each seat shall feature 3pt ABTS (all belts to seats). The seatbelts shall feature Ready Reach, to ensure that the seat belt is easy to see and grab while in full turnout gear, as well as a dual seatbelt retractor.

Two (2) Y__N__
CREW SEAT BACKS

The seat back shall incorporate a standard style headrest.

Two (2) Y__N__
CREW SEAT MOUNTING FORWARD FACING CENTER

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

Two (2) Y__N__
CREW SEAT MATERIAL

The seats shall include a covering of Endurance Vinyl; the vinyl shall be high strength and easy to clean.

Two (2) Y__N__
CREW SEAT BACK LOGOS

Each seat back shall include the manufacturer's logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

Two (2) Y__N__
CREW SEAT FRAME FORWARD FACING

The forward facing center seats shall include seat risers, located and installed on the track along the rear wall.

The seat box shall be constructed of no less than 5052-H32 .19" thick aluminum plate.

Two (2) Y__N__
CREW SEAT COMPARTMENT FINISH

The seat frame shall be powder coated black.

One (1) Y__N__
CREW SEAT MOUNTING TRACK

The cab shall include an integrated track mounting system that shall accommodate the forward-facing seats or compartments. The track shall be designed to allow the seats or compartments

infinite side to side adjustability. Any cab that has fixed seat mounts such as boxes or benches, or requires the removal of hardware shall not be acceptable. (NO EXCEPTION)

The track system shall include an extruded 60D ethylene propylene monomer rubber, installed in the open areas of the track to prevent debris from getting in the floor tack system.

One (1)

Y__N__

FORWARD FACING OUTER THEATER SEAT-DRIVER SIDE

There shall be one (1) forward facing 911 Seats Inc. flip up theater seat, mounted in the forward-facing outer position. It shall be mounted to the rear wall and have a three (3)-point red seat belt attached to the rear wall of the cab.

The seat cushion shall be covered with an Endurance Vinyl type material. There shall be covered padding mounted on the rear wall behind seat. The seat cushion shall be black.

Four (4)

Y__N__

EXTERIOR GRAB HANDLES

One (1) 18” anti-slip exterior assist handle shall be mounted behind each of the cab doors. The grab handle shall be mounted on stanchions, be constructed of aluminum and be 1-1/4” diameter, with a knurled finish to enable non-slip assistance with a gloved hand. The handles shall be mounted to the cab with nutserts. (NO EXCEPTION)

One (1)

Y__N__

CAB FASCIA

The cab fascia shall offer a traditional, yet aggressive appearance, in its design and shall be constructed of work-hardened 5052-H32 aluminum. This design shall feature:

- A super structure that is fully welded to the cab, for a seamless and robust integration.
- Thermoformed headlamp bezels, constructed of impact resistant, polycarbonate composite, vacuum-metalized to eliminate peeling and bubbling of a chrome type film or plating.
- Traditional style headlight bezels with 4 x 6 high intensity headlights to add a classic look to the fascia while improving visibility.
- The turn signal lights shall be located in the lower outboard portion of the head lamp bezel with a warning light in the lower inboard position.

One (1)

Y__N__

FRONT GRILLE

A prominent 3-dimensional front grille shall punctuate the aggressive design of the cab with its outboard wing style warning light bezels and heavy framework. The front grille shall feature:

- Fabricated construction for superior strength and durability.
- Stainless-steel mirror finish for a distinctive appearance.
- Up to a minimum of four (4) warning light locations along the mid bar, for a variety of combinations.

One (1) Y__N__
LIGHT BEZEL

The front grille shall include wing light bezels that are able to house two (2) 4" x 6" lights. The bezels shall be constructed of a stainless steel material.

One (1) Y__N__
GRILLE LOGO

The front grille shall include the manufacturer's logo.

One (1) Y__N__
FRONT GRILLE INLAY

The front grille shall include a honeycomb inlay of steel, painted black, to provide air flow through the grille along with a sporty, muscular appearance.

The horizontal bars shall be overlaid with polished stainless steel strips.

One (1) Y__N__
FLUID FILLS

The engine oil and power steering fluid checks shall be accessible through the grille. The transmission fluid level check shall be checked through the selector pad. The fluid fills shall be located under the cab. The windshield washer fill shall be accessible through the front left side mid step. (NO EXCEPTION)

One (1) Y__N__
HEADLIGHTS

A quadruple headlight assembly shall be provided in the fascia, to enhance the look.

Y__N__
HEADLIGHT LOCATION

The headlights shall be located on the front fascia in the upper buckets, on each side of the cab grille.

Y__N__
HEADLIGHT FLASHER

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 parking brake is engaged.

One (1) Y__N__
HEADLIGHT FLASHER SWITCH

The alternating high beam headlamp switch shall be located on the driver console.

One (1) Y__N__
DAYTIME RUNNING LIGHTS

The daytime running light feature shall include the headlights on low beam, the marker lights illuminated and a wig-wag or alternating feature.

Two (2) Y__N__
FRONT TURN SIGNALS

Two (2) Whelen Series 600 LED square front turn signal assemblies shall be supplied. Each turn signal shall be mounted in an attractive façade style bezel that is an integral part of the fascia.

TURN SIGNAL LOCATION Y__N__

The turn signals shall be located on the front fascia directly below the headlights, one each side of the cab grille.

Two (2) Y__N__
SIDE MARKER LIGHTS

Two (2) Weldon amber LED round, side marker light assemblies shall be mounted on the side of the cab ahead of the driver door, adjacent to the front head lamp bezel.

Five (5) Y__N__
FRONT MARKER LAMPS

The cab front shall include five (5) LED amber marker lamps above the windshield, in accordance with the Department of Transportation requirements.

One (1) Y__N__
HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlight and marker lights shall be activated through a switch on the driver panel.

Two (2) Y__N__
CAB FENDERS

The cab wheel wells shall include full width, 14-gauge 304, stainless steel cab fenders coated in black Line-X. The inner line shall measure 18" wide and be constructed of plastic with an outer fenderette measuring 2-1/2" wide. The inner liner shall be installed with 410 stainless steel hardware that has been coated with black zinc oxide.

One (1) Y__N__
MANUFACTURER LOGO

A manufacturer's logo shall be installed on each side of the chassis cab.

Two (2) Y__N__
FRONT MUD FLAPS

The cab and chassis shall be provided with rubber front mud flaps.

CAB TILT SYSTEM

The cab shall be a full tilt style. A hydraulic cab lift system shall be provided, consisting of an electric-powered hydraulic pump, dual lift cylinders and necessary hoses and valves.

The dual lift cylinders shall lift the cab 45 degrees from a horizontal plane, facilitating easy engine maintenance and removal.

The tilt angle shall allow access to the engine and area under the cab without contacting any components mounted to the gravel shield.

The center line of the cab tilt pivot shall be a minimum of 75.2" from the center line of the front axle, providing a 27" corridor between the cab and front tire, for maximum work space and accessibility to fan, fan belt, fan drive, air compressor, power steering pump, alternator and air filter.

The front cab pivot substructure shall be constructed from 1/2" and 3/8" A36 steel plate with a .31" thick 2-1/2" diameter structural tube cross member welded in place to bridge the tunnel opening.

The cylinders shall be a standard centerline lug style with a 2.5-inch diameter rod with spring loaded anti-rattle devices at the upper and lower pins, to eliminate road-going rattles.

The cab shall include a four (4)-point rubber isolated cab pivot and mounting system. The rear surface effect mounts shall isolate the cab from the chassis frame, to reduce the transfer of road vibrations and frame twist into the cab, while providing superior handling feedback.

There shall be two (2) greaseable engineered urethane rubber bushings at the cab pivot, to isolate the front of the cab from chassis-borne vibrations.

The cab shall be locked down by a two (2)-point positive pin-locked rotary latch mechanism that automatically actuates after the cab has been lowered. No spring-loaded rear lock downs shall be acceptable. (NO EXCEPTION)

The cylinders shall include velocity fuses that prevent unexpected motion with or without pushing control buttons. In the event of a hydraulic system failure, the velocity fuses shall retain the fluid in the cylinders.

A redundant mechanical stay arm shall be automatically engaged once the cab has been fully raised. This device must be disengaged using the stay arm control located on the driver's side rear of the cab before lowering the cab.

All mounting points shall be bolted directly to the frame rail or frame extensions.

The cab lift system shall be interlocked with the parking brake. The cab tilt mechanism shall be active only when the parking brake is set and the battery master switch is in the on position. If the parking brake is released, the cab tilt mechanism shall be disabled.

A remote mounted manual back-up pump shall be installed in the event of a system failure of the cab tilt electric pump.

A warning light shall illuminate in the cab instrument panel, to indicate whenever the cab is not fully latched in the locked down position and the parking brake is released.

One (1)

Y__N__

CAB TILT LIMIT SWITCH

An adjustable cab tilt limit switch shall be included with the cab tilt system. The switch shall effectively limit the cab's travel, to avoid impact with bumper mounted items or station ceiling clearance when being tilted.

There shall be a safety bar to hold the cab at the new adjusted height for additional safety.

One (1)

Y__N__

CAB TILT LOCK DOWN INDICATOR

The cab dash shall include a message located within the dual air pressure gauge which shall alert the driver when the cab is unlocked and ajar. The alert message display will cease 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 shall sound when the cab is unlocked and ajar and the parking brake is released.

Two (2)

Y__N__

REARVIEW MIRRORS

Retrac Aerodynamic West Coast style dual vision mirror heads model 613820 shall be provided and installed on each of the front cab doors. The mirrors shall be mounted with 1" diameter tubular stainless-steel arms, to provide rigid mounting and reduce vibration.

The mirrors shall measure 8" wide x 19" high and include an integral convex mirror in the mirror head, below the flat glass to provide wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The flat and convex mirrors shall be heated for defrosting in severe cold weather conditions.

The mirror backs shall be constructed of vacuum formed chrome plated ABS plastic housings that are corrosion resistant, and shall include an amber marker light. The mirrors shall be manufactured with the finest quality non-glare glass.

One (1)

Y__N__

REARVIEW MIRROR REMOTE ACTIVATION

The driver panel shall include activation for the rearview mirrors' remote function. The driver panel shall also include a switch activating the mirrors to be heated.

Y__N__

CAB TWO TONE PAINT

The cab surface shall be thoroughly washed with grease cutting solvent (PPG DX330) prior to any sanding. The cab surface shall then be sanded and minor imperfections filled and sanded. The prepared surface shall then be washed again with (PPG DX330), to remove any contaminants from all surfaces to be painted.

The first coating to be applied shall be a pre-treat epoxy primer (.5 to 1.0 dry film build) for maximum adhesion to the body material. The next two (2) to four (4) coats shall be a polyurethane primer resurfacing agent (PPG F4936). The film build shall be 4 to 6 mils when dry.

The primer coat, after appropriate dry time, shall be sanded with 320-600 grit sandpaper to ensure a maximum gloss finish. The last step shall be an application of at least three (3) coats of PPG FDG polyurethane two (2)-component color (single stage). The film build shall be 2 to 3 mils when dry. The single stage polyurethane shall provide a UV barrier to prevent fading and chalking.

The cab shall then be painted with the specific colors designated by the Authority with a minimum thickness of 2 mils of finished paint, followed by a clear top coat not to exceed 2 mils.

One (1) Y__N__
CAB PAINT UPPER

The upper or secondary cab color shall be PPG Black color.

One (1) Y__N__
CAB PAINT LOWER

The lower or primary cab color shall be PPG Red color.

CAB PAINT EXTERIOR BREAKLINE

Y__N__

The upper and lower paint shall meet on the cab, starting at the grille under the wings, travelling 6" below the cab windshield and approximately 5" under the driver, passenger and crew door windows.

One (1) Y__N__
CAB UNDERCOAT

The cab shall have an undercoat applied prior to the cab being set on the running gear. The under coat shall be a waterborne, one-component, air dry undercoat formulated to prevent chipping, cracking and marring of painted or unpainted surfaces after exposure to high impact sand, gravel or other abrasive materials. It shall also have high corrosion resistance.

Two (2) Y__N__
PAINT SPRAY OUT

The Authority shall be supplied with a paint spray out for approval prior to the cab being painted.

One (1) Y__N__
FRONT AXLE

The front axle beam shall be rated to carry 20,000 lbs. and consist of a fabricated box cross section construction with 100ksi plate and continuous beam architecture to minimize stress points for added durability. The box shaped cross section resists horizontal, vertical and twisting forces more effectively than traditional I-beam axles, while helping to reduce dynamic camber and toe changes. A traditional I-beam axle shall not be considered.

The axle shall incorporate a removable kingpin feature for ease of kingpin serviceability. The knuckles shall allow for compatibility with disc brakes mounted at the 12 o'clock position and with drum brakes, and allow for wheel cut up to 45 degrees. They shall also utilize premium kingpin bushings and seals to provide enhanced protection from the elements, improving bushing life.

The axle shall be warrantied for five (5) years or five hundred thousand (500,000) miles whichever comes first. (NO EXCEPTION)

One (1)

Y__N__

FRONT WHEEL BEARING LUBRICATION

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

One (1)

Y__N__

FRONT SUSPENSION

The suspension shall consist of multi-leaf parabolic springs with double wrapped front eye, packaged within an integrated clamp group that allows for ease of OEM assembly onto the axle beam and reduced part count. The clamp group bolts are tightened on the top of the clamp group, as opposed to the traditional U-bolt on the bottom, making it easier to access with a torque wrench for servicing.

The spring shall also include a lower shock attachment with an upturned eye. The springs will contain threaded pin bushings to allow simplification of spring alignment, long service life and improved ride quality. The suspension and spring geometry will be optimized to provide improved bump steer and Ackermann.

Two ZF Sachs twin-tube shocks shall be provided with the front suspension assembly. The shocks shall be specially developed for parabolic leaf springs with a digressive characteristic curve using a patented piston system. The shocks shall feature multi-stage piston and base valves. The combination of valves shall achieve the desired damping characteristics that are ideal for the application. The suspension shall be rated for a minimum of 20,000 lbs. (NO EXCEPTION)

One (1)

Y__N__

POWER STEERING GEAR WITH ASSIST

The power steering gear shall be a TRW model TAS 85 and shall include the following:

- A balanced, hydraulic, positive displacement, sliding vane power steering pump that is gear driven from the engine
- One (1)-piece, 2" diameter drag link for maintaining consistent wheel alignment, resulting in less maintenance.
- The steering gear shall be mounted on a plane that is at a 9-degree angle in relationship to the center plane of the chassis.

A certified torque and geometry study by TRW shall be available upon request.

One (1)

Y__N__

CHASSIS ALIGNMENT

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

Alignment documentation shall be available upon request.

- One (1) Y__N__
FRONT AXLE CRAMP ANGLE
 The chassis shall have a front axle cramp angle of 45 degrees to the left and right.
- One (1) Y__N__
FRONT TIRES
 The front tires shall be Good Year 38565R 22.5 G296 MSA “J” tubeless radial.
 The front tires shall feature:
- A stamped load capacity of 18,740 pounds per axle with a speed capacity of 68 miles per hour when properly inflated to 120 pounds per square inch.
 - Deep 23/32” tread helps put more wearable rubber on the road for enhanced mileage.
 - Severe service compound helps resist cuts, chips and tears and offers enhanced mileage.
 - Deep, wide circumferential grooves with more than 500 biting edges help promote all-season traction on wet, snowy and dry roads.
 - Optimized tread design helps reduce road noise for a quiet ride.
- Two (2) Y__N__
TIRE BALANCING
 There shall be counter-acting balancing beads used in all of the tires.
- One (1) Y__N__
FRONT WHEELS
 The front wheels shall be Accuride hub piloted, 22-1/2” x 12-1/4” steel wheels. The hub piloted mounting system shall provide easy installation and include two (2)-piece flange nuts. The front rims shall be limited to 23,000 lbs.
- One (1) Y__N__
WHEEL PAINT
 The wheels shall be painted black in color. The paint code shall be PPG FDG 9000.
- One (1) Y__N__
FRONT BRAKES
 The chassis shall include Meritor brand front brakes that are 16-1/2" x 6" S-cam drum type. The front brakes shall include brake chambers supplied by Meritor and shall be approved per application.
- Y__N__
- FRONT BRAKE SLACK ADJUSTERS**
- The front brakes shall include Meritor automatic slack adjusters, installed on the chassis. The automatic slack adjusters shall feature a manual adjusting nut that cannot be inadvertently backed off, as well as threaded grease fittings for easy serviceability.
- Y__N__

FRONT BRAKE DUST SHIELDS

The front axle shall be equipped with brake dust shields.

One (1)

Y__N__

STEERING COLUMN AND WHEEL

The cab shall include a Douglas Autotech steering column. The steering column shall feature an 18", four (4) spoke steering wheel located at the driver's position with a five (5) position tilt and 2-1/4" telescopic adjustment. The steering wheel shall be provided with a black vinyl cover with foam padding and a horn button, self-canceling turn signal switch, four (4)-way hazard switch and headlamp dimmer switch.

The chassis shall include a dual electric 12-volt horn with a minimum 110 decibels.

One (1)

Y__N__

REAR AXLE

A Meritor RS-24-160 driving axle shall be incorporated as the rear axle for the chassis. The axle shall feature:

- Rated capacity of 24,000 pounds
- Heavy duty Hypoid gearing
- Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology
- Rigid differential case
- Rectangular shaped, hot-formed housing with a standard wall thickness of 1/2" at spring seat
- Two (2)-year warranty

Y__N__

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

Y__N__

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

One (1)

Y__N__

REAR SUSPENSION

The single rear axle shall feature a Reyco 79KB vari-rate, self-leveling captive slipper type parabolic multi-leaf spring suspension, with 57-1/2" x 3" springs. One (1) adjustable and one (1) fixed torque rod shall be provided.

The rear suspension capacity shall be rated at 24,000 pounds, based on the capacity of the brakes and rear tires.

One (1)

Y__N__

REAR BRAKES

The rear brakes shall be Meritor 16-1/2" x 7" S-cam drum type.

The rear brakes shall include brake chambers supplied by Meritor and shall be approved per application.

Y__N__

REAR BRAKE DUST SHIELDS

The rear brakes shall be equipped with brake dust shields.

Y__N__

REAR BRAKE SLACK ADJUSTERS

The rear brakes shall include Meritor automatic slack adjusters installed on the axle. The automatic slack adjusters shall feature a manual adjusting nut that cannot be inadvertently backed off, as well as threaded grease fittings for easy serviceability.

One (1)

Y__N__

REAR SHOCK ABSORBERS

Shock absorbers shall be supplied by the suspension manufacturer and installed on the rear axle suspension.

One (1)

Y__N__

REAR TIRES

The rear tires shall be Goodyear 11R 22.5 16PR "H" tubeless radial G622 RSD all weather tread.

The rear tires shall feature:

- A stamped load capacity of 24,020 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 120 pounds per square inch

Four (4)

Y__N__

TIRE BALANCING

There shall be counter-acting balancing beads used in all of the tires.

One (1)

Y__N__

REAR WHEELS

The rear wheels shall be Accuride hub piloted, 22-1/2" x 8-1/4" steel wheels. The hub piloted mounting system shall provide easy installation and include two (2)-piece flange nuts.

Two (2)

Y__N__

WHEEL PAINT

The wheels shall be painted black in color. The paint code shall be PPG FDG 9000.

One (1)

Y__N__

VALVE STEM EXTENSION - SINGLE AXLE

To allow for easy checking and inflation of the rear inner tire, it shall be equipped with a multi-layer valve stem extension. The layers shall be as follows: starting from the inner to out layer, stainless steel metal core, air tube, stainless steel jacket, protective color.

One (1)

Y__N__

VEHICLE TOP SPEED

The top speed of the vehicle shall be programmed at approximately 68 MPH +/-2 MPH at governed engine rpm.

One (1)

Y__N__

BRAKE SYSTEM

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

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

A four (4)-sensor, four (4)-modulator Anti-lock Braking System (ABS) shall 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. The electronic monitoring system shall incorporate diagonal circuitry to monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Automatic Traction Control (ATC) shall also be installed on the single rear axle. The ATC system shall apply the ABS when the drive wheels lose traction. The system shall scale the electronic engine throttle back, to prevent wheel spin while accelerating on ice or wet surfaces.

The system shall come with air manifold.

One (1)

Y__N__

MUD / SNOW SWITCH

A momentary switch shall be provided and properly labeled "mud/snow". The switch shall be a rocker switch on a point to point truck or in the Vista on a V-Mux truck. When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.

The switch will be in Vista on V-Mux Trucks.

One (1)

Y__N__

AIR TANK BRACKETS & STRAPS

The air tank shall be mounted to the frame rail with brackets that are hot dipped galvanized, thereby creating a barrier and cathodic protection from corrosion. Powder coated or painted air tank brackets shall not be accepted. (NO EXCEPTION)

All air tank straps shall be plastic coated stainless steel cable. (NO EXCEPTION)

One (1)

Y__N__

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 system shall include an anti-compounding feature.

One (1)

Y__N__

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted on the driver side dash to the right of the steering column within easy reach of the driver.

One (1)

Y__N__

AIR DRYER

The brake system shall include a Wabco System Saver 1200 Plus air dryer with an integral 100-watt heater with a Metri-Pack sealed connector. The system shall have an integrated purge volume and integrated governor.

The system shall have the following features:

- Premium desiccant, providing greater water adsorption
- Replaceable spin-on cartridge for simple maintenance
- Compact light weight design
- Pressure relief safety valve
- Turbo cut-off valve for boosted compressor applications
- Service components are external for easy replacement
- Common service components proven for reliability and quality
- Integrated with the air governor

One (1)

Y__N__

AUXILIARY AIR TANK

An auxiliary air reservoir shall offer a 1200 cubic inch reservoir, isolated with a 90 PSI pressure protection valve on the reservoir supply side, to prevent depletion of the air to the air brake system.

One (1)

Y__N__

MOISTURE EJECTORS

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

One (1)

Y__N__

AIR SUPPLY LINES

A dual air system plumbed with color coded reinforced nylon tubing air lines shall be installed on the chassis. The primary (rear) brake line shall be green, the secondary (front) brake line orange, the parking brake line yellow and the auxiliary (outlet) will be black, in accordance with SAE standards. (NO EXCEPTION)

Brass push-lock type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

One (1)

Y__N__

FRAME

The chassis frame shall consist of single “C” style parallel rails, constructed of high strength, low alloy and shall feature the following:

- A Stenx **MODEL 110XF** 10.19” high x 3.63” deep cold rolled steel frame or equivalent.
- The 10.19” frame height shall be maintained throughout the entire length of the frame, to allow for maximum storage capacity for the entire apparatus.
- If frame rails that are larger than those specified are to be utilized, the maximum height of each frame rail shall not exceed 10.25” at any point on the frame rail. This will ensure the lowest possible vehicle cg, allowing maximum stability and lowest body height possible.
- Frame rail shall have a consistent frame web throughout the entire length.
- The entire frame rail design shall be manufactured in North America and readily available on the aftermarket.
- Grade 8 Structural fasteners, Huck bolts shall not be acceptable. (NO EXCEPTION)
- The hardware used for the chassis shall be corrosion resistant. The process shall be dip-spin-bake coated with two coats of zinc/aluminum metal flake coating in an inorganic binder. Coating one is to be zinc flake and coating two is to be aluminum flake. The zinc flakes sacrificially corrode to protect the base metal. The aluminum flakes prolong the life of the zinc. Salt fog test life, based on ASTM B117 on unassembled fasteners, is 1,000 hours to red rust. The same test on assembled fasteners is 750 hours to red rust. The two-step coating is RoHS compliant, as it eliminates the hexavalent chromium used in the passivation of electroplated zinc coatings to create yellow zinc (zinc dichromate). The elimination of the zinc plating also greatly reduces the likelihood that hydrogen embrittlement will occur. (NO EXCEPTION)
- Manufacturer's lifetime warranty

The frame ratings shall be as follows:

- 110,000 PSI minimum yield strength, high strength low alloy steel
- Minimum Resisting Bending Moment (RBM) of 1,860,000-inch pounds per rail

To avoid frame cracking and failure over time, the top flange of the frame adjacent to the engine installation shall have a tapered design. Notches for engine components shall not be accepted due to fatigue and the potential for cracking. (NO EXCEPTION)

Y__N__

UNDER-FRAME REINFORCEMENT

An under slung frame reinforcement shall be installed below the frame rails in the transmission area to increase the vertical rigidity of the frame.

The under-frame reinforcement provides:

- Enhanced handling
- Improved ride quality
- Increased resistance to frame and cross member fatigue
- Enhanced vehicle stability, providing improved safety to occupants

Y__N__

CROSS MEMBERS

There shall be a minimum of seven (7) steel plate cross members installed on the apparatus.

- 50,000 psi minimum yield strength steel plate cross members
- Manufacturer's lifetime warranty to match frame warranty. (NO EXCEPTION)
- Installed with one-piece cross member gusset, to maximize vertical strength and minimize cross member flex
- Cross members can be inverted when required, to allow for PTO drive line installation without the need for notching or modifying the cross members in anyway. (NO EXCEPTION)

Y__N__

FRONT FRAME EXTENSION

A single piece 80,000 PSI steel extension shall be installed on the front of the frame rails.

- Reduces frame flex which translates into improved vehicle handling and ride quality
- Designs using multiple piece, bolted together extensions will not be acceptable since they are prone to more flexing, possible frame failure and cab cracking
- Allows radiator to be removed through the bottom of the frame extension without tilting the chassis cab
- Minimizes damage to the chassis cab in the event of frontal impact accident
- Maintains structural integrity of the chassis frame rails while attaching bumper extensions of varying lengths
- Splayed or notched frame rails and/or extensions shall not be accepted
- Provides foundational strength and stability of the cab tilt system which provides superior access to engine and cooling components

One (1)

Y__N__

FRAME FINISH

The frame shall be powder coated to resist weather, dirt and other corrosive material.

One (1)

Y__N__

FRONT BUMPER SUCTION PROVISION

The bumper apron shall include a 5" stainless steel pipe intended for use as a suction intake for the pump. The suction pipe shall be routed from the right hand front bumper area to the area near the back of the cab.

The front of the suction pipe shall be designed to extend 1-1/2" horizontally into a compartment in the right hand side of the bumper apron and shall include a half moon scallop in the bumper face forward of the pipe.

The forward end of the suction pipe shall be finished with a 5" National Pipe Thread (NPT). The rear of the suction shall include a Victaulic groove for connecting to the pump plumbing. The suction pipe shall also include a 1/2" NPT port intended as a primer assist connection.

The apparatus manufacturer shall plumb the suction pipe to the pump and shall provide all valves as required.

One (1)

Y__N__

ENGINE

A Cummins L9 9.0-liter, four-cycle diesel fueled, turbo charged engine shall feature the following:

- One of the highest power to weight ratios in its class
- Heavy duty replaceable wet liners, roller followers, bypass oil filtration with replaceable spin-on cartridge and targeted piston cooling, for longer service in tough work environments
- Improved cooled EGR system
- 543 Cubic inches of displacement
- High pressure common rail fuel system, producing a precise quantity of fuel at ultra-high pressures
- Fully integrated, robust electronic engine controls
- Electric fuel lift pump. (NO EXCEPTION)

The engine shall be coupled with a Holset VGT™ (Variable Geometry Turbocharger).

The engine shall be filled with Citgo brand Citgard 500 (or equivalent) SAE 15W40 CJ4 low ash engine oil for proper engine lubrication.

The engine shall be EPA certified to meet the 2017 emissions standards without compromising performance, reliability or durability using cooled exhaust gas recirculation and selective catalytic reduction technology.

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

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

Y__N__

ENGINE PLACEMENT

The engine shall be a maximum of 36" from the center line of the front axle to the front face of the engine block. The engine valve cover shall be a maximum of 23" from the top of the frame.

The engine shall be mounted in a position that provides for the lowest possible height of the interior engine tunnel. An engine tunnel height from the floor of the chassis cab shall be no more than 21” high inside the cab.

One (1)

Y__N__

AIR COMPRESSOR

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

One (1)

Y__N__

AIR GOVERNOR

An air governor shall be provided, to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be integrated in the air dryer assembly.

Y__N__

HORSEPOWER

The engine shall have 400 horsepower at 2100 RPM, with a governed speed of 2200 rpm.

The engine shall have 1250-foot pounds of torque at 1400 rpm.

One (1)

Y__N__

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, one (1)-piece nine (9)-blade Horton clutched type fan drive and shroud.

When the clutched fan is disengaged, it shall facilitate improved vehicle performance, cab heating in cold climates and fuel economy. The fan clutch design shall be fail safe so that if the clutch drive fails, the fan shall engage to prevent engine overheating due to the fan clutch failure.

The clutch fan shall automatically engage in pump mode (when applicable).

One (1)

Y__N__

AUXILIARY ENGINE BRAKE

A Cummins engine compression brake, for the six (6)-cylinder engine, shall be provided. The engine compression brake shall activate upon 0% accelerator when in operation mode and activate the vehicle’s brake lights.

Y__N__

TRANSMISSION PRE-SELECT

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed.

One (1)

Y__N__

AUXILIARY ENGINE BRAKE CONTROL

An auxiliary engine brake control device shall be included. The electronic control device shall monitor various conditions and 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 auxiliary brake shall be controlled through an on/off switch and individual low/medium/high selector switches on the driver's panel.

One (1)

Y__N__

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate rpm to increase alternator output and optimize output of the HVAC system.

This device shall operate only when the master switch is activated and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal or the transmission is placed in gear, and shall be available to manually, through a switch, or automatically re-engage, when the brake is set or when the transmission is placed in neutral.

Y__N__

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle will be set at 1250 rpm. The high idle will be operational only when the parking brake is set and the truck transmission is in neutral.

One (1)

Y__N__

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter to be located behind the fascia. The filter shall protect the downstream air filter from embers, using a combination of unique flat and crimped metal screens constructed into a corrosion resistant steel frame.

This multilayered screen shall be designed to trap embers or allow them to burn out before passing through the pack, while creating only minimal air flow restriction through the system. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The intake shall also feature a cyclone-style water separator to remove unwanted moisture from incoming air.

The engine shall include an air intake filter which shall be bolted to the frame and located under the front of the cab. This dry type filter shall ensure dust and debris is safely contained inside the disposable housing, eliminating the chance of contaminating the air intake system during air filter service via a leak-tight seal.

The filter must have a capacity of no less than 950 cubic feet of air per minute. The filter paper media must be of a flame retardant treated material. An electric air filter restriction indicator shall also be included with the system.

One (1)

Y__N__

ENGINE EXHAUST SYSTEM

The exhaust system shall include a one (1)-piece diesel particulate filter (DPF), a diesel oxidation catalyst and a selective catalytic reduction catalyst (SCR) to meet current EPA standards.

The selective catalytic reduction catalyst shall utilize a diesel exhaust fluid solution, consisting of urea and purified water to convert nitrogen oxide into nitrogen, water and trace amounts of carbon dioxide. The solution shall be injected into the system between the DPF and SCR chambers.

The system shall utilize 0.065” thick stainless steel exhaust tubing between the engine turbo and the DPF.

The after-treatment canister through the end of the tailpipe shall all be connected with zero leak gasketed clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires with an exhaust gas diffuser.

The diffuser shall lower exhaust gas temperatures during the regeneration cycle.

One (1)

Y__N__

DIESEL EXHAUST FLUID TANK

There shall be a molded cross-linked polyethylene tank for the Diesel Exhaust Fluid (DEF). The tank shall have a capacity of not less than five (5) usable gallons (18.92 Liters) and shall be mounted on the left-hand side of the chassis frame in front of the batteries below the frame.

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall 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.

Y__N__

DIESEL EXHAUST FLUID TANK ACCESS

There shall be an access door provided in the top rear step of left side crew area for access to the DEF tank.

One (1)

Y__N__

ENGINE EXHAUST ACCESSORIES

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

One (1)

Y__N__

ENGINE EXHAUST WRAP

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

One (1)

Y__N__

DIESEL PARTICULATE FILTER CONTROLS

DPF system status annunciation indicator lights, installed on the driver dash shall alert the driver when regeneration is needed and when DPF is in an active re-generation cycle.

Warning systems shall provide DEF low-level warning.

The driver's dash shall be provided with two (2) controls for the diesel particulate filter; one (1) manual regeneration switch to activate a regeneration cycle manually when passive burn is unobtainable due to driving conditions and one (1) Regen "Inhibit Switch".

The switches shall be located in a covered location.

One (1)

Y__N__

ENGINE COOLING SYSTEM

The radiator and complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system requirements.

The system shall include and feature the following:

- A vertically stacked charge air cooler providing the maximum cooling capacity for the engine. Proposals offering horizontally stacked charge air cooler shall not be acceptable. (NO EXCEPTION)
- The charge air cooler and radiator shall measure not less than 1,214 square inches
- A surge tank with a low coolant probe and capable of removing entrained air from the cooling system, with built in sight glass
- Radiator re-circulation shields to prevent heated air from re-entering the cooling system and affecting performance
- Mounts allowing the entire radiator to drop through the frame for service when needed (NO EXCEPTION)
- Engine placement shall provide a minimum of 8" between the engine fan and radiator, to maximize the airflow and cooling of the engine
- A spin-on element water filter with corrosion inhibitor shall be provided for the cooling system (NO EXCEPTION)

- The coolant filter shall be provided with two (2) shut off valves, one (1) one inlet and one (1) outlet (NO EXCPTION)
- Cooling system shall be tested and certified by the engine manufacturer

Y__N__

COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include constant tension spring clamps.

Y__N__

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall 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.

Supplemental coolant additives (SCA) are not required, as this is part of the extended life coolant makeup.

One (1)

Y__N__

ADDITIONAL COOLANT SHUT OFF VALVE

An additional coolant shut off valve with connection shall be installed in the chassis coolant lines with a connector. This shall allow for the installation of an additional heater such as a pump compartment heater without draining the coolant system.

One (1)

Y__N__

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. This pump heat exchanger shall circulate water from the fire pump to the heat exchanger thereby reducing the temperature of the coolant for the engine. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant.

One (1)

Y__N__

TRANSMISSION

The drive train shall include an Allison model EVS 3000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters and Allison approved transmission fluid, which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication and transmission clutch maintenance.

The transmission gear ratios shall 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

One (1)

Y__N__

TRANSMISSION COOLING SYSTEM

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

One (1)

Y__N__

TRANSMISSION DRAIN PLUG

The transmission shall include an original equipment manufacturer installed magnetic oil drain plug.

One (1)

Y__N__

AUTOMATIC NEUTRAL

The transmission shall be provided with an automatic neutral. When the parking brake is applied the transmission automatically returns to neutral.

One (1)

Y__N__

TRANSMISSION FILTERS & FLUID

The transmission shall include two (2) internal oil filters and Allison approved transmission fluid, which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

One (1)

Y__N__

TRANSMISSION SHIFT SELECTOR

An Allison GEN V pressure sensitive range selector touch pad shall be provided and located on the tunnel, to the right of the driver. The shift selector shall provide an indicator on the digital display, alerting the driver/operator when a specific maintenance function is required.

One (1)

Y__N__

TRANSMISSION MODE PROGRAMMING

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

One (1)

Y__N__

TRANSMISSION PROGRAMMING

The EVS Vocation Package Number 198 for the fire service shall be included. This package shall incorporate an automatic neutral with selector override. This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. The transmission will detect the pump engaged signal and automatically select or

deselect fourth gear lock-up. These circuits shall be used to allow 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 nine (9) pin diagnostic connector will be provided.

The trans module shall contain the following circuits:

Function ID	Description	Wire Assignment
C1	PTO Drive Interface Output 1	142
J	Fire Truck Pump Mode (4 th Lockup)	122/123
C	Range Indicator	145 (4 th)
G1	PTO Drive Interface Output 1	130
	Signal Return	103

One (1)

Y__N__

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with Spicer 1710 series universal joints.

The shafts shall 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 shall be coated with Glide Coat®.

One (1)

Y__N__

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Fleetguard FS1098 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

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

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

One (1)

Y__N__

FUEL SYSTEM

The fuel tank shall have a capacity of fifty (50) gallons/one hundred eighty-nine (189) liters and shall measure 35” in width x 15” in height x 24” in length. The tank shall offer:

- A vent port which will facilitate venting to the top of the fill neck, for rapid filling without any “blow-back”
- Two (2) 2” NPT fill ports for left and right hand fill, with a 1/2” NPT drain plug centered side to side 9” from the front of the tank
- A roll over ball check vent for temperature related fuel expansion and draw
- A design including dual draw tubes and sender flanges
- A baffled design and constructed of steel
- A black powder coated exterior, to ensure corrosion resistance

The fuel tank shall be mounted below the frame, behind the rear axle. There shall be two (2) three (3)-piece strap hanger assemblies with “U” straps bolted midway on the fuel tank, allowing the tank to be easily lowered and removed for service purposes.

The strap hanger material shall be stainless steel. (NO EXCEPTION)

For isolation of vibration and movement, rubber isolating pads shall be provided between the tank and the hanger strap assemblies. The tank straps shall be attached to rubber coated cross members to help isolate the tank from frame flex.

Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

All fuel lines shall be connected with steel fittings with all fittings pointed towards the right side (curbside) of the chassis.

The chassis fuel lines shall feature an additional 4’ of length provided which shall be coiled and secured at the top of the tank, so the tank can be easily lowered and removed for service purposes.

One (1)

Y__N__

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be black aramid braided lines with a fiber outer braid. The fuel lines shall be connected with reusable steel fittings. The fuel line is compatible with bio-fuel blends.

Two (2)

Y__N__

FUEL SHUTOFF VALVE

Two (2) fuel shutoff valves shall be installed at the fuel filter to allow the fuel filter to be changed without loss of fuel to the fuel pump.

One (1)

Y__N__

FUEL COOLER

The cross-flow air-to-fuel cooler shall be all aluminum and shall be provided to lower fuel temperature, allowing the vehicle to operate at higher ambient temperatures. The fuel cooler shall be located behind the battery box, under the frame.

The fuel cooler shall incorporate a fan for improved heat transfer. The fuel cooler shall be mounted to the frame using hot dipped galvanized brackets. Powder coated or painted brackets shall not be acceptable. (NO EXCEPTION)

One (1)

Y__N__

ALTERNATOR

The charging system shall include a 430-Amp Delco Remy 55SI 12-volt alternator. The alternator shall feature:

- Premium brushless design, providing added durability and life
- Provide the highest efficiency resulting in less horsepower requirements
- Remote sense technology in extending the life of the battery
- 70% efficiency
- Three (3)-year warranty

ELECTRICAL SYSTEM

There shall be a 12-volt direct current single starting electrical system providing power to all components for the cab and chassis. The system shall feature:

- 300-degree Fahrenheit high temperature, flame retardant loom
- All SAE wiring color coded and labeled as to its function
- Wiring which is cross link with 311-degree Fahrenheit insulation
- A suppressed system, in accordance with SAE J551

The primary power distribution will be located forward the officer's seating position and be easily accessible while standing on the ground. Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible.

Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload.

General protection circuit breakers will be a combination of automatic and manual reset breakers. This will provide a durability and capacity maximization of the electrical system. When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125% of the maximum current, for which the circuit is protected per NFPA.

EMI/RFI PROTECTION

To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radiofrequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radiofrequency interference (RFI) emissions are suppressed at their source.

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.

EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered two (2)-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

ELECTRICAL HARNESSING INSTALLATION

To ensure rugged dependability, all wiring harnesses installed by the apparatus manufacturer will conform to the following specifications:

SAE J1128 - Low tension primary cable
SAE J1292 - Automobile, truck, truck-tractor, trailer and motor coach wiring
SAE J163 - Low tension wiring and cable terminals and splice clips
SAE J2202 - Heavy duty wiring systems for on-highway trucks
NFPA 1901 - Standard for automotive fire apparatus
FMVSS 302 - Flammability of interior materials for passenger cars, multipurpose passenger vehicles, trucks and buses
SAE J1939 - Serial communications protocol
SAE J2030 - Heavy duty electrical connector performance standard
SAE J2223 - Connections for on board vehicle electrical wiring harnesses NEC - National Electrical Code
SAE J561 - Electrical terminals - Eyelet and spade type
SAE J928 - Electrical terminals - Pin and receptacle type A

For increased reliability and harness integrity, harnesses will be routed throughout the cab and chassis in a manner which allows the harnessing to be laid into its mounting location. Routing of harnessing which requires pulling of wires through tubes will not be allowed.

Wiring will be run in loom or conduit where exposed and have grommets or other edge protection where wires pass through metal. Wiring will be color, function and number coded. Wire colors will be integral to each wire insulator and run the entire length of each wire. Harnessing containing multiple wires and using a single wire color for all wires will not be allowed. Function and number codes will be continuously imprinted on all wiring harness conductors at 3.00" intervals. All wiring installed between the cab and into the doors will be protected by an expandable rubber boot to protect the wiring. Exterior exposed wire connectors will be positive locking and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment will be installed utilizing the following guidelines:

- All wire ends not placed into connectors will be sealed with a heat shrink end cap. Wires without a terminating connector or sealed end cap will not be allowed.
- All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, 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. "Exposed area" will be defined as any location outside of the cab or body.
- For low cost of ownership, electrical components designed to be removed for maintenance will be quickly accessible. For ease of use, a coil of wire will be provided behind the appliance, to allow them to be pulled away from the mounting area for inspection and service work.
- Corrosion preventative compound will be applied to non-waterproof electrical connectors located outside of the cab or body. All non-waterproof connections will require this compound in the plug, to prevent corrosion and for easy separation of the plug.
- Any lights containing non-waterproof sockets in a weather-exposed area will have corrosion preventative compound added to the socket terminal area.

- All electrical terminals in exposed areas will have protective coating applied completely over the metal portion of the terminal.
- Rubber coated metal clamps will be used to support wire harnessing and battery cables routed along the chassis frame rails.
- Heat shields will be used to protect harnessing in areas where high temperatures exist. Harnessing passing near the engine exhaust will be protected by a heat shield.
- Cab and crew cab harnessing will not be routed through enclosed metal tubing. Dedicated wire routing channels will be used to protect harnessing, therefore improving the overall integrity of the vehicle electrical system. The design of the cab will allow for easy routing of additional wiring and easy access to existing wiring.
- All braided wire harnesses will have a permanent label attached for easy identification of the harness part number and fabrication date.
- All standard wiring entering or exiting the cab will be routed through sealed bulkhead connectors, to protect against water intrusion into the cab.

Y ___ N ___

BATTERY CABLE INSTALLATION

All 12-volt battery cables and battery cable harnessing installed by the apparatus manufacturer will conform to the following requirements:

SAE J1127 - Battery Cable

SAE J561 - Electrical terminals, eyelets and spade type

SAE J562 - Nonmetallic loom

SAE J836A - Automotive metallurgical joining

SAE J1292 - Automotive truck, truck-tractor, trailer and motor coach wiring

NFPA 1901 - Standard for automotive fire apparatus

Battery cables and battery cable harnessing will be installed utilizing the following guidelines:

- All battery cables and battery harnesses will have a permanent label attached for easy identification of the harness part number.
- Splices will not be allowed on battery cables or battery cable harnesses.
- For ease of identification and simplified use, battery cables will be color coded. All positive battery cables will be red in color or wrapped in red loom the entire length of the cable. All negative battery cables will be black in color.
- For increased reliability and reduced maintenance, all electrical buss bars located on the exterior of the apparatus will be coated to prevent corrosion.

Y ___ N ___

ELECTRICAL COMPONENT INSTALLATION

All lighting used on the apparatus will be, at a minimum, a two (2)-wire light grounded through a wired connection to the battery system. Lights using an apparatus metal structure for grounding will not be allowed.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order. The results of the tests will be recorded and provided to the Authority at time of delivery.

One (1) Y__N__

12V POWER POINTS-DRIVER

There shall be one (1) 12v power point and one (1) dual USB power point provided. They shall be mounted in the driver side of the dash. They shall be within easy reach of the driver and shall be wired directly to the battery.

One (1) Y__N__

12V POWER POINTS-OFFICER

There shall be one (1) 12v power point and one (1) dual USB power point provided. They shall be mounted in the officer's side of the dash. They shall be within easy reach of the officer and shall be wired directly to the battery.

One (1) Y__N__

DRIVER SWITCH PANEL

The driver panel to the right of the driver's position shall include the following:

- In the upper-most row on the left side, it shall have two (2) power points. Next to the power points will be the HVAC Controls, which shall include three (3) controls, the fan speed, comfort and defrost control and temperature control. In the far right position shall be the seat belt indicator.
- In the middle section there shall be eight (8) backlit switches, the switch on the far right side shall be a high idle switch.
- In the bottom row there shall be six (6) switches. The two (2) switches in the far right location shall be the dimmer switch in the second to last switch location, and the wiper controls in the last switch location.

One (1) Y__N__

MASTER WARNING SWITCH

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

One (1) Y__N__

ACCESSORY POWER DISTRIBUTION PANEL

One (1) accessory power distribution panel shall be installed. The panel shall feature a covered twelve (12)-blade type fuses and have a ground section and shall be protected by a 40-amp fuse. The panel shall be capable of carrying up to a maximum 40-amp battery direct load.

Three (3) Y__N__

COMMUNICATION ANTENNA BASE

A communications antenna base shall be provided and mounted on the cab roof.

Three (3) Y__N__

COMMUNICATION ANTENNA CABLE ROUTING

The cable routing for the communication antenna shall terminate under the dash panel.

One (1)

Y__N__

VEHICLE DATA RECORDER

Apparatus shall be equipped with a Class1 “Vehicle Data Recorder (VDR)” that is connected to the powertrain CAN (Controller Area Network) bus consisting of transmission (TCM), engine control (ECM) and anti-lock brake (ABS) modules mounted on the apparatus. The VDR will function per NFPA 1901-2009 sections 4.11 (Vehicle Data Recorder) utilizing the power train s J1939 data.

The VDR data shall be downloadable by USB cable to a computer using either Microsoft™ or Apple™ Operating Systems using Class 1/ O.E.M. supplied reporting software. The latest version of the software shall be available by contacting Class 1.

The apparatus shall be equipped with a Class 1 “Seat Belt Warning System (SBW)” that is connected to the powertrain CAN (Controller Area Network) bus consisting of transmission (TCM), engine control (ECM) and anti-lock brake (ABS) modules mounted on the apparatus. The SBW will function per NFPA 1901-2009 14.1.3.10 (Seat Belt Warning) using the Class 1 “Seat Belt Input Module” for seat occupied and belt status information.

The SBW system shall have the ability to use either normally open (NO) or normally closed (NC) switches (user selectable by “dip switches” at ground potential) for operation.

One (1)

Y__N__

CAB INSTRUMENTATION

The instrumentation panel within the cab shall feature a Pacific Insight gauge panel which shall include three (3) 5"diameter information centers, telltale indicator lamps, control switches, alarms, and an LCD diagnostic panel.

The gauges shall be easy to read including red backlighting.

The instrument panel shall contain the following gauges and indicators:

The middle information center shall include:

- A programmable speedometer to read either 0 to 140 MPH or 0 to 140 KM/H
- An amber telltale lamp indicating the Check Engine
- An amber telltale lamp indicating MIL Engine Emissions System Malfunction
- A red telltale lamp indicating Stop Engine
- A tachometer gauge with 0-3,000 RPM

The right-hand side information center shall include:

- A gauge to display the engine oil pressure with high and low-level indicators and stop engine alarm
- A fuel level gauge with a low fuel indicator and alarm
- An LED bar displaying 4 stages of the level for the Diesel Exhaust Fluid (DEF) with a refill indicator
- A voltage gauge with low voltage indicator
- A water temperature gauge with high water temp indicator and alarm

The left-hand side information center shall include:

- A primary air PSI gauge including low air and high air warning displays
- A secondary air PSI gauge with low and high air warning indication

An LCD diagnostic display, located in the left-hand side information center shall include digital readouts for the following:

- Odometer
- Transmission oil temperature
- Engine oil temperature
- Speedometer
- Engine hours
- Engine and transmission code
- Exhaust temperature
- Engine coolant temperature
- Engine oil PSI
- Turbo boost PSI
- Primary air pressure
- Secondary air pressure
- Engine load %
- Engine torque
- Battery volts
- Fuel level %
- Vehicle speed
- RPM
- DEF level
- Instant fuel economy
- Average fuel economy
- Engine hours
- Capable to record three trips, each shall be included:
 - Trip distance
 - Fuel economy
 - Fuel used
 - Idle fuel used
- The LCD screen shall also provide diagnostic capability

To promote safety, the following telltale indicator lamps will be integral to the gauge assembly and are located below the middle information center. The indicator lamps will be "dead-front" design, only visible when active. The colored indicator lights will have descriptive text or symbols. The following indicator lamps shall be located on the Telltale panel:

- *BLUE Indicator Lights*
 - High Beam Headlight
- *GREEN Indicator Lights*
 - Right Turn Indicator
 - Left Turn Indicator
 - Battery On (Always On)
- *YELLOW Indicator Lights*

- Particle Filter Regeneration (DPF)
- Regeneration Inhibit (Switch Engaged)
- Air Intake Restriction
- High Exhaust System Temperature (HEST)
- Wait to Start (when applicable)
- ATC (Automatic Traction Control) (when applicable)
- Water in Fuel
- *RED Indicator Lights*
 - Low Engine Coolant Level
 - Air Bag Warning (when applicable)
 - Check Transmission
 - High Transmission Temperature
 - ABS
 - Parking Brake

Y__N__

ALARMS

Audible steady tone warning alarm: A steady audible tone alarm will be provided whenever a warning message is present.

Alarm silence: Any active audible alarm will be able to be silenced with a button on the right side of the LCD screen.

Y__N__

INDICATOR LAMP AND ALARM PROVE-OUT

Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

Y__N__

DIAGNOSTIC PANEL

A diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved trouble shooting providing a lower cost of ownership. The panel shall be accessible while standing on the ground and located inside the driver's door, to the left of the steering column. Diagnostic switches shall allow engine and ABS systems to provide blink codes should a problem exist.

The diagnostic panel shall include:

- Engine diagnostic port
- V-Mux USB diagnostic port (when applicable)
- Engine diagnostic switch (blink codes flashed on check engine telltale indicator)
- Diesel particulate filter regeneration switch (when applicable)
- Diesel particulate filter regeneration inhibit switch (when applicable)

The enclosed diagnostic panel, accessible through the HVAC access panel shall include:

- Transmission diagnostic port
- ABS diagnostic port

- SRS diagnostic port (when applicable)

One (1)

Y__N__

BACKLIGHTING COLOR

The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting.

Four (4)

Y__N__

BATTERIES

The single start electrical system shall include four (4) 1000 CCA batteries.

The batteries shall feature:

- A 200 minute reserve capacity
- 4/0 dual path starter cables per SAE J541
- Heat shrink and sealant encapsulated ends on the cables
- Maintenance free

One (1)

Y__N__

BATTERY COMPARTMENTS

A well ventilated battery storage compartment shall house the batteries on the officer and driver side of the chassis and shall be located so as to offer easy access to the batteries when the cab is tilted.

Each battery compartment shall feature a hot dipped galvanized battery box.

One (1)

Y__N__

BATTERY CABLES

The starting system shall include cables which shall be protected by a 275 degree Fahrenheit, minimum high temperature flame retardant loom to keep out dirt, dust and debris.

One (1)

Y__N__

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver side lower step. The studs shall allow the vehicle to be jump started, charged or the cab to be raised in an emergency in the event of battery failure.

One (1)

Y__N__

IGNITION

A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a marine grade two (2)-position switch, of which shall be mounted on the left side of the steering wheel adjacent to the driver's knee.

A push button type starter button shall be provided on the driver dash to the left of the steering wheel. The starter button shall only operate when both the master battery and ignition switches are in the "ON" position.

One (1)

Y__N__

POWER & GROUND STUD

An electrical distribution panel shall include two (2) power studs. The studs shall be a minimum of 1/4" and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40-amp battery direct load. One (1) power stud shall be capable of carrying up to a 15-amp ignition switched load. The two (2) power studs shall share one (1) 1/4" ground stud.

Four (4)

Y__N__

DOOR GROUND LIGHTS

Each door shall include a Whelen 3SC0CDCR LED NFPA compliant ground light mounted to the underside of the cab step below each door.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

Y__N__

DOOR GROUND LIGHT ACTIVATION

The ground lights shall activate when the park brake is engaged.

Eight (8)

Y__N__

CAB STEP LIGHTING

One (1) LED light shall be mounted to the riser of the middle cab step, a total of eight (8) step lights for the cab, in accordance with NFPA.

Each light shall include a polycarbonate lens and shall be contained in a housing which is vibration welded with a bulb which shall be shock mounted. Each step light shall not be any larger than 3" in diameter.

Y__N__

CAB STEP LIGHT ACTIVATION

The step lighting shall be activated by opening any of the cab doors on the respective side.

Two (2)

Y__N__

ENGINE COMPARTMENT LIGHTING

Two (2) LED lights shall be mounted to the engine compartment in such a fashion as to provide as much light as possible to the engine compartment area. The engine compartment lighting shall activate with the tilting of the cab.

Four (4)

Y__N__

INTERIOR OVERHEAD CAB LED LIGHTING

Each cab door shall include a dual red and white LED lamp. There shall be one (1) light centered over each of the driver and officer seats and one (1) centered over each crew door.

The clear lamp shall illuminate with the opening of each respective door; both the red and clear portions of the lamp shall be activated by individual lighted switches on each lamp.

One (1) Y__N__

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red Whelen round LED light with a red lens clearly labeled "Do Not Move Apparatus". The flashing red light shall be 3" in diameter, located centered left-to-right for greatest visibility.

The light shall 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.

One (1) Y__N__

DOOR OPEN ALARM

There shall be an alarm interlocked for activation when the parking brake is released and either a cab door or apparatus compartment door is not completely closed.

One (1) Y__N__

BACKUP ALARM

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

One (1) Y__N__

REAR FACING CAMERA

A rear facing steel box style rearview camera shall be installed on the rear of the vehicle. All system components shall be installed by the apparatus body manufacturer. The camera and microphone shall activate when the vehicle transmission is shifted into reverse with the image viewed on a monitor.

The rear facing camera shall feature stainless steel construction, automatic heating when the temperature is below 10 degrees Fahrenheit and 150 degree lens. (NO EXCEPTION)

One (1) Y__N__

REAR FACING CAMERA MONITOR MOUNT

The driver's monitor for the camera system will be mounted on the dash.

One (1) Y__N__

BATTERY CHARGER

One (1) Kussmaul Autocharge 1200 model #091-187-12, 40 amp fully-automatic high output battery charger shall be wired to the 12-volt battery system. The charger unit shall be mounted in a clean dry area and will be accessible for service and/or maintenance.

Y__N__

BATTERY CHARGER LOCATION

The battery charger can be mounted under the forward facing seat box or other specifically identified and factory approved location.

One (1)

Y__N__

EJECTION UNIT

A Kussmaul Super Auto Eject 20-amp 120-volt shore power assembly, cover, solenoid input wire, power cord and plug shall be installed. The 12-volt solenoid shall eject the shore power cord away from vehicle path upon sensing engine start; after ejection, the weatherproof cover snaps into position over inlet. The unit shall sequence energizing of an Auto Eject, eliminating terminal arcing when connecting and disconnecting power cord.

The unit shall have a waterproof back enclosure with watertight cable fittings, to protect the mechanism from road contamination. A pre-wired three (3)-foot AC electrical cord and starting sense wire (side wired) shall be installed.

The assembly shall have the following dimensions: 6.17” high x 4.08” wide x 2.8” deep with 4 lb. weight. The assembly shall include a yellow cover, with integrated digital display supplied.

One (1)

Y__N__

ELECTRIC SIREN AND CONTROL

One (1) Whelen model #295SLSA1 electronic siren shall be mounted in the cab. This unit shall feature an electronic air horn, wail, yelp, hi-lo and shall have a hardwired PA microphone.

One (1)

Y__N__

SPEAKER

One (1) Federal Signal DynaMax 100-watt speaker, Model #ES100, shall be installed. The speaker shall feature a Neodymium driver and a high strength composite housing that is chemical resistant and maintains rigidity at high temperatures.

Y__N__

SPEAKER LOCATION

The siren speaker shall be installed on the apparatus bumper extension, as determined by the body manufacturer.

One (1)

Y__N__

SPEAKER GRILLE

One (1) stainless steel grille shall be installed on the speaker.

One (1)

Y__N__

FEDERAL MECHANICAL SIREN

One (1) Federal Signal Q2B-NN mechanical siren shall be partially recess-mounted into the center of the front bumper. The grille will be outside the bumper. The "Q" siren shall feature a highly polished chrome body and grille. The siren's distinctive mechanical wail sound shall produce 123 dB at 10'. The siren control switches shall be installed in the cab.

One (1)

Y__N__

SIREN CONTROL - HORN

One (1) siren control to activate the siren shall be provided on the driver's horn.

One (1) Y__N__
SIREN CONTROL - FLOOR

One (1) foot switch shall be provided on the officer side of the cab floor to activate the Federal Signal Q2B siren.

One (1) Y__N__
SIREN BRAKE

One (1) push button siren brake switch for the Federal Signal Q2B siren shall be provided on the officer side dash.

Two (2) Y__N__
AIR HORNS

Two (2) 24-1/2" Stuttertone chrome plated air horns shall be recess-mounted into the front bumper with one positioned on each side. An air protection valve shall be provided in the air horn piping that will not allow the chassis air brake system to drop below 90 PSI.

One (1) Y__N__
AIR HORN LANYARD

One (1) dual roof mounted pull cord shall be installed to activate the air horn system. The pull cord shall be installed within easy reach of the driver and officer.

One (1) Y__N__
LIGHTBAR

One (1) Whelen Ultra Freedom IV lightbar shall be included with the apparatus cab. The lightbar shall be a model F4N7QLED and mounted on the roof of the cab, towards the front, above the windshield.

The lightbar shall feature:

- A 72" lightbar designed for high performance
- Two (2) red Linear Super LED corner modules
- Two (2) red 400 series Linear Super LED endcap lights
- Two (2) red 400 series Linear Super LED lights
- Two (2) white 400 series Linear Super LED lights with clear optic lenses
- Clear hard coated lenses to provide extended life/luster protection against UV and chemical stresses
- Designed in accordance with NFPA Zone A requirements

One (1) Y__N__
LIGHTBAR ACTIVATION

The front upper light bar shall be activated through the master warning switch.

One (1)

Y__N__

TRAFFIC LIGHT CONTROL

One (1) Global Traffic Technologies Opticom 795H Low-Profile LED high-priority traffic light emitter and control device shall be installed and mounted in the specified lightbar. The traffic emitter shall be wired through the park brake to deactivate when the park brake is set.

Two (2)

Y__N__

UPPER REAR WARNING/SCENE LIGHTS

One (1) pair of Whelen M9 Series Model # M9V2 combination 180° warning/perimeter lights shall be provided, with one on each side of the upper portion of the rear of the body. A chrome mounting flange shall be supplied with the lights. The M9V2 shall incorporate Linear Super-LED® and Smart LED® technology.

Y__N__

The driver side warning/scene light shall be a Whelen Model M9V2RC, a M9 V-series red warning light and a perimeter light with a clear non-optic polycarbonate lens.

Y__N__

The officer side warning/scene light shall be a Whelen Model M9V2AC, a M9 V-series amber warning light and a perimeter light with a clear non-optic polycarbonate lens.

One (1)

Y__N__

UPPER REAR SCENE LIGHT SWITCHING

One (1) scene light switch with indicator shall be installed on the cab main switch panel to control the rear scene lights. The switch shall be labeled "REAR SCENE".

Y__N__

UPPER REAR SCENE LIGHT ACTIVATION

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

Two (2)

Y__N__

UPPER SIDE FRONT WARNING/SCENE LIGHTS

One (1) pair of Whelen M9 Series Model # M9V2 combination 180° warning/perimeter light shall be provided, with one on each side of the upper portion of the body side, towards the front of the body. A chrome mounting flange shall be supplied with the light. The M9V2 shall incorporate Linear Super-LED® and Smart LED® technology.

Y__N__

The driver side warning/scene light shall be a Whelen Model M9V2RC, a M9 V-series red warning light and a perimeter light with a clear non-optic polycarbonate lens.

Y__N__

The officer side warning/scene light shall be a Whelen Model M9V2RC, a M9 V-series red warning light and a perimeter light with a clear non-optic polycarbonate lens.

Two (2)

Y__N__

Each scene light shall be installed on an aluminum mounting plate, painted to match the body.

One (1) Y__N__

UPPER SIDE FRONT SCENE LIGHT SWITCHING - LEFT

One (1) scene light switch with indicator shall be installed on the cab main switch panel to control the left side scene light. The switch shall be labeled "LEFT SCENE".

One (1) Y__N__

UPPER SIDE FRONT SCENE LIGHT SWITCHING - RIGHT

One (1) scene light switch with indicator shall be installed on the cab main switch panel to control the right side scene light. The switch shall be labeled "RIGHT SCENE".

Two (2) Y__N__

UPPER SIDE REAR WARNING/SCENE LIGHTS

One (1) pair of Whelen M9 Series Model # M9V2 combination 180° warning/perimeter light shall be provided, with one on each side of the upper portion of the body side, towards the rear of the body. A chrome mounting flange shall be supplied with the light. The M9V2 shall incorporate Linear Super-LED® and Smart LED® technology.

The driver side warning/scene light shall be a Whelen Model M9V2RC, a M9 V-series red warning light and a perimeter light with a clear non-optic polycarbonate lens.

The officer side warning/scene light shall be a Whelen Model M9V2RC, a M9 V-series red warning light and a perimeter light with a clear non-optic polycarbonate lens.

Two (2) Y__N__

Each scene light shall be installed on an aluminum mounting plate, painted to match the body.

One (1) Y__N__

UPPER SIDE REAR SCENE LIGHT SWITCHING - LEFT

One (1) scene light switch with indicator shall be installed on the cab main switch panel to control the left side scene light. The switch shall be labeled "LEFT SCENE".

One (1) Y__N__

UPPER SIDE REAR SCENE LIGHT SWITCHING - RIGHT

One (1) scene light switch with indicator shall be installed on the cab main switch panel to control the right side scene light. The switch shall be labeled "RIGHT SCENE".

Two (2) Y__N__

UPPER WING FRONT WARNING LIGHTS

One (1) pair of Whelen model M6 LED warning lights shall be installed, with one on each side of the front of the chassis cabs upper wing area. The dimensions of the lights shall be 4-5/16" x 6-3/4".

The driver side warning light shall be a Whelen Model M6RC red Super-LED™ with clear lens.

Y__N__

The officer side warning light shall be a Whelen Model M6RC red Super-LED™ with clear lens.

Two (2)

Y__N__

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

Two (2)

Y__N__

INBOARD WARNING LIGHTS

One (1) pair of Whelen model M6 LED warning lights shall be installed, with one on each side of the front of the chassis cab, in the inboard warning light position. The dimensions of the lights shall be 4-5/16" x 6-3/4".

Y__N__

The driver side warning light shall be a Whelen Model M6RC red Super-LED™ with clear lens.

Y__N__

The officer side warning light shall be a Whelen Model M6RC red Super-LED™ with clear lens.

Two (2)

Y__N__

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

Two (2)

Y__N__

INTERSECTION WARNING LIGHTS

One (1) pair of Whelen model M6 LED warning lights shall be installed, with one on each side of the chassis cab. The dimensions of the lights shall be 4-5/16" x 6-3/4".

Y__N__

The driver side warning light shall be a Whelen Model M6RC red Super-LED™ with clear lens.

Y__N__

The officer side warning light shall be a Whelen Model M6RC red Super-LED™ with clear lens.

Two (2)

Y__N__

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

Two (2)

Y__N__

UPPER MID CHASSIS WARNING LIGHTS

One (1) pair of Whelen model M9 LED warning lights shall be installed, with one on each side of the chassis cab, above the side windows. The dimensions of the lights shall be 6-1/2" x 10-3/8".

Y__N__

The driver side warning light shall be a Whelen Model M9R red Super-LED™ with clear lens.

Y__N__

The officer side warning light shall be a Whelen Model M9R red Super-LED™ with clear lens.

Two (2) Y__N__
Each light shall be mounted with a Whelen Model M9FC chrome flange.

Two (2) Y__N__
LOWER MID-BODY WARNING LIGHTS

One (1) pair of Whelen model M2 LED warning lights, model M2WR, shall be installed, with one on each side of the apparatus, mid-body in the rub rail. The dimensions of the lights shall be 4-1/4" x 2-11/16".

Y__N__
The driver side warning light shall be a Whelen Model M2WRC wide-angle red Super-LED™ with clear lens.

Y__N__
The officer side warning light shall be a Whelen Model M2WRC wide-angle red Super-LED™ with clear lens.

Two (2) Y__N__
LOWER REAR SIDE WARNING LIGHTS

One (1) pair of Whelen model M2 LED warning lights shall be installed, with one on each side of the apparatus, towards the rear of the body in the rub rail. The dimensions of the lights shall be 4-1/4" x 2-11/16".

Y__N__
The driver side warning light shall be a Whelen Model M2WRC wide-angle red Super-LED™ with clear lens.

Y__N__
The officer side warning light shall be a Whelen Model M2WRC wide-angle red Super-LED™ with clear lens.

Two (2) Y__N__
LOWER REAR WARNING LIGHTS

One (1) pair of Whelen model M6 LED warning lights shall be installed, with one on each side on the lower rear of the apparatus body. The dimensions of the lights shall be 4-5/16" x 6-3/4".

Y__N__
The driver side warning light shall be a Whelen Model M6AC amber Super-LED™ with clear lens.

Y__N__
The officer side warning light shall be a Whelen Model M6RC red Super-LED™ with clear lens.

One (1) Y__N__
LOW VOLTAGE ELECTRICAL SYSTEM SPECIFICATIONS

The electrical system shall include all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The electrical equipment installed by the apparatus

manufacturer shall conform to current automotive electrical system standards, the latest Federal DOT standards and the requirements of the applicable NFPA standards.

All wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125% of the maximum current for the protected circuit. Voltage drops in all wiring from the power source to the using device shall not exceed 10%. The wiring and 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. All exposed wiring shall be protected in a loom, with a minimum 289-degree Fahrenheit rating. All wiring looms shall be properly supported and attached to body members. The electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

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

The wiring between the cab and body shall be joined using Deutsche type connectors or enclosed in a terminal junction panel area. This system will permit body removal with minimal impact on the apparatus electrical system. All connections shall be crimp-type with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather-resistant connectors shall be provided throughout, to ensure the integrity of the electrical system.

Any electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. In addition, the main body junction panel shall house the automatic reset breakers and relays where required.

There shall 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 shall be secured in place and protected against heat, liquid contaminants and damage. Wiring shall be uniquely identified every 3" by color coding or permanent marking with a circuit function code and identified on a reference chart or electrical wiring schematic per requirements of applicable NFPA 1901 standards.

The electrical circuits shall be provided with low voltage overcurrent protective devices. Such devices shall be accessible and located in required terminal connection locations or weather resistant enclosures. The overcurrent protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals and connectors shall have a direct current rating of 125% of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided, 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. A corrosion preventative compound shall be applicable to all terminal plugs located outside of the cab or body.
- The electrical wiring shall be harnessed or be placed in a protective loom.
- Holes made in the roof shall be caulked with silicone. Large fender washers shall be used when fastening equipment to the underside of the cab roof.
- Any electrical component that is installed in an exposed area shall be mounted in a manner that will not allow moisture to accumulate in it.
- 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 that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.

The warning lights shall be switched in the chassis cab with labeled switches in an accessible location. Individual rocker switches shall be provided only for warning lights provided over the minimum level of warning lights in either the stationary or moving modes. All electrical equipment switches shall be mounted on a switch panel mounted in the cab convenient to the operator. The warning light switches shall be of the rocker type. For easy nighttime operation, an integral indicator light shall be provided to indicate when the circuit is energized. All switches shall be appropriately identified as to their function.

A single warning light switch shall activate all required warning lights. This switch will allow the vehicle to respond to an emergency and "call for the right of way". When the parking brake is applied, a "blocking right of way" system shall automatically activate per requirements of the applicable NFPA standards. All "clear" warning lights shall be automatically turned off upon application of the parking brake.

Y ___ N ___

NFPA REQUIRED TESTING OF ELECTRICAL SYSTEM

The apparatus shall be electrically tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications and test results shall be submitted with delivery documentation, per requirements of the applicable NFPA standards. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a failed test.

2. Alternator performance test at idle:

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

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system is permitted during this test. However, if an alarm sounds due to excessive battery discharge, as detected by the system requirements in the NFPA standards, or a system voltage of less than 11.7 volts dc for more than 120 seconds is present, the test has failed.

4. Low voltage alarm test:

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts dc for a 12-volt system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

Y__N__

NFPA REQUIRED DOCUMENTATION

The following documentation shall be provided on delivery of the apparatus:

1. Documentation of the electrical system performance tests required above.
2. A written load analysis, including:
 - a. The nameplate rating of the alternator.
 - b. The alternator rating under the conditions.
 - c. Each specified component load.
 - d. Individual intermittent loads.

1.

One (1)

Y__N__

WEATHER RESISTANT ELECTRICAL JUNCTION BOX

The electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. In addition, the main body junction panel shall house the automatic reset breakers and relays where required. The main body junction panel shall be located in the pump compartment.

One (1)

Y__N__

DASH MOUNTED EMERGENCY ELECTRICAL SWITCH PANEL

An electrical switch panel shall be designed and mounted in the cab dash area. All switches shall be provided with backlighted snap-in legend inserts.

Y__N__

SWITCHES

All emergency light switches shall be lighted, rocker style. Switches shall be internally lit when the switch circuit is in the on position. A plug-in identification label is to be provided and installed adjacent to each rocker switch with backlighting provided behind the label.

An internally lighted "master" switch shall be provided and wired through a heavy duty relay to activate power to the emergency lights.

One (1)

Y__N__

PUMP ENCLOSURE LIGHTS

One (1) LED work light shall be provided in the pump enclosure.

Y__N__

The control switch shall be mounted on the light head.

Y__N__

PUMP ENCLOSURE LIGHT MOUNTING LOCATION

The mounting location for the pump enclosure light shall be on the front edge of the chassis cab roof.

One (1)

Y__N__

BROW SCENE LIGHT

One (1) Whelen Pioneer Plus Super LED model PFH2 dual lamp brow light shall be provided. The light shall draw 13 amps and generate 16,000 lumens. The bulb shall be accessible through the front. The lamphead shall be approximately more than 3" deep by 4-5/8" high by 14" wide. The lamphead and brackets shall be powder coated white.

One (1)

Y__N__

BROW SCENE LIGHT SWITCHING

One (1) scene light switch with indicator shall be installed on the cab main switch panel to control the front scene light. The switch shall be labeled "FRONT SCENE".

Y__N__

BROW SCENE LIGHT MOUNTING LOCATION

The mounting location for the brow scene light shall be on the rear of the cab.

Two (2)

Y__N__

SCENE LIGHTS

Two (2) Whelen Pioneer Plus Super LED model PFH2 dual lamp light assemblies shall be provided. The lights shall draw 13 amps and generate 10,000 lumens. The bulbs shall be accessible through the front. The lampheads shall be approximately more than 3" deep by 4-5/8" high by 14" wide. The lampheads and brackets shall be powder coated white.

A Fire Research 530 series side mount bottom raise telescopic light pole shall be provided. The light pole shall extend approximately 30" in height and be anodized aluminum. A knurled twist lock mechanism to secure the extension pole in position shall be included with the pole.

Two (2)

Y__N__

LIGHT SWITCH ON LAMPHEAD

A switch shall be installed on the LED light lampheads. The weatherproof on-off toggle switch shall be mounted on the lower left side of the lampheads.

Two (2)

Y__N__

SCENE LIGHT SWITCHING - LEFT

Two (2) scene light switches with indicators shall be installed on the pump panel to control the left side scene lights. The switches shall be labeled "LEFT SCENE".

Two (2) Y__N__
SCENE LIGHT SWITCHING - RIGHT

Two (2) scene light switches with indicators shall be installed on the pump panel to control the right side scene lights. The switches shall be labeled "RIGHT SCENE".

One (1) Y__N__
MARKER LIGHTS

LED marker lights shall be installed on the vehicle in conformance to the Department of Transportation requirements.

One (1) Y__N__
TAIL LIGHTS

One (1) pair of Whelen M6 LED tail/brake lights shall be provided. The rectangular 4"x6" lights shall be red.

One (1) Y__N__
REAR TURN SIGNALS

One (1) pair of Whelen M6 LED turn signals with populated sequential chevron arrow shall be provided.

One (1) Y__N__
BACKUP LIGHTS

One (1) pair of Whelen Series M6 LED backup lights shall be installed on the rear of the apparatus body. The dimensions shall be 4" x 6" and the lens color shall be clear.

One (1) Y__N__
FOUR LIGHT HOUSING

One (1) pair of chrome plated tail light housings shall be supplied. Each housing shall be designed to hold four (4) Whelen M6 rear lights located at the lower rear corners of the body.

One (1) Y__N__
MID-BODY LED TURN SIGNALS

One (1) pair of mid body LED turn signals shall be provided. The location of the turn lights shall be at mid-body near the rear wheel axle.

Two (2) Y__N__
GROUND LIGHTS – RUB RAIL

There shall be two (2), one on each side, Whelen 3SC0CDCR LED NFPA compliant ground lights mounted to the underside of the rub rail of the pump house.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

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

Two (2)

Y__N__

GROUND LIGHTS – REAR STEP

There shall be two (2) Whelen 3SC0CDCR LED NFPA compliant ground lights mounted to the underside of the rear step.

Each light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

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

Y__N__

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

Two (2)

Y__N__

REAR TAILBOARD LIGHTS

Two (2) LED step lights with clear lenses shall be installed to illuminate the step surfaces at the rear of the apparatus body.

One (1)

Y__N__

The step/walkway light switch shall be installed and wired to the parking brake.

One (1)

Y__N__

HAND LIGHTS

All NFPA required portable hand lights supplied by the Authority must be installed before the apparatus is placed into service.

One (1)

Y__N__

LICENSE PLATE BRACKET

One (1) stainless steel license plate bracket shall be provided at the rear of the apparatus. The bracket shall have an LED light.

One (1)

Y__N__

SETCOM INTERCOM SYSTEM

A Setcom Vehicle Liberator MAX system shall be installed in the cab. This shall be a Wireless system with five (5) wireless headsets. The driver and officer shall have transmit capabilities. The three (3) crew headsets shall be push to talk.

DATA & WARNING LABELS

One (1)

Y__N__

FLUID DATA PLAQUE

One (1) fluid data plaque containing required information shall be provided based on the applicable components for this apparatus, compliant with NFPA Standards:

- Engine oil
- Engine coolant
- Chassis transmission fluid

- Drive axle lubricant
- Power steering fluid
- Pump transmission lubrication fluid
- Other NFPA applicable fluid levels or data as required

Location shall be in the driver's compartment or on driver's door.

One (1) Y__N__
HEIGHT, LENGTH & WEIGHT

A highly visible label indicating the overall height, length and weight of the vehicle shall be installed in the cab dash area.

One (1) Y__N__
NO RIDE LABEL

One (1) "NO RIDERS" label shall be applied on the vehicle at the rear step area or other applicable areas. The label shall warn personnel that riding in or on these areas, while the vehicle is in motion is prohibited.

One (1) Y__N__
CAB SEATING POSITION LIMITS

One (1) label shall be installed in the cab to indicate seating positions for firefighters. A weight allowance of 250 pounds for each shall be factored into the gross vehicle weight rating of the chassis.

One (1) Y__N__
HELMET WARNING TAG

One (1) label shall be installed in the cab, visible from each seating position. The label shall read "CAUTION: DO NOT WEAR HELMET WHILE SEATED." Helmets must be properly stowed while the vehicle is in motion according to the current edition of NFPA 1901.

One (1) Y__N__
REAR TOWING PROVISIONS

There shall be two (2) tow eyes furnished under the rear of the body and attached directly to the chassis frame rails. There shall be a reinforcement spreader bar connecting the two tow eyes. Tow eyes are to be constructed of 3/8" plate steel with a 4" I.D. hole, large enough for passing through a tow chain end hook.

One (1) Y__N__
 The tow plates shall be painted black.

One (1)

Y__N__

REAR BUMPER

The chassis shall feature a heavy duty bumper constructed from ASTM A36, 1/4" thick steel and painted primary job color. The bumper shall be 12" high by 102" wide with 2" flanges and chamfered corners.

Integral heavy duty steel bumper "wings" shall extend from the bumper to the cab.

The bumper shall be mounted to a 6" long chassis frame extension.

A contoured apron/gravel shield fabricated from NFPA compliant, slip-resistant polished aluminum shall enclose the area between the bumper and the cab.

One (1)

Y__N__

TIRE PRESSURE INDICATOR

There shall be a tire pressure indicator, p/n RWTG1235, at each tire's valve stem on the vehicle that shall indicate if there is insufficient pressure in the specific tire.

One (1)

Y__N__

EXHAUST OUTLET PROVISION

Provisions shall be made for the department to install a Plymovent exhaust outlet adapter for the diesel exhaust extraction system.

Two (2)

Y__N__

REAR MUD FLAPS

Black mud flaps shall be installed behind the rear wheels.

Two (2)

Y__N__

SCBA BRACKET

Two (2) Zico SCBA brackets shall be provided for installation on the vertical surface of the rear cab wall. An NFPA approved cylinder retention strap shall be supplied.

There shall be one located in each EMS compartment.

One (1)

Y__N__

AIR SHORELINE CONNECTION

One (1) compressed air inlet fitting shall be provided for connection to an external air source to maintain the air brake pressure. The air inlet shall have a check valve installed to prevent air from escaping from the air storage tanks on the chassis.

The air inlet fitting shall be located in the driver's side step or door area.

Y__N__

SHORELINE LOCATION

The shoreline shall be mounted in the forward portion of the cab, ahead of the front door hinge on the driver side of the cab.

One (1)

Y__N__

AIR INLET SHUTOFF VALVE

One (1) shutoff valve designed to isolate the air inlet fitting shall be installed adjacent to the air inlet fitting. The 1/4 turn valve shall be labeled accordingly.

One (1)

Y__N__

WATEROUS CXVC20 SINGLE STAGE PUMP

A Waterous model CXVC20, single stage centrifugal pump shall be designed to mount on the chassis frame rails and shall be split-drive shaft driven. The pump casing shall be of high-tensile, close-grained ductile iron. The pump body shall be a single piece housing, for easy removal of impeller assembly, including wear rings and bearings from beneath the pump without disturbing the mounting or piping.

One (1)

Y__N__

IMPELLER

A matched bronze impeller specifically designed for the fire service will be provided. It will be accurately balanced both mechanically and hydraulically, for vibration-free operation. Stainless steel heat-treated and precisely ground to size. It shall be supported on both ends by oil or grease lubricated ball bearings.

Replaceable wear rings, bronze, reverse-flow, labyrinth-type shall be provided. Deep-groove ball bearings shall be located outside the pump to give rugged support and proper alignment to the impeller shaft. The bearings shall be oil or grease lubricated. All bearings shall be completely separated from the water being pumped.

Y__N__

PUMP TRANSMISSION

The housing shall be constructed of high tensile aluminum and be of three (3) piece, horizontally split design. The transmission driveline shafts shall be made from alloy steel forging, hardened and ground to size. The drive and driven sprockets shall be made of steel and shall be carbonized and hardened.

The drive chain shall be Morse HV involute form chain. The lubrication system shall be an impeller shaft driven oil pump to deliver oil to an integral spray header, to completely pressure lubricate the drive chain.

Y__N__

PUMP MOUNTING

The pump shall be bolted to steel angles in pump module, using grade 8 bolts.

Y__N__

DRIVELINE

Hollow-tube drivelines and universals shall be properly matched to the engine and transmission output torque ratings.

One (1)

Y__N__

1500 GPM FIRE PUMP SPECIFICATIONS

The centrifugal type fire pump shall be a Waterous model CXC20 midship mounted with a rated capacity of 1500 GPM. The pump shall meet NFPA 1901 requirements.

The pump shall be certified to meet the following deliveries:

1500 GPM @ 150 PSI

1500 GPM @ 165 PSI

1050 GPM @ 200 PSI

750 GPM @ 250 PSI

One (1)

Y__N__

GATED 6" INTAKE -- LEFT SIDE

One (1) 6" gated suction intake shall be installed behind the left side pump panel to supply the fire pump from an external water supply. A manually operated butterfly valve with built in adjustable relief valve shall be provided on the intake. The valve shall be manually operated with a hand-wheel control located adjacent to the intake connection.

The intake shall be provided with manual drain valves. An inlet fitting with 6" NST thread shall be provided, complete with a removable strainer screen.

One (1)

Y__N__

LEFT BLEEDER VALVE

An Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down, to close.

One (1)

Y__N__

LEFT ADAPTER

One (1) adapter shall be provided. Threads shall be a 4" Storz with lugs with manual locks x 6" swivel female NST.

One (1)

Y__N__

LEFT CAP

One (1) lightweight aluminum locking 4" Storz cap shall be provided. A chain or cable attachment shall be also supplied.

One (1)

Y__N__

GATED 6" INTAKE -- RIGHT SIDE

One (1) 6" gated suction intake shall be installed behind the right side pump panel to supply the fire pump from an external water supply. A manually operated butterfly valve with built in adjustable relief valve shall be provided on the intake. The valve shall be manually operated with a hand wheel control located adjacent to the intake connection.

The intake shall be provided with manual drain valves. An inlet fitting with 6" NST thread shall

be provided, complete with a removable strainer screen.

One (1)

Y__N__

RIGHT BLEEDER VALVE

An Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals, and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down, to close.

One (1)

Y__N__

RIGHT ADAPTER

One (1) adapter shall be provided. Threads shall be a 4" Storz with lugs with manual locks x 6" swivel female NST.

One (1)

Y__N__

RIGHT CAP

One (1) lightweight aluminum locking 4" Storz cap shall be provided. A chain or cable attachment shall be also supplied.

One (1)

Y__N__

FIRE PUMP MECHANICAL SHAFT SEAL

The Waterous fire pump shall be equipped with self-adjusting, maintenance free, "mechanical shaft seal" which is designed to be functional in the unlikely event of a seal failure.

One (1)

Y__N__

IMPELLER HUBS

The Waterous fire pump impeller hubs shall be standard bronze type.

One (1)

Y__N__

ELECTRIC/PNEUMATIC PUMP SHIFT

The fire pump shift shall be air-operated incorporating an air cylinder with an electrically actuated pneumatic switch to shift from ROAD to PUMP and back. The fire pump shift control switch and valve shall be mounted in the cab.

The fire pump shift system shall be equipped with a means to prevent unintentional movement of the control device from its set position. The system shall include a nameplate indicating the chassis transmission shift selector position to be used for pumping and located so that it can be easily read from the driver's position.

The system shall include the applicable NFPA standard interlocks, pump shift and OK TO PUMP indicator lights in the cab and pump panel. The fire pump shift system shall be equipped with an interlock system to ensure that the pump drive system components are properly engaged in the pumping mode of operation so the pumping system can be safely operated from the pump operator's position.

If applicable, the secondary braking device shall be automatically disengaged for pumping operations.

One (1)

Y__N__

PRIMER – AUTOMATIC

An automatic fire pump priming system shall be provided and installed. The system shall be oil-less type and environmentally safe. Once engaged, the system shall be fully automatic and not require any action from the pump operator/engineer when pump draft is lost. This feature provides an additional safety margin by maintaining pump flow from the available water source automatically during drafting operations. When air is introduced during a drafting operation from conditions such as whirlpools or turbulence from porta-tank refill operations, the priming system shall automatically engage to remove the air and stabilize water flow and pump pressure. For additional safety, the entire system shall operate at less than 70dBA of ambient noise.

The priming system shall engage automatically whenever the pump discharge falls below five (5) psi and shall remain engaged until a pump prime has been achieved. The priming system shall automatically disengage when a positive pump discharge pressure has been established. The electrical current draw from the chassis batteries shall not exceed four (4) amps at any given time of operation and allow for unlimited run time without causing an overheat condition for of any of the system components.

A single engagement switch shall be provided on the pump control panel that will allow the operator to engage the automatic pump priming system. There shall be a light provided on the pump control panel to indicate when the system is engaged. The pump shall be capable of taking suction and discharging water with a lift of 10' in not more than 30 seconds with the pump dry, through 20 feet of suction hose of appropriate size. The priming system shall comply with applicable sections of NFPA standards.

One (1)

Y__N__

PRIMER CONTROL

One (1) rocker switch control shall be provided on the pump operator's panel, for the main pump primer control.

One (1)

Y__N__

PRESSURE GOVERNOR AND ENGINE-PUMP MONITORING

One (1) Fire Research InControl series TGA300 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high x 10 1/2" wide by 2" deep. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

- Pump discharge; shown with four daylight bright LED digits more than 1/2" high
- Pump Intake; shown with four daylight bright LED digits more than 1/2" high
- Pressure/rpm setting; shown on a dot matrix message display
- Pressure and rpm operating mode LEDs
- Throttle ready LED
- Engine rpm; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs

- Oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission temperature: shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display.

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

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

- High Battery Voltage
- Low 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 shall be accessed via push buttons located on the front of the control panel. There shall be an USB port located at the rear of the control module to upload future firmware enhancements.

Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 psi. The intake pressure display shall show pressures from -30 in. Hg to 600 psi.

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

The pressure governor, monitoring and master pressure display shall be programmed to interface with a specific engine.

One (1)

APPROVED PUMP PANEL DRAWING

Y__N__

One (1) pump panel drawing shall be provided for approval by the Authority prior to building the pump panel.

One (1)

PUMP ANODES

Y__N__

There shall be sacrificial, zinc anodes in the pump steamer ports which shall protect the pump and piping from electrolysis. These anodes shall also act as screens.

One (1)

Y__N__

PUMP PLUMBING SYSTEM

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

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

One (1)

Y__N__

FIRE PUMP MASTER DRAIN

The fire pump plumbing system and fire pump shall be piped to a single pump panel mounted “handwheel” type master pump drain assembly. The master drain valve shall be a bronze master drain with a rubber disc seal, a universal joint and a handwheel control on the pump panel. The master drain shall also provide for low point drainage of the fire pump and auxiliary devices.

Y__N__

ADDITIONAL LOW POINT DRAINS

The plumbing system shall be equipped with additional low point manually operated drain valves to allow total draining of the fire pump plumbing system. These valves shall be accessible from the side of the vehicle and labeled for exact location.

One (1)

Y__N__

STAINLESS STEEL INTAKE MANIFOLD

The suction manifold assembly shall be fabricated with Schedule #10 type 304 stainless steel. All threaded fittings shall be a minimum of Schedule 10 stainless steel. The suction manifold assembly shall have radiused sweep elbows to minimize water turbulence into the suction volute. The suction manifold shall be welded and pressure tested prior to installation. The stainless steel manifold assembly shall be attached to the pump intake volute with a heavy duty, flexible Victaulic coupling.

The stainless steel manifold assembly shall have a ten (10) year warranty.

One (1)

Y__N__

STAINLESS STEEL DISCHARGE MANIFOLD

The discharge manifold assembly shall be fabricated with minimum of Schedule #10 Type 304 stainless steel. All threaded fittings shall be a minimum of Schedule #40 stainless steel. The discharge manifold assembly shall have radiused sweep elbows to minimize water turbulence. The manifold shall be welded and pressure tested prior to installation. The stainless steel manifold inlet shall be attached to the pump discharge and have additional brackets as required to support the discharge manifold, valves and related components.

The stainless steel manifold assembly shall have a ten (10) year warranty.

One (1) Y__N__
FIRE PUMP & PLUMBING SYSTEM PAINTING

The fire pump and plumbing system shall be painted by the fire apparatus manufacturer. The fire pump and the plumbing shall be painted metallic silver.

One (1) Y__N__
HOSE THREADS

The hose threads shall be National Standard Thread (NST) on all base threads on the apparatus intakes and discharges.

One (1) Y__N__
WATER TANK TO PUMP LINE

One (1) 3" water tank to the rear mounted fire pump line shall be provided with a full flow quarter turn ball valve, 4" piping and with flex hose and stainless steel hose clamps. The tank to pump line shall be equipped with a check valve to prevent pressurization of the water tank.

The line shall be flow tested during the fire pump testing and shall meet applicable requirements of NFPA standards.

One (1) Y__N__
The tank to pump valve shall be controlled at the pump operator's panel.

One (1) Y__N__
The valve shall be an Akron 8000 Series 3" valve with a stainless ball.

One (1) Y__N__
One (1) Akron valve equipped with a manually operated pull rod, with quarter-turn locking feature shall be provided on the intake. The handle shall be equipped with a color-coded name plate.

One (1) Y__N__
FIRE PUMP TO WATER TANK FILL LINE

One (1) 2" fire pump to water tank refill and pump bypass cooler line shall be provided. The valve shall be a full flow quarter turn ball valve with 2" piping and flex hose to tank. The valve control handle shall have a nameplate located near the valve control.

One (1) Y__N__
The valve shall be an Akron 8000 Series 2" valve with a stainless ball.

One (1) Y__N__
One (1) Akron valve equipped with a manually operated pull rod, with quarter-turn locking feature shall be provided on the intake. The handle shall be equipped with a color-coded name plate.

One (1) Y__N__
FIRE PUMP SPLIT SHAFT DRIVESHAFTS AND INSTALLATION

The mid-ship split shaft fire pump shall be installed and shall include installation of the fire pump, modification and/or fabrication of new drivelines and all pump-mounting brackets. The

drive shaft shall be spin balanced prior to final installation.

One (1)

Y__N__

FIRE PUMP COOLING

The fire pump shall be equipped with 3/8" cooling line from the pump to the water tank. This re-circulation line shall be controlled by a pump panel control valve with nameplate label noting it as the "fire pump bypass cooler". There shall be a check valve installed in the pump cooler line to prevent tank water from back flowing into the pump when it is not in use.

One (1)

Y__N__

CHASSIS ENGINE HEAT EXCHANGER COOLING SYSTEM

The apparatus shall be equipped with a heat exchanger for supplementary chassis engine cooling during fire pump operations. A manually opened valve, mounted at the operator's panel, shall direct water from the fire pump to the heat exchanger that is mounted in the engine radiator cooling hose. The system shall 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 shall be installed by the chassis manufacturer and connected to the plumbing system by the fire apparatus manufacturer.

A nameplate label shall be installed on the pump panel noting "engine cooling system" with "on-off" opening directions noted.

One (1)

Y__N__

UNDERWRITERS LABORATORIES FIRE PUMP TEST

The pump shall undergo an Underwriters Laboratories Incorporated test per applicable sections of NFPA standards, prior to delivery of the completed apparatus.

The UL acceptance certificate shall be furnished with the apparatus on delivery.

One (1)

Y__N__

FIRE PUMP TEST LABEL

A fire pump performance and rating label shall be installed on the fire apparatus pump panel. The label shall denote levels of pump performance and testing completed at factory. These shall include GPM at net pump pressure, rpm at such level and other pertinent data as required by applicable NFPA standards. In addition, the pressure control device, tank to pump flow tests and other required testing shall be completed.

In addition, the entire pump, suction and discharge passages shall be hydrostatically tested to a pressure as required by applicable NFPA standards. The pump shall be fully tested at the pump manufacturer's factory to the performance specifications as outlined by applicable NFPA standards. Pump shall be free from objectionable pulsation and vibration.

If applicable, the fire pump shall be tested and rated as follows:

- 100% of rated capacity at 150 pounds net pressure.
- 70% of rated capacity at 200 pounds net pressure.
- 50% of rated capacity at 250 pounds net pressure.
- 100% or rated capacity at 165 pounds net pressure.

One (1)

Y__N__

GATED 5" INTAKE -- FRONT RIGHT BUMPER

One (1) front right side bumper gated suction intake with 5" piping shall be provided. Intake pipe shall be provided with drain valves mounted at all low points of plumbing.

Intake shall be gated with an air operated 5" butterfly valve and shall have control switch at the pump operator's panel. The power valve operating mechanism shall prevent movement of the valve from the fully closed position to the fully open position or vice versa, in less than three (3) seconds. The control switch shall have a colored identification label.

A pressure dump/relief valve shall be included that is factory preset at 125 PSI and field adjustable from 75 to 250 PSI. The pressure dump/relief valve shall provide over-pressure protection for the suction hose even when the intake valve is closed. The outlet of the dump/relief valve shall be 2.5" in diameter, to allow directing the discharge flow away from the pump operator's position.

An inlet fitting with 5" NPT x 5" NST thread shall be provided, complete with a removable strainer screen. The front suction plumbing shall be bolted to the pump and assembled with Victaulic type couplings.

One (1)

Y__N__

One (1) Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1)

Y__N__

FRONT RIGHT SIDE INTAKE -- HORIZONTAL THROUGH BUMPER

The front suction 5" piping shall extend straight-forward ahead of the cab at bumper level for the chassis. The piping shall be stainless steel with Victaulic couplings installed.

One (1)

Y__N__

One (1) 5" chrome plated cap shall be provided. The threads shall be NST and the cap shall be equipped long handles.

One (1)

Y__N__

LEFT SIDE 2-1/2" GATED INTAKE

One (1) 2-1/2" gated suction intake shall be installed on left side pump panel to supply the fire pump from an external water supply. The control valve shall be a quarter-turn ball valve and shall have 2-1/2" NST female thread of chrome plated brass.

The intake shall be equipped with a 3-4" drain and bleeder valve. A nameplate label and removable screen shall be installed.

One (1)

Y__N__

One (1) Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain

valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1) Y__N__
One (1) 2-1/2" chrome plated plug shall be provided. The threads shall be NST, and the plug shall be equipped with rocker lugs and chain or cable securement.

One (1) Y__N__
The valve shall be an Akron 8000 Series 2-1/2" valve with a stainless ball.

One (1) Y__N__
The valve shall be equipped with one (1) manually operated, swing-type manual control located adjacent the intake. The valve shall be equipped with a color-coded name plate.

Two (2) Y__N__
1-1/2" SPEEDLAY DISCHARGES

Two (2) 1-3/4" pre-connect hose speedlays shall be installed ahead of the front of body or pump enclosure, controlled with quarter turn 2" diameter ball valves. The outlets shall be equipped 2" NPT female swivel x 1-1/2" male NST hose threads.

The hosebed decking shall be constructed with slots integrated into the hosebed floor.

The hosebed shall provide a minimum capacity of 200 feet of 1-3/4" diameter double jacket hose with hose and nozzle provided by the Authority.

The speedlays shall be single-stacked next to each other above the 2-1/2" speedlay.

Two (2) Y__N__
Two (2) Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valves shall be installed. The valves shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

Two (2) Y__N__
The specified valves shall be an Akron 8000 Series 2" valve with a stainless ball.

There shall be a bulkhead fitting, one on each pump panel.

Two (2) Y__N__
For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of the rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

Two (2) Y__N__
Two (2) 2-1/2" IC discharge pressure gauges (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

One (1) Y__N__
2-1/2" SPEEDLAY DISCHARGE

One (1) 2-1/2" pre-connect hose speedlay shall be installed ahead of the front of body or pump enclosure, controlled with quarter turn 2-1/2" diameter ball valve. The outlet shall be equipped 2-1/2" NPT female swivel x 2-1/2" male NST hose threads.

The hosebed decking shall be constructed with slots integrated into the hosebed floor.

The hosebed shall provide a minimum capacity of 200 feet of 2-1/2" diameter double jacket hose with hose and nozzle provided by the Authority.

The speedlay shall be two (2) 100' stacks side by side in one (1) removable tray below the 1-1/2" speedlays.

One (1) Y__N__
One (1) Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1) Y__N__
The specified valve shall be an Akron 8000 Series 2-1/2" valve with a stainless ball.
There shall be a bulkhead fitting on the driver side pump panel.

One (1) Y__N__
For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of the rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

One (1) Y__N__
One (1) 2-1/2" IC discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauge will be located on the pump instrument panel.

One (1) Y__N__
SPEEDLAY COVER

Black cargo webbing shall be provided at each speedlay hosebed. The webbing shall be permanently attached on the forward side and have Velcro and a grab handle at the rear. A Velcro

retaining strap on both ends shall be provided. It shall be permanently attached on the cab side at the top of the crosslays with a footman's loop.

One (1) Y__N__
SPEEDLAY HINGED COVER

The speedlay hosebed shall be equipped with a single aluminum diamond plate hinged cover. The cover shall have rubber bumpers, latching devices and lift up handle on each end of the cover.

One (1) Y__N__
ROLLERS FOR PRE-CONNECTED SPEEDLAY HOSEBED

The pre-connect speedlay hosebed shall be equipped stainless steel "U" shaped roller system, one on each end of the hosebed.

One (1) Y__N__
REMOVABLE TRAY FOR PRE-CONNECTED HOSEBEDS

The 2-1/2" pre-connect hosebed(s) shall be equipped with a "U" shaped aluminum hose tray. The unit shall be equipped with pull out hand holes and retaining devices to secure the tray, nozzle and hose in transit.

Two (2) Y__N__
REMOVABLE TRAY FOR PRE-CONNECTED HOSEBEDS

The 1-3/4" pre-connect hosebed(s) shall be equipped with a "U" shaped aluminum hose tray. The unit shall be equipped with pull out hand holes and retaining devices to secure the tray, nozzle and hose in transit.

One (1) Y__N__
LEFT SIDE DECON LINE -- 1" DISCHARGE

One (1) 1" Decon line discharge shall be provided at the left side pump panel area. The discharge shall be controlled by a quarter turn ball valve on the pump panel. An engraved nameplate label shall be provided adjacent the control handle.

The line shall be heated by the heat exchanger.

One (1) Y__N__
One (1) Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1) Y__N__
The 1" Decon line discharge shall be piped from the normal pressure side of the fire pump.

One (1) Y__N__
One (1) 1" NST rocker lug chrome plated vented cap and cable or chain securement shall be provided.

One (1) Y__N__
One (1) Akron 8000 Series one-inch (1") valve with a stainless ball shall be supplied.

One (1) Y__N__
For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed quarter turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of the rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

One (1) Y__N__
One (1) 2-1/2" IC discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauge will be located on the pump instrument panel.

One (1) Y__N__
LEFT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

One (1) 2-1/2" discharge shall be installed on the left side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NST male hose threads. A color-coded nameplate label shall be provided adjacent the control handle.

One (1) Y__N__
One Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve, complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1) Y__N__
One (1) chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST male hose threads.

One (1) Y__N__
One (1) 2-1/2" NST rocker lug chrome plated vented cap and cable or chain securement shall be provided.

One (1) Y__N__
The specified valve shall be an Akron 8000 Series 2-1/2" valve with a stainless ball.

One (1) Y__N__
For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed quarter turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of the rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

One (1) Y__N__
One (1) 2-1/2" IC discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauge will be located on the pump instrument panel.

One (1) Y__N__
RIGHT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

One (1) 2-1/2" discharge shall be installed on the right side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NST male hose threads. A color-coded nameplate label shall be provided adjacent the control handle.

One (1) Y__N__
One (1) Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1) Y__N__
One (1) chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST male hose threads.

One (1) Y__N__
One (1) 2-1/2" NST rocker lug chrome plated vented cap and cable or chain securement shall be provided.

One (1) Y__N__
The specified valve shall be an Akron 8000 Series 2-1/2" valve with a stainless ball.

One (1) Y__N__
For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed quarter turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of the rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

One (1) Y__N__
One (1) 2-1/2" IC discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauge will be located on the pump instrument panel.

One (1) Y__N__
RIGHT SIDE PUMP PANEL -- 3" x 4" DISCHARGE

One (1) 3" discharge shall be installed on the right side pump panel area and shall be controlled by a full flow 3" slow-close quarter turn ball valve. The discharge shall have 4" NST male hose threads. A color-coded nameplate label shall be provided adjacent the control handle.

One (1) Y__N__
One (1) Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1) Y__N__
One (1) lightweight aluminum elbow with 30-degree slant shall be provided. Threads shall be 4" Storz with lugs and manual locks x 4" female swivel NST with rocker lugs.

One (1) Y__N__
One (1) 4" lightweight aluminum Storz cap with cable or chain securement shall be provided.

One (1) Y__N__
The specified valve shall be an Akron 8000 Series 3" valve with a stainless ball.

One (1) Y__N__
One (1) Akron valve equipped with a manually operated pull rod, with quarter-turn locking feature and a manual slow-close device shall be provided on the specified discharge. The handle shall be equipped with color-coded type name plate.

One (1) Y__N__
One (1) 2-1/2" IC discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauge will be located on the pump instrument panel.

One (1) Y__N__
RIGHT SIDE FRONT OF HOSEBED -- 2-1/2" DISCHARGE

One (1) 2-1/2" discharge shall be to the right side front of hosebed area and controlled by a quarter turn ball valve on the pump panel. The discharge shall have 2-1/2" NPT x 2-1/2" NST male hose threads. An engraved nameplate label shall be provided adjacent the control handle.

One (1) Y__N__
One (1) Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1) Y__N__
The specified valve shall be an Akron 8000 Series 2-1/2" valve with a stainless ball.

One (1) Y__N__
For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed quarter turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and signage. The gear-control rod, double laminated locking clips and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of the rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

One (1) Y__N__
One (1) 2-1/2" IC discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauge will be located on the pump instrument panel.

One (1) Y__N__
REAR LEFT SIDE -- 3" x 4" DISCHARGE

One (1) 3" discharge shall be installed on the left side rear panel of the apparatus body and shall be controlled by a slow-close quarter turn ball valve on the pump panel. The discharge shall have 3" NPT x 4" NST male hose threads adapter with 30-degree slant. The outlet shall be equipped with an engraved nameplate label shall be installed adjacent the valve control handle.

One (1) Y__N__
One (1) Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1) Y__N__
One (1) lightweight aluminum elbow with 30-degree slant shall be provided. Threads shall be 4" Storz with lugs and manual locks x 4" female swivel NST with rocker lugs.

One (1) Y__N__
One (1) 4" lightweight aluminum Storz cap with cable or chain securement shall be provided.

One (1) Y__N__
The specified valve shall be an Akron 8000 Series 3" valve with a stainless ball.

One (1) Y__N__
One (1) Akron valve equipped with a manually operated pull rod, with quarter-turn locking feature and a manual slow-close device shall be provided on the specified discharge. The handle shall be equipped with color-coded type name plate.

One (1) Y__N__
One (1) 2-1/2" IC discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauge will be located on the pump instrument panel.

One (1) Y__N__
3" MONITOR DISCHARGE

One (1) 3" discharge shall be piped to the area over the pump enclosure with 3" NPT male threads provided. The pipe shall be equipped with Victaulic couplings (if necessary) and shall be properly secured to prevent movement when a monitor or deck gun is attached. The quarter turn ball valve shall be controlled on pump panel.

A color-coded nameplate label shall be provided adjacent the valve control handle.

One (1) Y__N__
One (1) Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-

out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1) Y__N__
The specified valve shall be an Akron 8000 Series 3" valve with a stainless ball.

One (1) Y__N__
One (1) Akron valve equipped with a manually operated pull rod, with quarter-turn locking feature and a manual slow-close device shall be provided on the specified discharge. The handle shall be equipped with color-coded type name plate.

One (1) Y__N__
One (1) 2-1/2" IC discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauge will be located on the pump instrument panel.

One (1) Y__N__
PORTABLE MONITOR PACKAGE

One (1) Task Force Tips Crossfire model # XFC-62 portable lightweight monitor package consisting of monitor top, Safe-Tak base, stacked tips, stream straightener, Master Stream 1250 series nozzle and storage bracket, Extend-A-Gun and installation bracket set shall be supplied.

One (1) Y__N__
PORTABLE DECK GUN MONITOR TOP

One (1) Task Force Tips Crossfire, model # XFT-NJ portable monitor shall be provided. This top only portion with quick release swivel joint shall be designed for use on truck mounted risers and TFT Safe-Tak or Stow-A-Way 800 series portable bases. The monitor shall include safety devices that consist of a locking button which locks the quick release lever when monitor is pressurized, and a quarter turn rotational lever lock that secures the horizontal rotation and provides a visual indication that the monitor rotation is locked.

The monitor shall have a 3-1/4" waterway for delivery of up to 1250 GPM with low friction loss. Vertical elevation shall be controlled through use of a handwheel controlled stainless steel worm gear which allows full travel to the safety stop point of 35 degrees above horizontal with seven (7) rotations of the wheel. When positioned on a truck mounted riser, the monitor shall be able to be used below the 35 degree stop point through release of the spring-loaded safety pin.

An automatic drain to remove remaining water and avoid freezing shall be included. Integral stainless steel stream straightener and pressure gauge shall be included. The monitor shall be configured with a Crossfire inlet and 2-1/2" male NH outlet.

One (1) Y__N__
MONITOR STORAGE BRACKET & SCREWS

One (1) Task Force Tips model # XF-B storage bracket and mounting screws shall be supplied. The bracket shall be constructed from stainless steel, include a quick release retention strap and be designed for horizontal or vertical installation. The bracket is designed for storage of the Task Force Tips Crossfire SAFE-TAK and STOWAWAY 800 series portable monitor base with or without monitor top attached.

One (1)

Y__N__

MASTER STREAM NOZZLE

One (1) Task Force Tips Master Stream 1250, # M-R1250S-NJ automatic master stream nozzle shall be provided. The nozzle shall be designed for use on monitors, ladder pipes, deluge guns and aerial platforms. For corrosion resistance, the nozzle shall be constructed of lightweight hardcoat anodized aluminum.

The nozzle shall have a flow capability of 150 to 1250 GPM at a constant pressure rating of 100 PSI. A UV-resistant rubber bumper with integral teeth designed to produce a finger free fog pattern shall be included. A halo ring shall be included to assist with stream shape control. The nozzle shall be suitable for foam solution application and designed to accept the Task Force Tips FJ-LX-M low expansion air aspirating attachment. The nozzle shall be configured with a 2-1/2" female NH swivel rocker lug coupling.

One (1)

Y__N__

SAFE-TAK PORTABLE MONITOR BASE

One (1) Task Force Tips Safe-Tak 1250, model # XFH-2NJ portable monitor base shall be provided. The monitor shall include a Safe-Tak, spring loaded butterfly valve designed to rapidly reduce the water flow by 90 percent in the event that contact with the ground is lost. The device shall include an integral carrying handle, four (4) folding stainless steel legs with replaceable tungsten carbide spikes and an anchoring strap (attached to a protective cap) designed to be stored inside the waterway. The butterfly valve shall have a reset handle located near the inlet to allow the water flow to be reestablished once the base is properly stabilized.

The base shall be constructed from hardcoat anodized aluminum and have a red powder coat interior and exterior finish. The inlet shall be configured with two (2) 2-1/2" female NH swivel rocker lug couplings with two-way clapper valve.

One (1)

Y__N__

STREAM STRAIGHTENER

One (1) Task Force Tips model # XF-SS5 stream straightener shall be supplied. The straightener shall be constructed from extruded aluminum, with internal vanes designed to reduce turbulence and increase the reach of smooth bore water streams. The device shall be 5" in length and have 2-1/2" female NH rigid inlet and 2-1/2" male NH rigid outlet.

One (1)

Y__N__

MASTER STREAM STACK TIP SET

One (1) Task Force Tips model # MST-4NJ smooth bore stacked tip set shall be provided. For corrosion resistance, the tip set shall be constructed from hardcoat anodized aluminum alloy. The set shall consist of four (4) tips with the base tip having a 2-1/2" female NH swivel inlet and 2" outlet. The other tip sizes shall be 1-3/4", 1-1/2" and 1-3/8". Each tip shall be laser engraved with a flow/pressure chart, orifice size and thread size.

One (1)

Y__N__

MONITOR STORAGE BRACKET & SCREWS

One (1) Task Force Tips model # XF-B storage bracket and mounting screws shall be supplied. The bracket shall be constructed from stainless steel, include a quick release retention strap and be designed for horizontal or vertical installation. The bracket is designed for storage of the Task

Force Tips Crossfire SAFE-TAK and STOWAWAY 800 series portable monitor base with or without monitor top attached.

One (1)

Y__N__

TELESCOPING MONITOR PIPE

One (1) Task Force Tips model # XG18VL-XL manually telescoping waterway shall be installed. The waterway shall be capable of being lowered to deck level (or into a monitor well) for storage and transportation and shall be capable of being raised to an extended height of 18" by lifting a quick release latch located at the base of the extension tube. This latching device shall be capable of locking the waterway in either the raised or lowered position, while maintaining the ability to horizontally rotate the monitor device 360 degrees.

A sensor shall be located on the waterway that signals a 12-volt indicator light installed in the cab to illuminate when the monitor is raised.

The aluminum riser shall have a 3" waterway, hardcoat anodized finish and be furnished with a 3" Victaulic inlet and a Task Force Tips Crossfire coupling outlet.

One (1)

Y__N__

ELECTRIC REWIND HOSE REEL

One (1) Hannay painted steel hose reel with leak proof ball bearing swing joint, adjustable friction brake, electric rewind shall be installed. The reel shall be plumbed with wire reinforced high-pressure hose coupled. The reel shall be bolted to a mounting system for easy service or removal.

The hose reel is to be mounted in the area above the pump.

One (1)

Y__N__

One (1) push button hose reel rewind switch shall be installed to control the electric rewind hose reel. The exact location shall be determined at construction.

One (1)

Y__N__

One (1) 1" discharge shall be provided and piped from the fire pump to the hose reel with flexible high-pressure hose. The quarter turn ball valve shall be controlled on pump panel. A color-coded nameplate label shall be provided near the valve control handle.

One (1)

Y__N__

One (1) Innovative Controls 3/4" cast bronze quarter-turn drain/bleeder valve shall be installed. The valve shall be complete with a chrome plated bronze ball, reinforced Teflon seals and blow-out proof stem rated to 600 PSI. A chrome plated zinc handle shall be provided on each drain valve complete with a recessed ID label provision. The handle shall lift to open and push down to close.

One (1)

Y__N__

The specified hose reel shall be piped to the normal pressure side of the fire pump.

One (1)

Y__N__

One (1) Akron 8000 Series 1" valve with a stainless ball shall be supplied.

One (1)

Y__N__

For valve actuation, the specified discharge shall be equipped with a side mount valve control. The ergonomically designed quarter turn push-pull T-handle shall be chrome plated zinc with

recessed labels for color coding and signage. The gear-control rod, double laminated locking clips and rod housing shall be stainless steel and provide true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of the rod housing shall eliminate rod deflection, never need lubrication and ensure consistent long-term operation.

The control assembly shall include a decorative chrome-plated zinc panel mounted bezel with recessed color-coded label.

One (1) Y__N__

One (1) 2-1/2" IC discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters. The gauge will be located on the pump instrument panel.

One (1) Y__N__

Three (3) 50'-foot lengths of 1" water hose (150') with pin lug couplings and 800 PSI working pressure shall be provided and mounted on the specified hose reel.

One (1) Y__N__

The specified booster reel nozzle shall be mounted adjacent the hose reel area in secure clip or clamp type mountings.

One (1) Y__N__

One (1) stainless steel four (4)-sided captive type roller assembly shall be provided. The location of the captive rollers shall be determined during the pre-build conference.

One (1) Y__N__

HOSE REEL PAINTING

The hose reels shall be painted silver grey.

One (1) Y__N__

FOAM PRO FOAM SYSTEM

One (1) FoamPro part number S107-1600/2.0 electronic foam system shall be provided. The system shall be designed for use with Class A foam concentrate. The foam proportioning operation shall be designed for direct measurement of water flows and shall remain consistent within the specified flows and pressures. The system shall be capable of accurately delivering foam solution as required by applicable sections of the NFPA standards.

The system shall be equipped with a control module suitable for installation on the pump panel. There shall be a microprocessor incorporated within the motor driver that shall receive input from the system's flowmeter, while also monitoring the foam concentrate pump output. The microprocessor shall compare the values to ensure that the desired amount of foam concentrate is injected onto the discharge side of the fire pump. A "foam capable" paddlewheel-type flowmeter shall be installed in the discharge side of the piping system.

The control module shall enable the pump operator to:

- Activate the foam proportioning system
- Select the proportioning rates from 0.1% to 1.0%
- See a "low concentrate" warning light flash when the foam tank level becomes low and in two (2) minutes, if the foam concentrate has not been added to the tank, the foam concentrate pump shall be capable of shutting down.

A 12-volt electric motor driven positive displacement plunger pump shall be provided. The pump capacity range shall be 0.1 to 1.7 GPM (6.4L/min) at 200 PSI (13.8 BAR) with a maximum operating pressure up to 400 PSI (27.6 BAR). The system shall draw a maximum of 30 amps at 12 volts. The motor shall be controlled by the microprocessor which shall be mounted to the base of the pump. It shall receive signals from the control module and power the 1/3 horsepower (.25 Kw) electric motor in a variable speed duty cycle to ensure that the correct proportion of concentrate is injected into the water stream.

A full flow check valve shall be provided in the discharge piping to prevent foam contamination of the fire pump and water tank. A 5 PSI (.35 BAR) opening pressure check valve shall be provided in concentrate line.

Components of the complete proportioning system as described above shall include:

- Operator control module
- Paddlewheel flowmeter
- Pump and electric motor/motor driver
- Wiring harnesses
- Low level tank switch
- Foam tank
- Foam injection check valve
- Main waterway check valve
- Flowmeter and tee with 2" male NPT threads.

The foam system shall be installed and calibrated to manufacturer's requirements. In addition, the system shall be tested and certified by the apparatus manufacturer to meet applicable NFPA standards.

The foam system design shall be tested and pass environmental testing in accordance to SAE standards. The system shall be third party tested to certify compliance with RFI/EMI emissions per MIL-STD-416E.

An installation and operation manual shall be provided for the unit. The system shall have a one (1) year limited warranty by the foam system manufacturer.

Y__N__

CONTROL CONNECTION CABLE -- FOAM SYSTEM

The FoamPro 1600 Series foam system shall be provided with a twelve (12) foot control cable from the controller to the foam pump assembly.

Y__N__

PUMP PANEL CONTROL -- FOAM SYSTEM

The FoamPro 1600 Series foam system shall be provided with a standard pump panel mounted FoamPro control head.

Y__N__

FLOWMETER AND TEE -- FOAM SYSTEM

A FoamPro brass flowmeter shall be provided. The flowmeter shall be installed in the "foam capable" discharge line. The flowmeter shall have maximum accuracy between the flow range of 10 GPM and 320 GPM and be capable of operation between 3 GPM to 380 GPM. The tee shall have 1-1/2" NPT and 2" Victaulic inlet and outlets connections.

Y__N__

LOW-LEVEL TANK SENSOR FOAM TANK

A FoamPro low-level foam tank sensor shall be provided. The sensor shall be capable of mounting side of foam tank that shall interface with the microprocessor. The unit shall have a 1/8" NPT thread size.

Y__N__

MAIN WATERWAY CHECK VALVE -- FOAM SYSTEM

A FoamPro full-flow check valve shall be provided. The valve shall prevent foam contamination of the fire pump and water tank or water contamination of the foam tank. The unit shall have a nickel-electro plated body with stainless steel components. The valve shall have 2" NPT threads with an injection and drain port size of 1/2" NPT.

Y__N__

FOAM SYSTEM -- INJECTOR FITTING

A FoamPro injector fitting shall be provided with the foam system.

Y__N__

INSTRUCTION AND RATING LABEL -- FOAM SYSTEM

A FoamPro part number 6032-0018 instruction and system rating label shall be provided. The label shall display information for a FoamPro 1600 Series foam system and shall meet applicable sections of the NFPA standards.

Y__N__

SCHEMATIC LABEL -- FOAM SYSTEM

A FoamPro part number 6032-0015 foam system schematic label shall be provided shall be installed on the pump panel near foam controls. The label shall be a diagram of a single tank foam system layout and shall meet applicable sections of the NFPA standards.

The foam system shall be plumbed to hose reel and both 1-1/2" speedlays.

One (1)

Y__N__

1" FOAM TANK CONTROL -- CLASS A

One (1) Class A foam tank shall be plumbed with 1" valve and corrosion resistant hose from the foam tank to the foam inlet of the foam system. The manually opened valve shall be provided behind the pump panel with a label.

One (1)

Y__N__

INTEGRAL CLASS A FOAM TANK -- 20 GALLON

One (1) twenty (20) gallon Class A foam tank shall be installed within the water tank. The non-corrosive foam tank shall meet applicable sections of NFPA standards. The foam concentrate tank shall be provided with sufficient wash partitions so that the maximum dimension perpendicular to the plane of any partition shall not exceed 36". The swash partition shall extend from wall to wall and cover at least 75% of the area of the plane of the partition.

The foam concentrate tank shall be provided with a fill tower or expansion compartment, having a minimum area of 12 square inches and having a volume of not less than 2% of the total tank volume. The fill tower opening shall be protected by a completely sealed air-tight cover. The cover shall be attached to the fill tower by mechanical means. The fill opening shall be designed to incorporate a 1/4" removable screen and shall be located so that foam concentrate from a five (5) gallon container can be dumped directly to the bottom of the tank, to minimize aeration without the use of funnels or other special devices.

The foam tank fill tower shall be equipped with a pressure/vacuum vent that enables the tank to compensate for changes in pressure or vacuum when filling or withdrawing foam concentrate from the tank. The pressure/vacuum vent shall not allow atmospheric air to enter the foam tank except during operation or to compensate for thermal fluctuations. The vent shall be protected to prevent foam concentrate from escaping or directly contacting the vent at any time. The vent shall be of sufficient size to prevent tank damage during filling or foam withdrawal.

A color-coded label or visible permanent marking that reads "FOAM TANK FILL" shall be placed at or near any foam concentrate tank fills opening. A label shall be placed at or near any foam concentrate tank fill opening that specifies the type of foam concentrate the system is designed to use. Any restrictions on the types of foam concentrate that can be used with the system shall also be stated, and a warning message that reads "WARNING: DO NOT MIX BRANDS AND TYPES OF FOAM."

The foam concentrate tank outlet connection shall be designed and located to prevent aeration of the foam concentrate and shall allow withdrawal of 80% of the foam concentrate tank storage capacity under all operating conditions with the vehicle level.

One (1)

Y__N__

The foam tank shall be fabricated by United Plastic Fabricating.

One (1)

Y__N__

FOAM TANK DRAIN -- UNDER TANK

The foam tank shall have one (1) 1" gate valve drain provision installed.

One (1)

Y__N__

FOAM SYSTEM DESIGN AND PERFORMANCE REQUIREMENTS

The proportioning system shall be capable of proportioning foam concentrate in accordance with the foam concentrate manufacturer's recommendations for the type of foam concentrate used in the system over the system's design range of flow and pressures. The foam proportioning system water flow characteristics and the range of proportioning ratio shall be specified as noted herein. The latest foam system shall be in compliance with applicable NFPA standards as it relates to this specified system

Plumbing and Strainer

The foam concentrate supply line shall be non-collapsible. A means shall be provided to prevent water back flow into the foam proportioning system and the foam concentrate storage tank.

A strainer or filter shall be provided on the foam concentrate supply side of the foam proportioner to prevent any debris that might affect the operation of the foam proportioning system from entering the system. The strainer assembly shall consist of a removable straining element, housing, and retainer. The strainer assembly shall allow full flow capacity of the foam supply line.

Foam System Controls

The foam proportioning system operating controls shall be located at or near the pump operator's position and shall be clearly identified. The foam proportioning system shall be provided with accessible controls, to completely flush the system with water according to the manufacturer's instructions.

Labels and Instructions

An instruction plate shall be provided for the foam proportioning system that includes, at a minimum, piping schematics of the system and basic operating instructions. Labels that are marked clearly with the identification and function shall be provided for each control, gauge and indicator related to the foam proportioning system.

A label shall be provided on the pump operator's panel that identifies the type of foam concentrate that the foam proportioning system is designed to use. It shall also state the minimum/maximum foam proportioning rate at the minimum/maximum foam proportioning rated system flow and pressure.

Two (2) copies of an operations and maintenance manual shall be provided. They shall include a complete diagram of the system together with operating instructions and details outlining all recommended maintenance procedures.

Foam System Testing

The accuracy of the foam proportioning system shall be certified by the foam equipment manufacturer and also tested by the installer prior to delivery of the apparatus in compliance to NFPA standards.

One (1)

Y__N__

SIDE MOUNT PUMP ENCLOSURE

The side mount pump enclosure shall be removable and supported from the chassis frame rails. This enclosure will allow independent flexing of the pump enclosure from the body and allow for quick removal. The support structure shall be constructed of extruded aluminum tubing and angle.

All pump suction and discharge controls are to be mounted on the driver side pump operator's panel so as to permit operation of the pump from a central location. The fire pump, valves and controls shall be accessible for service and maintenance as required by applicable sections of NFPA standards.

The "master" gauges shall be suitably enclosed and mounted on a full pump compartment width

"hinged" gauge panel constructed of the same material as the pump operator's control panel, allowing access to the backside of all gauges and gauge lines. The individual gauges shall be mounted in line with the control handle or adjacent to the control handle. The panel is to include a stainless steel piano hinge, flush mounted chrome plated trigger latch and stainless steel cable end stops. Electrical wiring and all gauge lines shall be properly tie wrapped to prevent kinking or cutting of the lines when the panel is opened.

The following controls and equipment as specified, shall be provided on the pump panel or within the pump enclosure:

- Primer
- Pump and plumbing area service lights
- Pressure control device and throttle control
- Fire pump and engine instruments
- Pump intakes and discharge controls
- Master intake and discharge gauges
- Tank fill control
- Tank suction control
- Water tank level gauge
- Pump panel lights

Speedlay Installation

Speedlay pre-connect hosebeds shall be installed in the forward section of the pump enclosure. The hosebed shall have smooth sides and a perforated floor to allow for drainage. Provisions shall be provided to secure hose and equipment per requirements of applicable NFPA standards.

One (1)

Y__N__

OPEN DUNNAGE COMPARTMENT -- OVER PUMP ENCLOSURE

One (1) open compartment shall be located on the top of the pump module. The compartment will be constructed as large as space permits, with removable slip resistance floor material or decking in the base of the compartment.

One (1)

Y__N__

LEFT SIDE RUNNING BOARD -- SIDE MOUNT PANEL

The left side mount pump panel shall be equipped with one (1) side running board. The running board will extend along the width of the pump enclosure, from the forward end of the body module to behind the chassis cab.

The running board shall be constructed of aluminum tread plate, bolted in place with stainless steel fasteners. The step surface shall be in compliance with applicable sections of NFPA requirements.

One (1)

Y__N__

FLOATING HOSEWELL COMPARTMENT -- LEFT SIDE

One (1) floating hosewell shall be recessed in the left side running board of the apparatus pump panel. The hosewell shall be constructed of aluminum material and shall be provided with drain holes drilled in each bottom corner with plastic grating on the floor.

The hose and couplings shall be secured in compliance to applicable NFPA standards.

Capacity for the following Authority supplied hose: Shall be capable of holding 30' of 5" hose.

Two (2)

Y__N__

HOSEWELL SECUREMENT - LEFT

There shall be two (2) Velcro straps provided for the securement of the hose in the running board hosewell.

One (1)

Y__N__

RIGHT SIDE RUNNING BOARD -- SIDE MOUNT PANEL

The right side mount pump panel shall be equipped with one (1) side running board. The running board will extend along the width of the pump enclosure, from the forward end of the body module to behind the chassis cab.

The running board shall be constructed of aluminum tread plate, bolted in place with stainless steel fasteners. The step surface shall be in compliance with applicable sections of NFPA requirements.

One (1)

Y__N__

FLOATING HOSEWELL COMPARTMENT -- RIGHT SIDE

One (1) floating hosewell shall be recessed in the right side running board of the apparatus pump panel. The hosewell shall be constructed of aluminum material and shall be provided with drain holes drilled in each bottom corner with plastic grating on the floor.

The hose and couplings shall be secured in compliance to applicable NFPA standards.

Capacity for the following Authority supplied hose: Shall be capable of holding 30' of 5" hose.

Two (2)

Y__N__

HOSEWELL SECUREMENT - RIGHT

There shall be two (2) Velcro straps provided for the securement of the hose in the running board hosewell.

One (1)

Y__N__

PUMP ENCLOSURE ACCESS DOOR -- RIGHT SIDE UPPER

A pump panel access door shall be provided on the upper right side of the side mount pump enclosure. The access door shall be approximately 18" high and as wide as possible. The door shall be constructed of black thermoplastic covered aluminum with push button type latches.

One (1)

Y__N__

PUMP PANEL -- SIDE MOUNT

The pump operator's panel, along with the lower left hand and right hand pump panels shall be constructed of Line-X aluminum material and be fastened to the pump enclosure with 1/4" stainless steel bolts.

The instrument area shall have a stainless steel continuous hinge that shall swing for easy access to gauges.

One (1) Y__N__
HINGED PUMP PANEL -- LEFT SIDE

The pump panel installed on the on the left hand side of the pump enclosure shall be hinged with push-button latches.

One (1) Y__N__
HINGED PUMP PANEL -- RIGHT SIDE

The pump panel installed on the on the right hand side of the pump enclosure shall be hinged with push-button latches.

One (1) Y__N__
PUMP PANEL STAINLESS STEEL TRIM PANELS

Stainless steel intake and discharge trim rings shall be installed to the apparatus with mounting bolts. These assemblies will be used to identify intake and discharge ports with color and verbiage, using separate identification tags protected by chrome plated bezels. These trim rings are designed and manufactured to withstand the environment and shall be backed by a warranty equal to that of the exterior paint and finish. All labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

One (1) Y__N__
LABELS

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

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

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

One (1) Y__N__
COLOR CODED PUMP PANEL LABELING AND NAMEPLATES

Discharge and intake valve controls shall be color coded in compliance to guidelines of applicable sections of NFPA standards.

Innovative Controls permanent type nameplates and instruction panels shall be installed on the pump panel for safe operation of the pumping equipment and controls.

Three (3) Y__N__
MIDSHIP PUMP PANEL LIGHTS -- LEFT SIDE

Three (3) Techniq E10-W0001-1 or equal LED lights with clear lenses shall be installed under an instrument panel light hood on the left side pump panel. The lights shall be controlled by a switch located on the operator's instrument panel.

Two (2)

Y__N__

MIDSHIP PUMP PANEL LIGHTS -- RIGHT SIDE

Two (2) Tecniq E10-W0001-1 or equal LED lights with clear lenses shall be installed under an instrument panel light hood on the right side pump panel. The lights shall be controlled by a switch located on the operator's instrument panel.

One (1)

Y__N__

PUMP ENGAGED LIGHT

One (1) pump panel light shall be illuminated at the time the fire pump is engaged into operation. The remaining lights shall be controlled by a switch located on the operator's instrument panel.

One (1)

Y__N__

MASTER DISCHARGE AND INTAKE GAUGES

Two (2) 4" diameter Innovative Controls discharge pressure and intake gauges (30"-0-600 PSI) shall be provided. The face of the gauges shall be a WHITE dial with black letters. The gauges will be located on the pump instrument panel.

The master gauges shall have clear scratch resistant molded crystals with captive O-ring seals, to ensure distortion free viewing and to seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40 degrees Fahrenheit to +160 degrees Fahrenheit. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy. A polished chrome-plated brass bezel shall be provided to prevent corrosion and protect the lens and gauge case.

One (1)

Y__N__

TEST TAPS

Test taps for pump intake and pump pressure shall be provided on the pump instrument panel and be properly labeled.

One (1)

Y__N__

WATER/FOAM TANK LEVEL GAUGE - PUMP PANEL

The apparatus shall be equipped with an Innovative Controls SL Series Tank Level Monitor System shall be installed. The display model # shall be 3030359-04. The system shall include an electronic dual water/foam display module, two (2) pressure transducer-based sender units and two (2) 15' connection cables. The display module shall show the volume of water/foam in the tanks using 10 super bright easy-to-see LEDs arrangement. The 10-LED arrangement shall form a straight vertical pattern to easily distinguish the tank level at a glance. Tank level indication is enhanced by the use of green LEDs at the full and near-full levels, amber LEDs between 3/4 and 1/4 tank levels and red LEDs at the near-empty and empty levels. The electronic dual water/foam display module shall be waterproof and shock resistant, being encapsulated in a urethane-based potting compound. The potted dual water/foam display module shall be mounted to a chrome plated panel-mount bezel with a durable easy-to-read polycarbonate insert featuring blue graphics and a water icon for water and red graphics and a foam icon for foam.

All programming functions shall be accessed and performed from the front of the display module. The programming includes self-diagnostics, manual or self-calibration and networking

capabilities to connect remote slave displays. Low tank level warnings shall include flashing red LEDs starting below the 1/4 level and an output for an audible alarm.

The display module shall receive an input signal from a pressure transducer. This stainless steel sender unit shall be installed on the outside of the water tank near the bottom. All wiring, cables and connectors shall be waterproof without the need for sealing grease.

Location of the water/foam tank level display shall be at the pump panel.

Three (3)

Y__N__

WATER TANK LEVEL LIGHTS

Three (3) Whelen PS-TANK2 vertically mounted LED lights shall be installed one (1) on each side of the apparatus and one (1) on the rear to allow for monitoring the water tank level from a distance.

They shall be configured as follows:

- GREEN - Position 1 indicates FULL
- BLUE - Position 2 indicates 3/4
- AMBER - Position 3 indicates 1/2
- RED - Position 4 indicates 1/4

Each light shall remain illuminated until the water level drops below full 3/4, 1/2 or 1/4 levels. When the level drops below 1/4 the RED light will flash to indicate an empty tank. The Whelen PS-TANK water tank level lights shall be controlled with an Innovative Controls remote driver.

One (1)

Y__N__

AIR HORN PUSH-BUTTON

One (1) push button with a label shall be installed on the pump instrument panel to operate the air horns.

One (1)

Y__N__

WATER TANK - 750 GALLON

The apparatus shall be equipped with a 750 gallon polypropylene water tank. The tank shall be equipped with a 4" overflow pipe (a 6" overflow pipe shall be provided if required by dump valve installation).

One (1)

Y__N__

WATER TANK

The apparatus shall be equipped with a rectangular tank.

One (1)

Y__N__

WATER TANK FILL TOWER

A fill tower measuring approximately 10" x 10" square shall be provided on the water tank up to and including 1,500 gallons total capacity.

One (1)

Y ___ N ___

The apparatus shall be equipped with a polypropylene water tank. The tank body and end bulkheads shall be constructed of 3/4" thick, polypropylene, nitrogen-welded and tested inside and out. Tank construction shall conform to applicable NFPA standards. The tank shall carry a lifetime warranty.

The transverse and longitudinal 3/8" thick swash partitions shall be interlocked and welded to each other as well as to the walls of the tank. The partitions shall be designed and equipped with vent holes to permit air and liquid movement between compartments.

The 1/2" thick cover shall be recessed 3/8" from the top of the side walls. Hold down dowels shall extend through and be welded to both the covers and the transverse partitions, providing rigidity during fast fill operations. Drilled and tapped holes for lifting eyes shall be provided in the top area of the booster tank.

A combination vent/water fill tower shall be provided at front of the tank. The 1/2" thick polypropylene fill and overflow tower shall be equipped with a hinged lid and a removable polypropylene screen. The overflow tube shall be installed in fill tower and piped with a minimum schedule 40 PVC pipe through the tank.

The water tank sump shall be located in the forward area of the tank. There will be a schedule 40 polypropylene tank suction pipe from the front of the tank to the tank sump. The tank drain and clean out shall be located in the bottom of the tank sump. The sump shall have a minimum 3" threaded outlet on the bottom to be used for a combination clean out and drain.

The pump to tank refill connection shall be sized to mate with tank fill discharge line. A deflector shield inside the tank will also be provided.

The tank shall rest on the body cross members in conjunction with such additional cross members, spaced at a distance that would not allow for more than 530 square inches of unsupported area under the tank floor. In cases where overall height of the tank exceeds 40", cross member spacing must be decreased to allow for not more than 400 square inches of unsupported area.

The tank must be isolated from the cross members through the use of hard rubber strips with a minimum thickness and width dimension of 1/4" x 1" and a hardness of approximately 60 durometers. The rubber must be installed so it will not become dislodged during normal operation of the vehicle. Additionally, the tank must be supported around the entire bottom outside perimeter and captured both in the front and rear as well as side to side to prevent tank from shifting during vehicle operation.

A picture frame type cradle mount with a minimum of 2" x 2" x 1/4" mild steel, stainless steel or aluminum angle shall be provided or the use of corner angles having a minimum dimension of 4" x 4" x 1/4" by 6" high are permitted for the purpose of capturing the tank.

Although the tank is designed on a free-floating suspension principle, it is required that the tank have adequate vertical hold down restraints to minimize movement during vehicle operation. If proper retention has not been incorporated into the apparatus hose floor structure, an optional mounting restraint system shall be located on top of the tank, half way between the front and the rear on each side of the tank. These stops can be constructed of steel, stainless steel or aluminum angle, having minimum dimensions of 3" x 3" x 1/4" and shall be approximately 6" to 12" long. These brackets must incorporate rubber isolating pads with a minimum thickness of 1/4" and a hardness of 60 durometer affixed on the underside of the angle. The angle should then be bolted

to the body side walls of the vehicle while extending down to rest on the top outside edge of the upper side wall of the tank.

Hosebeds floors must be so designed that the floor slat supports extend the full width from side wall to side wall and are not permitted to drop off the edge of the tank or in any way come in contact with the individual covers where a puncture could occur. The tank top must be capable of supporting loads up to 200 pounds per square foot when evenly distributed. Other equipment such as generators, portable pumps, etc. must not be mounted directly to the tank top unless provisions have been designed into the tank for that purpose. The tank shall be completely removable without disturbing or dismantling the apparatus structure.

One (1)

Y__N__

The tank construction shall include PolyProSeal™ technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method shall provide a liquid barrier, offering leak protection in the event of a weld compromise.

The tank shall be equipped with Polychromatic fill towers. The water fill tower shall be blue in color. The foam tank fill towers, if applicable, shall be yellow for foam A and green for foam B and black for any additional foam fill towers.

The water tank shall be certified for the capacity of the water tank prior to delivery of the apparatus. This capacity shall be recorded on the manufacturer's record of construction and the certification shall be provided to the Authority when the apparatus is delivered.

The tank shall be manufactured by United Plastic Fabricating (UPF).

One (1)

Y__N__

HOSEBED SINGLE AXLE

The hosebed compartment deck shall be constructed entirely from maintenance-free, extruded aluminum slats. The slats shall have an anodized, radiused ribbed top surface. The slats shall be of widths approximately 3/4" high x 6" wide and shall be welded into a one (1)-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose.

The apparatus hose body shall be properly reinforced without the use of angles or structural shapes and free from all projections that might injure the fire hose.

The main apparatus hose body shall run the full length of the apparatus body from behind the pump panel area to the rear face of the body.

The upper rear interior of the hose body on the right and left sides shall be overlaid with brushed stainless steel to protect the painted surface from damage by hose couplings.

One (1)

Y__N__

HOSEBED STORAGE CAPACITY

The hosebed shall be designed to have a storage capacity for a minimum of 55 cubic feet of Authority supplied fire hose.

Two (2)

Y__N__

ALUMINUM HOSEBED DIVIDER

Two (2) adjustable hosebed dividers constructed of 1/4" aluminum shall be installed.

Two (2) Y__N__
Each hosebed divider installed on the apparatus shall be provided with a hand hole cut-out approximately 3" wide x 8" long.

One (1) Y__N__
BULKHEAD DIVIDER

There shall be a full-width smooth aluminum bulkhead behind the fill tower.

One (1) Y__N__
ALUMINUM HOSEBED COVER

The hosebed shall be equipped with a reinforced hinged 1/8" aluminum diamond plate cover. The cover shall be a sloped design for proper water runoff. Positive hold-open devices shall be provided to hold the door in the open position.

The cover, approximately 37" to 48" wide, shall be installed the full length of the hosebed.

The hosebed cover shall be labeled, "Not a Standing or Walking Surface", per NFPA.

One (1) Y__N__
MAIN HOSEBED DIVIDER

One (1) stationary hosebed divider shall be provided in the main hosebed.

The hosebed divider shall be fabricated of 1/4" smooth aluminum sheet stock, pressed into a "T" shaped aluminum extrusion for added strength along the bottom and front edges of the divider.

The divider shall be bolted in place, front and rear, to allow for ease of removal or relocation.

One (1) Y__N__
POWER OPERATED ALUMINUM HOSEBED COVER

The polished aluminum treadplate hosebed covers extending the full length and width of the main hosebed shall be equipped with power operated actuators to open the covers. Hosebed covers shall include heavy duty stops to support them when in the opened position.

Two (2) Y__N__
HOSEBED LIGHTS

Two (2) LED lights shall be recessed into the underside of the hinged aluminum hosebed covers to provide illumination for repacking of fire hose. The 12-volt LED lights shall be automatically controlled by a switch which activates upon opening of the door. The lights shall also be connected to the hazard light in the chassis cab to indicate when the hosebed covers are in the open position.

One (1) Y__N__
BACKBOARD STORAGE AREA

One (1) slide-in storage rack shall be fabricated and attached to the underside of the aluminum hosebed cover. A mechanism for holding the backboard in place while in transit shall be supplied.

One (1)

Y__N__

REAR VINYL FLAPS FOR ALUMINUM COVER

There shall be a vinyl flaps attached to each aluminum hosebed cover. The vinyl flaps shall cover the area on the rear of the hosebed from top to bottom. The flaps shall be independent of each other but attachable with Velcro in the center. The bottom edge of the flap shall be shall be secured using a hook and loop fastening system.

One (1)

Y__N__

The vinyl cover shall be black in color.

One (1)

Y__N__

3/16" ALUMINUM BODY

The body shall be fabricated of aluminum extrusions, smooth aluminum sheet and aluminum treadplate.

The aluminum extrusion alloy shall be 6061 with a temper rating of T6, and have a tensile strength of 45,000 PSI and yield strength of 40,000 pounds. The aluminum extrusions shall be 3" x 3" aluminum tubing, 1-3/4" x 3" aluminum tubing and 3" x 3" aluminum angle and specially designed extrusions, up to 3/4" wall thickness where applicable.

The smooth aluminum sheet material alloy shall be 5052 with a temper rating of H32, and have a tensile strength of 33,000 PSI and yield strength of 28,000 pounds.

The aluminum treadplate alloy shall be 3003 with a temper rating of H22, and have a tensile strength of 30,000 PSI and yield strength of 28,000 pounds.

The extrusions shall be designed as structural-framing members with the smooth aluminum and treadplate fabricated to form compartments, hosebeds and floors. All aluminum material shall be welded together using the latest MiG spray pulse arc welding system.

Compartment floors shall be of the sweep out design with the floor higher than the compartment door lip and are to be water and dust proof. All compartments shall be made to the maximum practical dimensions to provide maximum storage capacity. To ensure maximum storage space, the apparatus shall be constructed without any void spaces between the body and the compartment walls. Double wall construction does not meet this requirement.

All exterior compartments shall have polished aluminum drip moldings installed above the doors where necessary, to prevent water from entering the compartments.

Wheel well panels shall be formed aluminum that is welded in place. There shall be no visible bolt heads, retention nuts or fasteners on the exterior surface of the panel. To fully protect the wheel well area from road debris and to aid in cleaning, a full depth radius wheel well liner shall be provided. The frame side of the wheel well area on each side of the opening shall be attached to the frame side of the front and rear compartments. All seams on the frame side of the body shall be welded and caulked to prevent moisture from entering the compartments.

The rear wheel wells shall be radius cut for a streamlined appearance. A fenderette shall be furnished at each rear wheel well opening, held in place with stainless steel fasteners.

Y__N__

FASTENERS

All aluminum and stainless steel components shall be attached using stainless steel fasteners.

Compartment door hinges, handrails and running boards shall be attached using minimum 1/4" diameter machine bolt fasteners.

3/16" diameter fasteners shall only be used in nonstructural areas such as door handles, trim moldings, gauge mounting, etc.

One (1)

Y__N__

ELECTROLYSIS CORROSION CONTROL

The apparatus shall be assembled using ECK or electrolysis corrosion control on all high corrosion potential areas such as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to prevent electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.

All 1/4" diameter and smaller screws and bolts shall be stainless steel.

Due to the expected life of the vehicle, proposals will only be acceptable from manufacturers that include these corrosion features.

One (1)

Y__N__

COMPARTMENT FLOORS

The compartment floors shall be constructed of smooth aluminum material, to match the compartment interior walls.

One (1)

Y__N__

GALVANIZED SUBFRAME

The apparatus body subframe shall be constructed entirely of heavy steel structural channel material.

Two (2) full frame lengths, 3" 3.4 pound per foot longitudinal steel channels shall form the sides of the body subframe and sides of the water tank cradle. Subframe cross members shall be fabricated with 3" 3.4 pound per foot heavy steel channel cross members welded to the longitudinal body subframe sides and the full length frame pads.

Two (2) full frame lengths 1/2" x 3" flat steel frame pads shall be attached to the body subframe and rest on top of the chassis frame rails for proper frame weight distribution.

The steel frame pads, longitudinal steel channels and subframe cross members shall be attached to the chassis frame rails using heavy "U" bolt fasteners, to allow removal of the subframe and body assembly from the chassis. There shall be a barrier provided between the subframe and body to prevent electrolysis.

The rear subframe and lower body platform support members shall be a two (2)-piece design, fabricated of 3.4 pound per foot heavy channel and welded to the full length subframe channel liners at the rear.

A minimum of two (2) rear platform support channels shall be provided and constructed of 3.4 pound per foot heavy steel material. Each support channel shall have welded in gusset where the support meets the rear subframe rails.

After fabrication, the entire subframe assembly shall be hot dip galvanized to prevent corrosion. The hot dip galvanized subframe shall have a lifetime warranty against failure due to corrosion.

This steel subframe shall carry the weight of the apparatus body, tank, water and equipment.

One (1) Y__N__
BODY CONFIGURATION

The aluminum apparatus body shall be up to 144" long, reference the drawing for actual body length.

One (1) Y__N__
SINGLE AXLE WHEEL AREA

For ease of accessibility and maintenance, wheel well panels shall be double break formed painted smooth plate that is welded in place.

To fully protect the wheel well area from road debris and to aid in cleaning, a full depth (minimum of 25") radius wheel well liner shall be provided. The wheel well liner shall be smooth aluminum to prevent corrosion.

One (1) Y__N__
FENDERETTES

The rear wheel wells shall be radius cut for a streamlined appearance. A polished stainless steel fenderette shall be furnished at each rear wheel well opening, held in place with concealed stainless steel fasteners.

One (1) Y__N__
BODY WIDTH

The overall width of the pumper body shall not exceed 96".

One (1) Y__N__
HOSEBED WIDTH

The width of the pumper body hosebed shall be 68".

COMPARTMENT DEPTH

Y__N__

The side compartments on the pumper body shall have the maximum available height and depth dimensions. These dimensions shall remain consistent for the full height and depth of the compartment.

One (1) Y__N__
COMPARTMENT HEIGHT - LEFT

The left side body compartments shall be 72" high.

One (1)

Y__N__

COMPARTMENT HEIGHT - RIGHT

The right side body compartments shall be 72" high.

One (1)

Y__N__

HINGED COMPARTMENT FLUSH DOOR CONSTRUCTION

All hinged compartment doors shall be flush style so the entire door fits flush against the apparatus body sides. Doors shall be designed in the closed position, to have the painted edges protected from damage on the tops by forming the tread plate compartment tops into an extended drip edge and on the bottom by the rub rail.

Doors shall be a minimum 2" thick, fabricated from a minimum of 1/8" smooth aluminum. Full panel inner compartment door liners shall be provided and constructed from smooth aluminum. The compartment doors shall have a foam panel glued in place between the exterior and interior door skin. Exterior door panels shall be smooth with no welds visible on the exterior skin. Double door compartments shall be equipped with a secondary latch to hold the secondary door in position.

All compartment door hinges shall be full length piano type, constructed of a minimum 16-gauge type 304, stainless steel with 3/16" stainless steel hinge pin with dual directional bolt holes for ease of adjustment.

When horizontally hinged lift-up doors are specified, they shall be equipped with heavy duty gas filled dampeners to hold the doors in the open position. All other hinged doors shall be equipped with spring loaded hold open devices specifically designed for use on vertically hinged doors. Door holders shall be bolted into position. The door ajar switches shall be fully enclosed within structural members and shall not extend into the clear door opening.

All compartment doors shall be provided with hollow core weather stripping to provide a weather tight seal at the door opening and to prevent road spray and debris from entering the compartment.

A non-moisture absorbing gasket shall be installed between the door latch and the door skin panel.

Six (6)

Y__N__

EXTERIOR DOOR HANDLES

All compartment doors shall be furnished with a deluxe Eberhard E Grabber Model #1-21100 die cast, black finished two (2)-point pull handle assembly with slam type latches. The latch shall utilize a "free-floating" handle with recessed pocket for ease of use even when wearing mitts or gloves. The compartment door shall open with a simple, easy "pull" of the latch handle.

Door handles shall be held in place with blind mounting brackets for security and appearance. To prevent possible interaction between dissimilar metals, assembly shall not break any painted surface. A non-moisture absorbing gasket shall be installed on the door latch by the latch manufacturer, isolating the latch assembly from the door panel surface. The door handle assembly and installation shall be water and weather resistant.

Handles which are held in place with visible fasteners, two-sided tape or glue do not meet the intent of this requirement.

One (1) Y__N__

LEFT FRONT COMPARTMENT

There shall be one (1) full height compartment located ahead of the rear wheels. The compartment shall be equipped with a single full height reverse hinged door.

One (1) Y__N__

One (1) louver with filter shall be installed in the compartment.

Two (2) Y__N__

ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

Two (2) Y__N__

ADJUSTABLE SHELVES

Two (2) adjustable shelves shall be constructed of .188" smooth aluminum plate with 1-1/2" formed vertical lip front and back. Shelf supports on each side are to be constructed of .188" aluminum and bolted to an aluminum extrusion (mounted vertically) with 3/8" bolts and spring-loaded cam locks. If the shelf is longer than 40" a reinforcement by aluminum gusset is to be placed full length on the bottom of the shelf.

One (1) Y__N__

250 POUND ROLLOUT TRAY

One (1) rollout equipment tray shall be installed in the compartment. The tray with telescoping slides and cam follower bearings shall be rated to a maximum load of 250 pounds. The tray shall have a gas shock to hold the tray extended or closed. There shall be a lock to prevent movement when the tray is in the closed position.

The tray shall be formed of .188" smooth aluminum plate, fabricated with 2" sides. Reflective material measuring 1" x 6" shall be installed on each front corner, both on the face and side of the tray for firefighter safety.

Two (2) Y__N__

LEFT FRONT COMPARTMENT LIGHTS

Two (2) LUMA BAR vertically mounted roll up compartment LED door lights shall be installed, one on each side of the door opening. The compartment lights shall be integrated into the roll up door tracks with the light actuation with the door opening.

The lights shall have a polycarbonate lens, to eliminate breakage from impact and heat buildup.

One (1) Y__N__

The compartment lights will be controlled by a magnetic "On-Off" switch located on the compartment door.

One (1) Y__N__

LEFT OVERWHEEL COMPARTMENT

There shall be one (1) compartment above the lower front compartment. The compartment shall be equipped with a single hinged lift up door.

One (1) Y__N__
One (1) louver with filter shall be installed in the compartment.

Two (2) Y__N__
ADJUSTABLE SHELVING TRACKS

The compartment shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

One (1) Y__N__
SWING-OUT PAC TRAC TOOL BOARD

One (1) swing-out vertical tool board assembly constructed of PacTrac "Dual Trac" shall be provided, with a device for holding it in the "in" and "out" positions.

The tool board shall have a grab handle, for easy access with a gloved hand.

One (1) Y__N__
PAC TRAC TOOL BOARD

The rear wall shall be covered with stationary PacTrac panels.

One (1) Y__N__
LEFT OVERWHEEL COMPARTMENT LIGHTS

Two (2) LUMA BAR vertically mounted roll up compartment LED door lights shall be installed, one on each side of the door opening. The compartment lights shall be integrated into the roll-up door tracks, with the light actuation with the door opening.

The lights shall have a polycarbonate lens, to eliminate breakage from impact and heat buildup.

One (1) Y__N__
The compartment lights will be controlled by a magnetic "On-Off" switch located on the compartment door.

One (1) Y__N__
LEFT REAR COMPARTMENT

There shall be one (1) full height compartment located behind the rear wheels. The compartment shall be equipped with a full height double hinged door.

One (1) Y__N__
One (1) louver with filter shall be installed in the compartment.

Two (2) Y__N__
ADJUSTABLE SHELVING TRACKS

The compartment shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

One (1)

Y__N__

ADJUSTABLE SHELF

One (1) adjustable shelf shall be constructed of .188" smooth aluminum plate with 1-1/2" formed vertical lip front and back. Shelf supports on each side are to be constructed of .188" aluminum and bolted to an aluminum extrusion (mounted vertically) with 3/8" bolts and spring-loaded cam locks. If the shelf is longer than 40" a reinforcement by aluminum gusset is to be placed full length on the bottom of the shelf.

Two (2)

Y__N__

ROLLOUT ALUMINUM TOOL BOARDS

Two (2) rollout tool board panels shall be mounted vertically within the compartment. The panels and tracks shall be rated to a maximum load of 500 pounds. The panels are to be formed of .188" smooth aluminum with an opening to accommodate a gloved hand to slide tool board.

The tool boards shall slide out to full extension of the compartment, with a device to hold tool board in both fully-extended and stored positions.

Two (2)

Y__N__

LEFT REAR COMPARTMENT LIGHTS

Two (2) LUMA BAR vertically mounted roll-up compartment LED door lights shall be installed, one on each side of the door opening. The compartment lights shall be integrated into the roll up door tracks, with the light actuation with the door opening.

The lights shall have a polycarbonate lens, to eliminate breakage from impact and heat buildup.

One (1)

Y__N__

The compartment lights will be controlled by a magnetic "On-Off" switch located on the compartment door.

One (1)

Y__N__

RIGHT FRONT COMPARTMENT

There shall be one (1) full height compartment located ahead of the rear wheels. The compartment shall be equipped with a single full height hinged door.

One (1)

Y__N__

One (1) louver with filter shall be installed in the compartment.

Two (2)

Y__N__

ADJUSTABLE SHELVING TRACKS

The compartment shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

Two (2)

Y__N__

ADJUSTABLE SHELVES

Two (2) adjustable shelves shall be constructed of .188" smooth aluminum plate with 1-1/2" formed vertical lip front and back. Shelf supports on each side are to be constructed of .188" aluminum and bolted to an aluminum extrusion (mounted vertically) with 3/8" bolts and spring-

loaded cam locks. If the shelf is longer than 40" a reinforcement by aluminum gusset is to be placed full length on the bottom of the shelf.

One (1)

Y__N__

500# ROLLOUT TRAY

One (1) rollout equipment tray shall be installed in the compartment. The tray with telescoping slides and cam follower bearings shall be rated to a maximum load of 500 pounds. The tray shall have a gas shock to hold the tray extended or closed. There shall be a lock to prevent movement, when the tray is in the closed position.

The tray shall be formed of .188" smooth aluminum plate, fabricated with 2" sides. Reflective material measuring 1" x 6" shall be installed on each front corner, both on the face and side of the tray for firefighter safety.

Two (2)

Y__N__

RIGHT FRONT COMPARTMENT LIGHTS

Two (2) LUMA BAR vertically mounted roll-up compartment LED door lights shall be installed, one on each side of the door opening. The compartment lights shall be integrated into the roll-up door tracks, with the light actuation with the door opening.

The lights shall have a polycarbonate lens, to eliminate breakage from impact and heat buildup.

One (1)

Y__N__

The compartment lights will be controlled by a magnetic "On-Off" switch located on the compartment door.

One (1)

Y__N__

RIGHT OVERWHEEL COMPARTMENT

There shall be one (1) compartment above the lower front compartment. The compartment shall be equipped with a single hinged lift up door.

One (1)

Y__N__

One (1) louver with filter shall be installed in the compartment.

Two (2)

Y__N__

ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

One (1)

Y__N__

SWING-OUT PAC TRAC TOOL BOARD

One (1) swing-out vertical tool board assembly constructed of PacTrac "Dual Trac" shall be provided with a device for holding it in the "in" and "out" positions.

The tool board shall have a grab handle, for easy access with a gloved hand.

One (1) Y__N__
RIGHT OVERWHEEL COMPARTMENT LIGHTS

Two (2) LUMA BAR vertically mounted roll-up compartment LED door lights shall be installed, one on each side of the door opening. The compartment lights shall be integrated into the roll-up door tracks, with the light actuation with the door opening.

The lights shall have a polycarbonate lens, to eliminate breakage from impact and heat buildup.

One (1) Y__N__
The compartment lights will be controlled by a magnetic "On-Off" switch located on the compartment door.

One (1) Y__N__
RIGHT REAR COMPARTMENT

There shall be one (1) full height compartment located behind the rear wheels. The compartment shall be equipped with a full height double hinged door.

One (1) Y__N__
One (1) louver with filter shall be installed in the compartment.

Two (2) Y__N__
ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

One (1) Y__N__
500# ROLLOUT TRAY

One (1) roll-out equipment tray shall be installed in the compartment. The tray with telescoping slides and cam follower bearings shall be rated to a maximum load of 500 pounds. The tray shall have a gas shock to hold the tray extended or closed. There shall be a lock to prevent movement, when the tray is in the closed position.

The tray shall be formed of .188" smooth aluminum plate, fabricated with 2" sides. Reflective material measuring 1" x 6" shall be installed on each front corner, both on the face and side of the tray for firefighter safety.

Two (2) Y__N__
ADJUSTABLE SHELVES

Two (2) adjustable shelves shall be constructed of .188" smooth aluminum plate with 1-1/2" formed vertical lip front and back. Shelf supports on each side to be constructed of .188" aluminum and bolted to an aluminum extrusion (mounted vertically) with 3/8" bolts and spring-loaded cam locks. If the shelf is longer than 40" a reinforcement by aluminum gusset is to be placed full length on the bottom of the shelf.

Two (2) Y__N__
RIGHT REAR COMPARTMENT LIGHTS

Two (2) LUMA BAR vertically mounted roll-up compartment LED door lights shall be installed, one on each side of the door opening. The compartment lights shall be integrated into the roll-up door tracks, with the light actuation with the door opening.

The lights shall have a polycarbonate lens to eliminate breakage from impact and heat buildup.

One (1) Y__N__
The compartment lights will be controlled by a magnetic "On-Off" switch located on the compartment door.

One (1) Y__N__
REAR BODY CONFIGURATION

The rear of the apparatus body shall be flat back design.

One (1) Y__N__
REAR CENTER COMPARTMENT

There shall be one (1) full height compartment located at the rear of the apparatus. The compartment shall be equipped with a full height natural finish roll up door. The compartment shall be open to the rear side compartments, providing a transverse compartment at the rear of the truck.

There shall be no chevron on the door.

One (1) Y__N__
One (1) louver with filter shall be installed in the compartment.

Two (2) Y__N__
ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

Two (2) Y__N__
500# ROLLOUT TRAY

Two (2) roll-out equipment trays shall be installed in the compartment. The trays with telescoping slides and cam follower bearings shall be rated to a maximum load of 500 pounds. The trays shall have a gas shock to hold the tray extended or closed. There shall be locks to prevent movement, when the trays are in the closed position.

The trays shall be formed of .188" smooth aluminum plate, fabricated with 2" sides. Reflective material measuring 1" x 6" shall be installed on each front corner, both on the face and side of the trays for firefighter safety.

Two (2) Y__N__
COMPARTMENT LIGHTS

Two (2) LUMA BAR vertically mounted roll-up compartment LED door lights shall be installed, one on each side of the door opening. The compartment lights shall be integrated into the roll-up door tracks, with the light actuation with the door opening.

The lights shall have a polycarbonate lens to eliminate breakage from impact and heat buildup.

One (1) Y__N__
The compartment lights will be controlled by a magnetic "On-Off" switch located on the compartment door.

One (1) Y__N__
REAR STEP - 12" BOLT-ON

A 12" deep step surface shall be provided at the rear of the apparatus body, bolted in place and easily removable for replacement or repair. The tailboard shall be constructed of .188" aluminum diamond plate or equal non-slip surface in compliance with NFPA 1901 standards.

A label shall be provided, warning personnel that riding on the rear step while the apparatus is in motion is prohibited.

One (1) Y__N__
SLIDE OUT VERTICAL LADDER MOUNTINGS

The ladder shall slide into the right rear of the apparatus, through the right side of the body. The vertically mounted slide in assembly shall be an integral part of the body and accessible through a hinged door.

One (1) Y__N__
The hinged door shall be constructed of smooth material, with chevron striping applied to match the rear of the apparatus body.

One (1) Y__N__
INTERNAL FOLDING ATTIC LADDER MOUNTING

An internal mounting shall be provided for the specified folding attic ladder.

One (1) Y__N__
LADDER SOURCE

New ground ladders shall be provided by the body builder.

Two (2) Y__N__
PIKE POLE MOUNTING BRACKET

Two (2) tubes shall be provided for pike pole mounting. The tubes shall have a 2" interior diameter and shall be mounted inside of the apparatus body.

One (1) Y__N__
D-HANDLE TOOL STORAGE

One (1) tube shall be provided for D-Handled trash hook mounting. The tube shall have a 5" interior diameter and be mounted inside of the apparatus body.

One (1) Y__N__
PIKE POLE SOURCE

The pike poles shall be provided by the body builder.

One (1) Y__N__
HARD SUCTION MOUNTING - TOP

One (1) hard suction hose compartment shall be provided at the top of the body compartments, behind the roll up door, on the left side. The design shall allow the hose to be individually

removed from the rear of the apparatus. The hard-suction hose compartment shall have a hinged door with push to latch door catches.

One (1) Y__N__
The hinged door shall be constructed of smooth material, with chevron striping applied to match the rear of the apparatus body.

One (1) Y__N__
HARD SUCTION MOUNTING - REAR

One (1) hard suction hose shall be located in the rear ladder compartment. The hard suction shall be stored at the top of the ladder compartment.

One (1) Y__N__
The hinged door shall be constructed of smooth material, with chevron striping applied to match the rear of the apparatus body.

One (1) Y__N__
SUCTION HOSE SOURCE

New suction hose shall be provided by the Authority.

Two (2) Y__N__
SUCTION HOSE

Two (2) 6.0" x 10' length of PVC flexible suction hose shall be supplied by the Authority. The suction hoses shall have lightweight couplings provided.

Two (2) Y__N__
HOSE COUPLINGS

Lightweight aluminum couplings shall be provided on the Authority supplied suction hose. A long handle female swivel shall be provided on one end and a rocker lug male shall be provided for the other end.

Three (3) Y__N__
FOLDING STEPS LEFT SIDE FRONT

Three (3) folding steps of die cast high strength zinc/aluminum alloy, plated with a superior automotive grade chrome finish shall be provided. The greater than 42 square inch serrated non-skid step traction area also offers an oversized non-slip grasp hand-hold. A heavy duty stainless steel spring design firmly holds the step in the open or closed positions. A rubber stop prevents any transit noise and rattles in the closed position. Step lighting shall be from a LED light mounted above the step.

The step has been third part tested to assure conformation of NFPA 1901 and FHA, 49CFR specifications for stepping surfaces and handhold.

The step shall be installed on the left side front compartment face.

Three (3) Y__N__
FOLDING STEPS RIGHT SIDE FRONT

Three (3) folding steps of die cast high strength zinc/aluminum alloy, plated with a superior

automotive grade chrome finish shall be provided. The greater than 42 square inch serrated non-skid step traction area also offers an oversized non-slip grasp hand-hold. A heavy duty stainless steel spring design firmly holds the step in the open or closed positions. A rubber stop prevents any transit noise and rattles in the closed position. Step lighting shall be from a LED light mounted above the step.

The step has been third part tested to assure conformation of NFPA 1901 and FHA, 49CFR specifications for stepping surfaces and handhold.

The step shall be installed on the right side front compartment face.

Two (2) Y__N__
HANDRAIL TOP OF BODY SIDES

Two (2) extruded aluminum non-slip handrails, approximately 12" in length, shall be provided and mounted, one (1) on each side at the top of the sides, at the front of the apparatus body.

One (1) Y__N__
FRONT BODY PANELS

The front of the body compartments from the lower edge to the top of the compartment doors shall be painted.

One (1) Y__N__
CATWALKS

Aluminum tread plate catwalks shall be installed on the top of the compartments.

One (1) Y__N__
REAR BODY PROTECTION PANELS

The rear body panels of the body shall be a smooth material, to allow for the proper application and installation of a chevron stripe on the rear.

One (1) Y__N__
POLISHED COMPARTMENT TOP WELDS

The compartment top welds to be polished.

One (1) Y__N__
ACCESS LADDER EZ CLIMB - LEFT REAR

There shall be one (1) swing out and down access ladder supplied and installed on the apparatus, for accessing the top of the apparatus. It shall be of an all-aluminum design and shall incorporate treads 6" deep and no more than 18" apart. The ground to the first step dimension, on level ground, shall be no more than 24".

The access ladder shall have integrated hand holds in the steps, to aid in the ascent/descent of the ladder.

When in the deployed position, the ladder shall have an angle of approximately 75-degrees to facilitate ascending and descending the ladder. The ladder shall be retained in the stowed and deployed position by two (2) gas cylinders and shall not require the use of latches to hold it in position.

Two (2) Y__N__
HANDRAILS EZ-CLIMB LADDER

Two (2) extruded aluminum non-slip handrails with offset brackets shall be installed on the EZ-Climb access ladder, one (1) on each side.

Two (2) Y__N__
HANDRAIL REAR STEPS

Two (2) extruded aluminum non-slip handrails, approximately 30" in length, shall be provided and vertically mounted on the rear of the apparatus, one (1) on each side of the body.

One (1) Y__N__
HANDRAIL BELOW HOSEBED

One (1) extruded aluminum non-slip handrail, approximately 48" in length, shall be provided and horizontally mounted below the hosebed on the rear of the apparatus.

One (1) Y__N__
EXTRUDED ALUMINUM RUB RAILS

Full body length polished aluminum rub rails shall be bolted in place on the lower right and left body sides. The side rub rails shall be a heavy extruded aluminum "C" channel.

One (1) Y__N__
NYLON SPACERS FOR RUB RAILS

There shall be nylon spacers provided between the rub rails and the body.

One (1) Y__N__
WHEEL WELL PROVISION LOCATION

The wheel well provisions shall be located on the left side of the apparatus, ahead of the rear wheels.

One (1) Y__N__
One (1) breathing air cylinder storage compartment for four (4) SCBA cylinders (not supplied) shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be provided with a gasket between door and body side, bolted in place and removable for repair or replacement.

The compartment shall be provided with SCBA cylinder scuff protection. A brushed stainless steel door shall be provided.

Four (4) Y__N__
Four (4) 1" wide loop of black webbing shall be installed in each SCBA compartment, to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within 1" of the compartment floor, allowing the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

One (1) Y__N__
WHEEL WELL PROVISION LOCATION

The wheel well provisions shall be located on the left side of the apparatus, behind the rear wheels.

One (1) Y__N__
FUEL FILL DOOR

A **Line-X black** fuel fill door shall be installed in the left side rear wheel well. A label indicating DIESEL FUEL ONLY shall be applied.

One (1) Y__N__
WHEEL WELL PROVISION LOCATION

The wheel well provisions shall be located on the right side of the apparatus, ahead of the rear wheels.

One (1) Y__N__
One (1) breathing air cylinder storage compartment for four (4) SCBA cylinders (not supplied) shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be provided with a gasket between door and body side, bolted in place and removable for repair or replacement.

The compartment shall be provided with SCBA cylinder scuff protection. A brushed stainless steel door shall be provided.

Four (4) Y__N__
Four (4) 1" wide loop of black webbing shall be installed in each SCBA compartment, to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within 1" of the compartment floor, allowing the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

One (1) Y__N__
WHEEL WELL PROVISION LOCATION

The wheel well provisions shall be located on the right side of the apparatus, behind the rear wheels.

One (1) Y__N__
One (1) breathing air cylinder storage compartment for four (4) SCBA cylinders (not supplied) shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be provided with a gasket between door and body side, bolted in place and removable for repair or replacement.

The compartment shall be provided with SCBA cylinder scuff protection. A brushed stainlesssteel door shall be provided.

Four (4) Y__N__

Four (4) 1" wide loop of black webbing shall be installed in each SCBA compartment, to prevent the bottle from sliding out of the compartment in case of door failure. The loop shall be mounted, centered in the compartment and shall hang within 1" of the compartment floor, allowing the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

Two (2) Y__N__

POWER DISTRIBUTION STRIPS

Two (2) 15-amp power distribution strips with four (4) receptacles shall be provided. The strips shall be powered by the chassis shoreline power.

Strips shall be mounted on each side of the engine tunnel, next to the EMS compartments.

One (1) Y__N__

WINCH RECEIVER - FRONT

The front of the chassis shall be equipped with a receiver assembly for high or low angle rescue or winch applications. The receiver shall be a square steel tube, same size as that of a trailer hitch. The unit shall be attached to the chassis frame assembly.

One (1) Y__N__

WINCH RECEIVER - REAR

The rear of the apparatus body shall be equipped with a receiver assembly for high or low angle rescue or winch applications. The receiver shall be a square steel tube, same size as that of a trailer hitch. The unit shall be attached to the body subframe assembly.

Two (2) Y__N__

WINCH RECEIVERS - SIDE BODY

The body shall be equipped with two (2) receiver assemblies for high or low angle rescue or winch applications. The receivers shall be square steel tubes, same size as that of a trailer hitch. The units shall be attached to the body subframe assembly or chassis frame rails and shall be located behind the rear wheels.

One (1) Y__N__

BODY PAINT PROCESS

All bright metal fittings, if unavailable in stainless steel shall be heavily chrome plated. Iron fittings shall be copper plated prior to chrome plating. If applicable, any and all accessory items shall be removed from the body prior to cleaning and painting. Any accessory items that are to be painted, shall be painted separately and installed after the body is painted and cured.

All seams shall be caulked, both inside and along the exterior edges, with a urethane automotive sealant to prevent moisture from entering between any body panels.

The body and all parts shall be thoroughly washed with grease cutting solvent (PPG DX330) prior to any sanding. After the body has been sanded and the weld marks and minor imperfections are filled and sanded, the body shall be washed again with (PPG DX330) to remove any contaminants on the surface.

The next two (2) to four (4) coats (depending on need) shall be a PPG DelFleet F4936 High Solids Epoxy Gray Primer. The film build shall be 4 to 6 mils when dry. The primer surfacer coat, after appropriate dry time, shall be sanded with 320-600 grit sandpaper to ensure maximum gloss of the paint. The last step is the application of at least three (3) coats of PPG DelFleet polyurethane two (2)-component color (single stage). The film build being 2 to 3 mils dry. The single stage polyurethane, when mixed with component (PPG F3270) catalyst shall provide a UV barrier to prevent fading and chalking.

All products and technicians are certified by PPG every two (2) years.

One (1) Y__N__

APPARATUS COLOR

The apparatus shall be Red and Black in color.

One (1) Y__N__

INTERIOR COMPARTMENT FINISH

Eight (8) apparatus side compartment interiors are to be painted with a spatter finish material. The compartments shall be cleaned with a grease remover, and then the surface sanded and prepared for painting. The compartments shall be provided with two (2) coats of white epoxy. The compartments shall then be coated with a gray splatter paint top coat.

One (1) Y__N__

TOUCH-UP PAINT

Two (2) two (2) ounce bottles of touch-up paint (one for each color) shall be furnished with the completed truck at final delivery.

One (1) Y__N__

FENDERETTES

One (1) pair of stainless steel fenderettes shall be finished with black Line-X.

One (1) Y__N__

UNDERCOATING

The entire underside of the single axle apparatus body is to be cleaned and properly prepared for application of a sprayed on automotive type undercoating for added corrosion resistance. Undercoating is to be a solvent based, rubberized coating, black in color.

One (1) Y__N__

LETTERING

The Authority shall supply the apparatus lettering.

One (1) Y__N__

REFLECTIVE STRIPING

A 1" x 6" x 1" 3M brand Scotchlite reflective multi-stripe shall be affixed to the perimeter of the vehicle. There shall be a 1" gap between each of the stripes. Striping shall conform to applicable NFPA requirements. At least 50% of the perimeter length of each side and width of the rear, and at least 25% of the perimeter width of the front of the vehicle shall have reflective striping.

One (1) Y__N__
COLOR OF STRIPING MATERIAL

The color of the 3M brand striping material shall be black.

One (1) Y__N__
CHEVRON STRIPING – FRONT BUMPER

The front bumper shall have 3M reflective red and black striping installed. The chevron style striping shall be applied at a 45-degree upward angle.

One (1) Y__N__
CHEVRON STRIPING – REAR BODY

The entire rear portion of the body shall have 3M reflective red and black striping installed. The chevron style striping shall be applied at a 45-degree upward angle pointing towards the center upper portion of the rear panel.

One (1) Y__N__
INTERIOR CAB DOOR CHEVRON

Reflective striping shall be installed on the interior of each chassis door. The lower portion of the doors shall have a Scotchlite red and black chevron striping applied to it. A reflective stripe shall also be applied on the vertical outer edge of each cab door.

One (1) Y__N__
YELLOW SAFETY TAPE - STANDING & WALKING SURFACES

The apparatus shall meet NFPA standard 15.7.1.6 requiring any horizontal standing or walking surface higher than 48” from the ground and not guarded by railing or structure at least 12” high shall to have at least a 1” wide safety yellow line delineation that contrasts with the background, to mark the outside perimeter of the designated standing or walking surface area, excluding steps and ladders.

Two (2) Y__N__
WHEEL CHOCKS WITH MOUNTS

One (1) pair of Zico Model SAC-44 Quic-Chok folding wheel chocks shall be provided and mounted under the apparatus body with model SQCH-44H horizontal mounting brackets.

One (1) Y__N__
ROOF LADDER

One (1) Duo Safety Model 775-A, 14-foot aluminum roof ladder with folding steel roof hooks on one end and steel spikes on the other end shall be provided on the apparatus. The ladder shall meet or exceed all latest NFPA Standards.

One (1) Y__N__
EXTENSION LADDER

One (1) Duo-Safety Model 900-A, 24-foot two (2) section aluminum extension ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA standards.

One (1)

Y__N__

FOLDING LADDER

One (1) Duo Safety Model 585-A, 10-foot folding aluminum ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA Standards.

One (1)

Y__N__

PIKE POLE

One (1) 6' pike pole with round handle shall be provided. The pike pole shall be fiberglass construction.

One (1)

Y__N__

PIKE POLE

One (1) 10' pike pole with round handle shall be provided. The pike pole shall be fiberglass construction.

ADDITIONAL REQUIREMENTS

One (1)

Y__N__

TOLL FREE SERVICE NUMBER

Due to the nature of emergency fire and rescue services being subject to respond at any time of the day or night, the Authority requires that this also applies to the selling Dealer and the manufacturer. On a typical day to day basis, the request for service is expected to be requested from the selling Dealer. If the Dealer's service center is not readily available, the Authority needs assurance that the OEM (Original Equipment Manufacturer) can be reached for assistance.

With that said, each Bidder shall supply a toll-free telephone number that provides OEM emergency service assistance. This number, when called, shall be directed to a call center, then to an OEM service technician, 24-hours a day, 365 days a year.

There shall be a minimum of ten (10) OEM service technicians at any time in the queue to answer an incoming emergency service call. One (1) of which shall be the OEM's National Service Manager. In the interest of providing the minimum level of acceptable service for the new apparatus, this shall be considered a requirement of the Successful Bidder/proposal.

One (1)

Y__N__

DOCUMENTATION

The manufacturer must supply at time of delivery, at least one copy of:

1. Engine manufacturer's certified brake horsepower curve, showing the maximum no load governed speed.
2. Manufacturer's record of pumper construction details.
3. Pump manufacturer's certification of suction capability.
4. Pump manufacturer's certification of hydrostatic test.
5. Certification of inspection and testing by Underwriters Laboratories.
6. A copy of the apparatus manufacturer's approval for stationary pumping applications.
7. Weight documents from a certified scale, showing actual loading on the front axle, rear axle and overall vehicle.
8. The operation manual covering the fire apparatus as delivered.

A test data plate shall be provided at the pump operator's position that gives the rated discharges and pressures together with the speed of the engine as determined by the manufacturer's test for this unit. The plate must comply with requirements of NFPA 1901.

A permanent data plate shall be affixed in the driver's compartment specifying the quantity and type of fluids used in the vehicle (see Fluid Data Plaque section).

Permanent placards shall be affixed and visible to all seated occupants instructing the occupants to wear their seat belts.

A permanent placard shall be affixed to the rear step area indicating that riding on the rear step is prohibited.

One (1)

Y__N__

COMPLETE PRINTED MANUAL

The manufacturer shall provide with the vehicle upon delivery, one (1) complete delivery manual. This manual shall be in a notebook type binder, with reference tabs for each section of the vehicle. A

companion compact disk (CD) with all printed material in an electronic format (Adobe Acrobat PDF) shall also be provided.

Within each section shall be:

- Individual component manufacturer instruction and parts manuals
- Warranty forms for the body
- Warranty forms for all major components
- Warranty instructions and format to be used in compliance with warranty obligations
- Wiring diagrams
- Installation instruction and drawings for major parts
- Visual graphics and electronic photos for the installation of major parts
- Necessary normal routine service forms, publications and components of the body portion of the apparatus
- Technical publications for training and instruction on major body components
- Warning and safety related notices for personnel protection
- Cab and chassis manuals on parts, service and maintenance

One (1)

Y__N__

OPERATION AND FAMILIARIZATION MANUAL

The apparatus manufacturer shall supply, at delivery, customized Operation & Familiarization Manual, complete with full-color photos of the actual, completed apparatus with each feature and control identified and its function explained.

Safety, Operation, Maintenance and Troubleshooting sections will include information about each major component of the apparatus (chassis, pump, foam system, generator, electrical devices, etc.). The manual shall be specific to the apparatus being delivered.

All safety and warning labels shall be represented in the manual for subsequent safety inspections, to ensure their continued presence on the apparatus.

The manufacturer shall submit a sample manual with the bid proposal. Failure to do so will result in rejection of the proposal. Reference to "on delivery" or "at pre-build" submission is not an acceptable response for the bid document.

“Typical" or "generic" manuals will not be accepted.

One (1)

Y__N__

ENGINE AND TRANSMISSION MANUALS

One (1) paper copy and one (1) digital copy of the Cummins engine service manual and one (1) paper copy and one (1) digital copy of the Allison brand transmission service manual shall accompany the cab and chassis.

One (1)

Y__N__

AS BUILT WIRING DIAGRAMS

Each cab and chassis shall include one (1) digital copy of the wiring schematics and component wiring. The wiring schematics shall be developed on a software program such as VeSys Design or an equivalent that provides continuity in files and diagram. The software shall allow you to trace through the design

schematics to identify cross referenced items such as in-line connectors and wires. The software shall be interactive, allowing you to view one electrical assembly drawing; when you click on a wire routing, the program will take you to the related circuit assembly or termination point. The software shall also provide a search function that allows you to view multiple diagrams using readily available pdf viewers. The digital copy of the wiring schematics shall be compatible with hand held devices such as I-Pads.

One (1)

Y__N__

ONLINE SERVICE MANUAL SUPPORT

As part of the standard delivery manual, the manufacturer shall give a password-protected link to the Authority, allowing access to the manufacturers' database on service parts. The internet-based system shall allow the Authority to access the major component suppliers' service parts listing such as Hale, Waterous, Akron, etc. This shall be accomplished with simplistic point and click features on the manufacturer line item within the "stripper" or "line item sheet". This will include automatic updates, printable schematics and manufacturer's web links and be made available in the commercially available format of Adobe Acrobat Reader to access these documents. The manufacturer shall submit with the bid proposal, a sample set of online Adobe formatted material that has been printed from the manufacturer's website.

Parts Listings within Manuals

The manuals will include cross-referenced part numbers from the manufacturer part number to the vendor parts. Example: Hydraulic Ladder Rack, Part #LR-MN-0002 cross-referenced to Ziamatic Corporation Part 098-MN2345. This will allow for reference between individual parts and complete installation assemblies as completed by the body builder. The manuals will list all components of the vehicle that include a vendor part utilized in a complete installation via the manufacturer's "line item sheet" or "stripper". These are "As Built" and proposals with "typical" or "generic" manuals will be rejected.

Illustrative Schematics within Manuals

The manufacturer shall include installation diagrams and drawings of all major sub-assemblies. This will include components such as hydraulic ladder rack assemblies, pump panels, tanks, fire pumps, etc. The drawings shall be linked via an internet-based service program, in an electronic format from the manufacturer's "stripper" (line item listing) of the manufacturing document. The manufacturer shall submit, upon request, a sample schematic.

Digital Images within Manuals

In addition to two (2) and three (3)-dimensional installation drawings, the manufacturer shall make accessible, via an internet-based link, the actual photos of the installed components listed within the "stripper" or line sheet. This will include, but is not limited to wiring terminals, main body distribution strips, fire pump shifting, auxiliary components, etc. The manufacturer shall submit a sample of these upon request.

Installation Instructions within Manuals

The manufacturer "work instructions" or "installation instructions" shall be included with the service manuals. These documents shall be accessible via an internet-based link to the individual vehicle manufactured. The work instructions shall give systematic instructions of the component installation process. The manufacturer shall submit, upon request, a sample set of instructions.

Automatic Updates of Manuals and Parts Listings

The online manuals will include automatic updates that are accessible via the internet-based link. When clicking on the part within the manufacturer's stripper or line sheet, it will allow the Authority to access the component manufacturer website for updated information. This will allow for latest parts and service components from the individual part manufacturer or vendor.

Electrical Schematics

To maintain the vehicles electrical systems, the manufacturer shall provide to the Authority the instructional manuals, complete electrical information and schematics on the vehicle. The electrical information shall be provided as follows:

Wiring Systems 12 and 120 Volt:

- Graphic symbols for electrical diagrams.
- Wire labeling, imprinting codes and index.
- Computer generated electrical schematics indicating the circuit number, wire size, switches, circuit breaker and terminals on the vehicle.

The manufacturer shall submit, upon request, a sample set of diagrams.

WARRANTIES

One (1) Y__N__
BUMPER TO BUMPER WARRANTY – ONE YEAR

The manufacturer shall warrant the apparatus for a period of ONE YEAR from the date of delivery, except for chassis and other components noted herein. Under this warranty the manufacturer agrees to furnish, without charge, any parts to replace those that have failed due to defective material or workmanship.

This warranty shall not apply to those items that are usually considered normal maintenance and upkeep services including, but not limited to, normal lubrication or proper adjustment of minor auxiliary pumps or reels.

One (1) Y__N__
ALUMINUM BODY WARRANTY - FIVE YEAR

The manufacturer warrants to the Authority, that the all-aluminum body, under normal use and with reasonable maintenance, be structurally sound and will remain free from corrosion perforation for a period of FIVE (5) years. The manufacturer will replace without charge, repair or make a fair allowance for any defect in material or workmanship.

One (1) Y__N__
FRAME WARRANTY - LIFETIME

The frame and cross members shall carry a LIFETIME warranty, with complete detail outlined in a warranty document to be provided upon request by the Authority.

One (1) Y__N__
GALVANIZED SUBFRAME WARRANTY - LIFETIME

The manufacturer hereby warrants to the Authority, that each new hot dip galvanized body subframe (exclusive of paint finish and hardware) is structurally sound and free of all structural defects of both material and workmanship and further warrants that it will maintain such structural integrity for the duration of ownership by the Authority.

One (1) Y__N__
LETTERING WARRANTY – ONE YEAR

The manufacturer warrants to the Authority, that the lettering and striping, installed by the manufacturer, will remain free from defects for a period of ONE (1) year under normal use. The manufacturer will replace without charge, repair or make a fair allowance for any defect in material or workmanship.

One (1) Y__N__
PAINT WARRANTY TEN YEAR - PRO RATED

The manufacturer hereby warrants the paint on the body of the apparatus to be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection for a period of TEN (10) years, starting on the date the vehicle is delivered to the Authority. Under this warranty, the manufacturer agrees to furnish any item or items to replace those that have been found to be defective in material or workmanship.

One (1) Y__N__
CAB STRUCTURE WARRANTY – TEN YEAR

The cab structure shall be warranted for a period of TEN (10) years, with complete detail outlined in a warranty document to be provided upon request by the Authority.

One (1) Y__N__
TRANSMISSION WARRANTY – FIVE YEAR

The Allison EVS transmission shall be warranted for a period of FIVE (5) years, with complete detail outlined in a warranty document to be provided upon request by the Authority.

One (1) Y__N__
ENGINE WARRANTY – FIVE YEAR

The Cummins engine shall be warranted for a period of FIVE (5) years or 100,000 miles, whichever comes first, with complete detail outlined in a warranty document to be provided upon request by the Authority.

One (1) Y__N__
FRONT AXLE WARRANTY – FIVE YEAR

The front axle shall be warranted by Hendrickson for FIVE (5) years or 500,000 miles, whichever comes first, under the general service application.

One (1) Y__N__
REAR AXLE WARRANTY – FIVE YEAR

The rear axle(s) shall be warranted by Meritor for FIVE (5) years, with unlimited miles under the general service application.

One (1) Y__N__
CAB AND CHASSIS WARRANTY – ONE YEAR

The cab and chassis shall carry a TWELVE (12) month warranty providing parts and labor, beginning on the date the complete apparatus is delivered to the Authority. The complete detail of the warranty shall be outlined in a warranty document to be provided upon request by the Authority.

One (1) Y__N__
WATEROUS PUMP WARRANTY

Waterous warrants to the Authority, that products and parts manufactured by Waterous will be free from defects in material and workmanship under normal use and service for a period of FIVE (5) years from the date the product is first placed in service, or FIVE AND ONE HALF (5-1/2) years from the date of shipment by Waterous, whichever period will be the first to expire. Waterous will replace without charge, repair or make a fair allowance for any defect in material or workmanship.

One (1) Y__N__
STAINLESS STEEL PLUMBING WARRANTY – TEN YEAR

The manufacturer shall provide a TEN (10) year warranty on the stainless steel plumbing components and installation. The manufacturer shall supply details of their warranty information with their bid submission.

One (1)

Y__N__

UPF FOAM TANK WARRANTY

United Plastic Fabrication Inc. warrants each UPF POLY-TANK IIE Booster/Foam tank to be free from manufacturing defects in material and workmanship for the service life of the vehicle.

Every UPF POLY-TANK IIE is thoroughly inspected and tested for leaks before leaving the facility. Should any problems develop with the UPF POLY-TANK IIE booster/foam tank and will not meet performance criteria during the service life of the vehicle, the Authority will notify UPF in writing or call the toll free service hotline 1-800-USA-POLY, provide UPF with the serial number and a description of the problem.

If the tank problem renders the truck out of service, UPF will dispatch a service technician within 48 hours (2 days) to repair the tank. If the vehicle can remain in service, UPF will dispatch a service technician within a mutually agreed upon time period. UPF will repair or replace the tank with a new UPF POLY-Tank IIE. UPF will cover customary and reasonable costs to remove and install the UPF POLY-TANK IIE.

One (1)

Y__N__

UPF WATER TANK WARRANTY

United Plastic Fabrication Inc. warrants each UPF POLY-TANK IIE Booster/Foam tank to be free from manufacturing defects in material and workmanship for the service life of the vehicle.

Every UPF POLY-TANK IIE is thoroughly inspected and tested for leaks before leaving the facility. Should any problems develop with the UPF POLY-TANK IIE booster/foam tank and will not meet performance criteria during the service life of the vehicle, the Authority will notify UPF in writing or call the toll free service hotline 1-800-USA-POLY, provide UPF with the serial number and a description of the problem.

If the tank problem renders the truck out of service, UPF will dispatch a service technician within 48 hours (2 days) to repair the tank. If the vehicle can remain in service, UPF will dispatch a service technician within a mutually agreed upon time period. UPF will repair or replace the tank with a new UPF POLY-Tank IIE. UPF will cover customary and reasonable costs to remove and install the UPF POLY-TANK IIE.

BID PRICE FORM

DELIVERY WILL BE _____ CALENDAR DAYS FROM CONTRACT AWARD.

APPARATUS BODY PRICE AS PROPOSED: \$ _____

CHASSIS PRICE AS PROPOSED: \$ _____

TOTAL COST OF COMPLETE FIRE APPARATUS: \$ _____

INSPECTION TRIPS: INCLUDED __ NOT INCLUDED __ COST \$ _____

CHASSIS PREPAYMENT: INCLUDED __ NOT INCLUDED __ COST \$ _____

DELIVERY CHARGES: INCLUDED __ NOT INCLUDED __ COST \$ _____

MISC. EQUIPMENT PACKAGE: INCLUDED __ NOT INCLUDED __ COST \$ _____

100% PERFORMANCE BOND: INCLUDED __ NOT INCLUDED __ COST \$ _____

PRODUCTS LIABILITY INSURANCE: INCLUDED __ NOT INCLUDED __