INTEROFFICE MEMORANDUM

TO: MAYOR BRONIN AND THEA

FROM: JEN HOCKENHULL

SUBJECT: PURCHASE OF FIRE PUMPER TRUCKS

DATE: NOVEMBER 12, 2021

CC: CHIEF BARCO AND A/C REILLY

The Fire Department is requesting authorization to enter into a contract to purchase (2) Pumper Trucks which would be funded in FY2023 and FY2024.

Based on discussion with Assistant Chief Dan Reilly and review of information provided during the FY2022 budget process, the high-level reasons for the above request are as follows:

- Based on prior year analysis from NFPA and industry best practices, HFD is scheduled to purchase, on average, (1) new apparatus per year. There is a 10 to15 year life cycle for a pumper truck in full duty.
- HFD currently has 15 Pumper Trucks of which 7 exceed the estimated useful life of 15 years – this request is to replace the two oldest Pumper Trucks, both of which were placed in service in 1999.
- HFD is trying to get ahead of the supply chain issues. Currently, there is an 18 month build time.
- Entering into the agreement now allows us to lock in the price of the apparatus for future purchases at $546,049 per unit.

HFD has provided a significant amount of information on the current fleet, should that information be of interest to you. I am happy to schedule a time to review together, if the group would prefer such a meeting. If approved, I will prepare the contract to go in from of MARB at the December 1st meeting in order to lock in the prices on both pieces of equipment.

Thank you!

Jen

HFD Fleet Information as Provided for FY2022 Budget

				2020 Year End					
ID	**Type**	**Year Placed in Service**	**Years (as of 2021)**	Miles	Hours	Exceeds Years	Exceeds Miles	Exceeds Hours	
Engine 3	Pumper	1999	22	122,991	19,789	Yes	Yes	Yes	Current Request - FY2023
Engine 9	Pumper	1999	22	124,077	19,932	Yes	Yes	Yes	Current Request - FY2024
Engine 16	Pumper	2000	21	126,265	18,194	Yes	Yes	Yes	
Engine 4	Pumper	2000	21	121,545	19,759	Yes	Yes	Yes	
Engine 6	Pumper	2002	19	140,124	18,230	Yes	Yes	Yes	
Engine 12	Pumper	2004	17	143,624	24,788	Yes	Yes	Yes	
Engine 7	Pumper	2005	16	98,768	20,197	Yes	Yes	Yes	
Engine 10	Pumper	2009	12	95,080	14,040	No	No	No	
Engine 14	Pumper	2010	11	92,507	14,003	No	No	No	
Engine 15	Pumper	2011	10	95,102	12,270	No	No	No	
Engine 11	Pumper	2012	9	84,711	12,585	No	No	No	
Engine 8	Pumper	2014	7	57,096	8,726	No	No	No	
Engine 1	Pumper	2016	5	65,169	9,816	No	No	No	
Engine 2	Pumper	2020	1	-	-	No	No	No	
Engine 5	Pumper	2020	1	-	-	No	No	No	
Ladder 1	Ladder	1991	30	95,256	15,390	Yes	No	Yes	Replaced in 2021
Ladder 7	Ladder	1996	25	108,894	12,857	Yes	Yes	No	Currently being replaced
Ladder 8	Ladder	2000	21	95,150	15,612	Yes	No	Yes	
Ladder 5	Ladder	2004	17	105,926	18,152	No	Yes	Yes	
Ladder 3	Ladder	2007	14	112,887	13,769	No	Yes	No	
Ladder 6	Ladder	2008	13	58,677	13,317	No	No	No	
Ladder 2	Ladder	2015	6	41,812	6,497	No	No	No	
Ladder 4	Ladder	2020	1	-	-	No	No	No	
Tac 1 res.	Rescue	2020	1	-	-	No	No	No	

National Standards for Equipment Replacements			
	Age	Miles	Hours
Pumper	15 years	100,000	15,000
Ladder	20 years	100,000	15,000
Rescue	15 years	100,000	15,000

CITY OF HARTFORD

ROUTING TABLE #1

Updated 2/22/21

PROFESSIONAL SERVICES (AGREEMENT) ☒ (AMENDMENT) ☒
CONSTRUCTION SERVICES (AGREEMENT) ☐ (AMENDMENT) ☐
MISCELLANEOUS GOODS & SERVICES (INSTALL) ☐ (NO INSTALL) ☐
LESS THAN 25K AGREEMENT ☐

Date:	October 14, 2021	
Initiating Department:	Procurement Services for HFD	
Contact Person & Telephone #:	Susan Sheppard (860) 757-9616	
Project Title:	Purchase of 1500 GPM Pumper Fire Apparatus	
Project #:	5882 Ext 1.	
Term of Contract (start & end date):	July 1, 2021 through June 30, 2022	
Total Cost of Project:	$546,049.00 per unit	
General Fund $ / MUNIS Account Coding:	$	TBD upon purchase
Grant Fund $ / MUNIS Account Coding:	$	
Vendor Name / Vendor #:	Greenwood Emergency Vehicles, LLC.	
Council Resolution Date:	n/a	

	TITLE	SIGNATURE	DATE
1. **Initiating Department**	Department Head	Rodney L Barnes	10/15/21
2. **Procurement Services Unit** *(Communications & Revisions)*	Procurement Specialist	Susan Sheppard	10/15/21
3. **Procurement Services Unit**	Procurement Manager		10/18/2021
4. **Management & Budget**	Director of M&B		
MARB Approval Required ☐ Initials: _____	MARB Approval Rec'd Yes ☐ No ☐		
5. **Corporation Counsel** *(Form & Legality)*	Corporation Counsel		
6. **Mayor's Office**	Chief Operating Officer		

10.27.21 JP

Executed Contracts are released to Procurement for distribution. Initials / Date: _____

CITY OF HARTFORD

LUKE A. BRONIN
Mayor

PROCUREMENT SERVICES UNIT
550 Main Street
Hartford, Connecticut 06103
Telephone: (860) 757-9616
FAX: (860) 722-6607
www.hartford.gov

October 12, 2021

Greenwood Emergency Vehicles
Attn: Mark MacDonald, Its President
530 John Dietsch Boulevard
North Attleboro, MA 02763

Contract No. 5882 Amendment No. One (1) – Extension (1)
Purchase of 1500 GPM Pumper Fire Apparatus

In accordance with Section 20 of the above Contract, the City of Hartford (the "City") and the Provider hereby agree to amend Section 2 of said Contract to reflect that following the term of July 1, 2019 through June 30, 2020, the City will have three (3) options to extend the Contract at one (1) additional year per extension, and that the City hereby exercises its option to extend the Contract for the additional term of July 1, 2021 through June 30, 2022. The Scope and Compensation for the renewal period shall remain the same as identified in section 1 and 3 of the existing Contract attached hereto as Exhibit A, respectively.

Total Compensation for this Contract is as identified in terms contained. Provider shall prepare and submit invoices documenting services provided as required by the City's Managing Authority. All invoices for payment shall be accompanied by documentation as required by the Managing Authority.

All other terms and conditions of the original contract, not affected by this, or previous Letters of Amendment, shall remain intact and binding and are incorporated herein by reference. In addition, the following documents are required from you in order to fully execute your contract with the City:

1). Please provide a current Certificate of Insurance per the attached insurance requirements for the City of Hartford. The following wording must appear in the space provided for "comments" on the Accord Insurance Certificate Form: ***The City of Hartford is included as an Additional Insured, AIIMA.*** The City of Hartford insists that parties contracting with the City get the language from their insurance companies that written notice will be given as per the agreement.

2). Equal Employment Opportunity (EEO) Application. You can download the application at: *http://www.hartford.gov/purchasing/EEO_Repo_files/EEO_Report.pdf* or complete the enclosed application.

In mutual agreement of the foregoing, the City of Hartford and Greenwood Emergency Vehicles have executed this Amendment One (1) extension (1) to Contract No. 5882 this 12th day of October 2021.

For: Greenwood Emergency Vehicles

By _____
Mark MacDonald
Its President

For: CITY OF HARTFORD

By _____
Luke A. Bronin
Its Mayor

By _____
Rodney Barco
Its Fire Chief

Approved as to Form and Legality:

By _____ / /
Howard Rifkin **Date**
Corporation Counsel

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 10/13/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Woodruff-Sawyer & Co. One Liberty Square, Suite 600 Boston MA 02109	**CONTACT NAME:** **PHONE (A/C, No, Ext):** 617-658-7100 **FAX (A/C, No):** 617-658-7198 **E-MAIL ADDRESS:**
	INSURER(S) AFFORDING COVERAGE — **NAIC #** **INSURER A :** Arch Indemnity Insurance Company — 30830 **INSURER B :** Arch Specialty Insurance Company — 21199 **INSURER C :** Mt. Hawley Insurance Company — 37974 **INSURER D :** **INSURER E :** **INSURER F :**
INSURED GREEEME-01 Greenwood Emergency Vehicles LLC EVH Realty, LLC 530 John Dietsch Boulevard No. Attleboro, MA 02763	

COVERAGES **CERTIFICATE NUMBER:** 375080516 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:			MFPK08567802	7/29/2021	7/29/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG EBL	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 1,000,000 $ 1,000,000
B	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			MFCA08356702	7/29/2021	7/29/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
A	X **UMBRELLA LIAB** OCCUR **EXCESS LIAB** CLAIMS-MADE DED RETENTION $			MFUM07998602	7/29/2021	7/29/2022	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A					PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $
C	Pollution			STL0001439	7/29/2021	7/29/2022	Pollution Liability	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

The City of Hartford is included as an Additional Insured, AIIMA under the General and Umbrella liability policies if required by written contract.

CERTIFICATE HOLDER

City of Hartford
550 Main Street
Hartford CT 06013

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 10/13/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Aon Risk Services, Inc of Florida
1001 Brickell Bay Drive, Suite #1100
Miami, FL 33131-4937

CONTACT NAME: Aon Risk Services, Inc of Florida
PHONE (A/C, No, Ext): 800-743-8130 **FAX (A/C, No):** 800-522-7514
EMAIL ADDRESS: ADP.COI.Center@Aon.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : New Hampshire Ins Co	23841
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
ADP TotalSource CO XXII, Inc
10200 Sunset Drive
Miami, FL 33173
ALTERNATE EMPLOYER
Greenwood Emergency Vehicles LLC
530 John L Dietsch Blvd
North Attleboro, MA 02763

COVERAGES **CERTIFICATE NUMBER:** 3741482 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. LIMITS SHOWN ARE AS REQUESTED.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PROJECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	☐ OTHER							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	☐ **UMBRELLA LIAB** ☐ OCCUR						EACH OCCURRENCE	$
	☐ **EXCESS LIAB** ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DEC ☐ RETENTION $							
A	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N	N / A		WC 038370521 MA	07/01/2021	07/01/2022	X PER STATUTE ☐ OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. EACH ACCIDENT	$ 2,000,000
							E.L. DISEASE - EA EMPLOYEE	$ 2,000,000
							E.L. DISEASE - POLICY LIMIT	$ 2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
All worksite employees working for GREENWOOD EMERGENCY VEHICLES LLC, paid under ADP TOTALSOURCE, INC.'s payroll, are covered under the above stated policy. GREENWOOD EMERGENCY VEHICLES LLC is an alternate employer under this policy.

CERTIFICATE HOLDER

City of Hartford
550 Main Street
Hartford, CT 06103

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services, Inc of Florida

CONTRACT

by and between

CITY OF HARTFORD

and

GREENWOOD EMERGENCY VEHICLES

for

PURCHASE OF 1500 GPM PUMPER FIRE APPARATUS

This Contract (the "Agreement") is made, August 6, 2019 INSERT DATE (the "Effective Date") by and between the **CITY OF HARTFORD,** with an office and place of business at 550 Main Street, Hartford, Connecticut 06103, acting herein by Luke A. Bronin, its Mayor, duly authorized (hereinafter referred to as the "City") and **Greenwood Emergency Vehicles** with an office and place of business at 530 John Dietsch Boulevard, North Attleboro, MA 02763, acting herein by Mark Mac Donald, its President, duly authorized (hereinafter engages to as the "Provider or Operator").

1. SCOPE OF SERVICES

The City of Hartford hereby engages Provider to provide citywide on-project title on an as-needed basis as set forth on **Exhibit A** attached hereto ("Services"), subject to the terms and conditions in this Agreement.

2. TERM

The term of this Agreement will be for one year starting project July 1, 2019 and June 30, 2020.

3. COMPENSATION

For services rendered by Provider as detailed in Exhibit A of this Contract, Provider shall be paid according to the rates set forth in Exhibit B.

City's obligation to make any payments for any Services rendered hereunder is expressly contingent upon Provider having satisfactorily performed the same. In the event that City reasonably determines that Provider's work is not satisfactory, or if City reasonably believes Provider otherwise has breached any of its obligations under this Agreement, City may take corrective action, including, but not limited to, the following:

(i) Delay of payment;

(ii) Adjustment of payment; and/or

(iii) Suspension or termination of this Agreement.

Payment will be made by City for any Services provided hereunder within thirty (30) days of its receipt of Provider's invoice therefor in accordance with this Section.

4. MANAGEMENT

This Agreement will be managed for City by the Reginald Freeman Fire Chief, or his authorized designee ("City's Representative"). Provider will work closely with City's Representative in all aspects of this Agreement and Provider shall follow the directives of City Representative in connection therewith.

5. RELATIONSHIP OF THE PARTIES

This Agreement is a contract for services and not a contract of employment. Accordingly, neither Provider nor any of its directors, officers, partners, members, agents or employees shall be, or deemed to be, an officer, official, agent or employee of City or be entitled to any employment benefits of City such as, but not limited to, vacation pay, sick leave, health or life insurance, workers' compensation, and/or pension or retirement benefits. All personnel matters affecting Provider's contract staff will be the responsibility of Provider.

6. INDEMNIFICATION & HOLD HARMLESS AGREEMENT

Provider will indemnify, defend and hold harmless City and its agents, officials, employees, successors and assigns (collectively, the "Indemnitees") from and against any and all loss and liability (statutory or otherwise), claims, demands, actions, causes of action, suits, judgments, costs, executions, interest and expense whatsoever (hereinafter, individually and collectively, a "Claim" or "Claims"), in law or in equity, which arise from or in connection with Provider's performance or failure to perform hereunder and/or any other act, error or omission which occurs or fails to occur on the part of Provider or any of its directors, officers, partners, members, agents or employees under or in connection with this Agreement or the Project during the term hereof. Provider's obligations to indemnify and hold harmless the Indemnitees as aforesaid shall include, but not be limited to, protecting the Indemnitees from all Claims for or arising from (i) any failure by Provider to pay for any goods or services obtained by it hereunder, (ii) any negligent act, error or omission on the part of Provider or any of its directors, officers, partners, members, agents or employees in the acquisition or provision of any goods or services hereunder, (iii) any injury (including death) to persons, or damage to real or personal property (including the loss of use thereof and environmental contamination), which results from any act, error or omission on the part of Provider or any of its directors, officers, partners, members, agents or employees under or in connection with this Agreement, and (iv) any automobile use in connection with the performance of any Services or the transportation of children or Provider's

agents or employees. In case any action or proceeding is brought against any of the Indemnitees by reason of any matter which is the subject of the foregoing indemnity, Provider shall pay all costs of investigation and defense (including, but not limited to, all court costs, reasonable attorneys' fees, and out-of-pocket expenses), and all losses and liabilities which result therefrom. The provisions of this Section shall survive the expiration or earlier termination of this Agreement.

7. INSURANCE

7.1 Provider will furnish the following types and amounts of insurance coverage at its sole cost and expense for the duration of the Agreement including any and all extensions or renewals thereof:

(i) **Commercial general liability insurance** with a broad form endorsement (including coverage for property damage) as well as endorsements for contractual liability, independent contractors, premises operations, products and completed operations, abuse and molestation, personal injury and corporal punishment coverages insuring against damages to persons and property (including, but not limited to, loss of life) with a minimum combined single limit coverage of not less than one million and 00/100 ($1,000,000.00) dollars on a per occurrence and project specific basis. If Provider cannot procure such insurance on a project specific basis, the minimum combined aggregate limit for such insurance shall be two million and 00/100 ($2,000,000.00) dollars on a per occurrence basis.

(ii) **Automobile liability insurance** covering all owned, non-owned or hired vehicles with a minimum combined single limit coverage of not less than one million and 00/100 ($1,000,000.00) dollars on a per occurrence basis.

(iii) **Workers' compensation insurance** in such amounts as required by Connecticut law, including employers' liability insurance with limits of one hundred thousand and 00/100 ($100,000.00) dollars for each accident, five hundred thousand and 00/100 ($500,000.00) dollars for each disease/policy limit, and one hundred thousand and 00/100 ($100,000.00) dollars for disease of each employee.

7.2 All insurance will be effected under standard form policies by insurers of recognized responsibility which are licensed to do business in the State of Connecticut and which are rated as A-(VIII) or better by the latest edition of Best's Rating Guide or other recognized replacement therefor. Except as otherwise provided to the contrary in this Section, any insurance required by this Agreement may be obtained by means of any combination of primary and umbrella coverages and by endorsement and/or rider to a separate or blanket policy and/or under a blanket policy in lieu of a separate policy or policies, provided that Provider shall deliver a certificate of insurance of any said separate or blanket policies and/or endorsements and/or riders evidencing to the City that the same complies in all respects with the provisions of this Agreement, and that the coverages thereunder and the protection afforded the City as an additional insured thereunder are at least equal to the coverages and

protection which would be provided under a separate policy or policies procured solely under and by reason of this Agreement.

7.3 All policies for each insurance required hereunder shall: (i) provide for not less than thirty (30) days' prior written notice to City by registered or certified mail of any cancellation, restrictive amendment, non-renewal or change in coverage; (ii) include a standard severability of interest clause; (iii) contain a waiver of subrogation holding City free and harmless from all subrogation rights of the insurer; and (iv) provide that such required insurance is the primary insurance and that any other similar insurance that City may have shall be deemed in excess of such primary insurance.

7.4 Unless otherwise requested by the City, Provider and its insurers shall not assert or use governmental immunity in the adjustment of any claims, or in the defense of any suit, brought against the City. Provider shall assume and pay all costs and billings for the premiums and audit charges earned and payable for or with respect to any required insurance hereunder.

7.5 In the event of any interruption of any required insurance coverage hereunder for any reason, Provider shall immediately notify City of such interruption and cease the performance of any Services or other work hereunder until such coverage has been restored and Provider notifies City of such restoration.

7.6 Except as otherwise indicated, the insurances required in this Section shall be carried on an "occurrence" basis only.

7.7 All references in this Section to a "deductible" shall be deemed to mean a deductible and/or a self-insured retention. No policy required to be procured by Provider pursuant to this Agreement shall be subject to a deductible or other provision limiting or reducing coverage. If any person is owed, pursuant to any policy required hereunder, any sum which is subject to a deductible, Provider shall pay such deductible. Provider agrees that it will not carry or be the beneficiary of any insurance insuring Provider or any other person or entity against the risks for which insurance is required to be maintained pursuant to this Section unless the insurance and insurance carriers otherwise comply with the terms of this Section.

7.8 The City will be included as an additional insured for all insurance policies required hereunder, other than for workers' compensation insurance. ACCORDINGLY, THE FOLLOWING UNDERLINED WORDING MUST BE SHOWN IN THE SPACE PROVIDED FOR "COMMENTS" ON THE ACORD INSURANCE CERTIFICATE: **The City of Hartford is included as an Additional Insured, AIIMA.** Each certificate of insurance shall provide not less than a thirty (30) day notice to the City of any cancellation, reduction or other material change in the coverage to be provided under any of the insurance required hereby. The certificates of the policy or policies evidencing such coverages, **together with copies of the declaration and endorsement pages for such policies on which pages the City shall be included and listed as an additional insured,** shall be delivered to City upon the execution hereof, and at least thirty (30) days prior to

the expiration date of each required insurance set forth above evidencing that such insurance has been renewed and remains in full force and effect.

7.9 All insurance policies referred to in this Section shall provide that any losses thereunder shall be adjusted with City, and that any loss thereunder shall be payable to City as its interests may appear. Neither party shall unreasonably withhold or delay its endorsement to any insurance check payable hereunder.

7.10 It is agreed between the parties hereunto that the amounts of insurance in this Agreement do not, in any way, limit the liability of Provider to the Indemnitees by virtue of its promise to indemnify and hold harmless the Indemnitees so that in the event that any Claim results in a settlement or judgment in an amount in excess of the amount of insurance coverage carried by Provider, Provider shall be liable to the Indemnitees for the difference, plus all fees and expenses incurred in collecting the same, all at Provider's sole cost and expense.

7.11 Insurance requirements and coverages may be reviewed from time to time during the term of this Agreement and all extensions and renewals hereof. Provider agrees to comply with any and all reasonable insurance requirements or modifications made by the City's Risk Manager.

7.12 Cancellation or other termination of insurance policies required by this Agreement without immediate replacement thereof may be considered a default under this Agreement. Provider agrees that such default may be cured by procurement of insurance on behalf of Provider, at Provider's expense, and that the cost of such insurance shall be deducted from any amounts otherwise due to Provider under this Agreement or any other contract with City, at City's option.

8. CONFLICT OF INTEREST

Provider hereby represents and warrants to City as follows:

(i) Provider has not employed or retained any company or person, other than a bona fide employee working solely for Provider, to solicit or secure this Agreement, and Provider has not paid or agreed to pay any company or person, other than bona fide employees working solely for Provider, any fee, gift or any other consideration contingent upon or resulting from the awarding or making of this Agreement;

(ii) the services to be provided hereunder do not in any way conflict with the interests of any individual, group, business, or governmental organization with which Provider is employed or with which Provider has an agreement or is associated, and, in the event such a conflict arises during the term hereof, Provider will immediately notify City in writing; and

(iii) no member of the governing body of City, or its designees, employees or agents, and no other public official, either paid or unpaid, who exercises any functions or responsibilities with respect to this Agreement shall, during the individual's tenure or thereafter, have any personal or financial interest, direct or indirect, in any contract or subcontract, or the proceeds thereof for work and/or services to be performed in connection with this Agreement. Provider shall cause to be incorporated, in all subcontracts a provision prohibiting such interest pursuant to the provisions of this paragraph.

In the event any of the foregoing representations are untrue, or if any fact or circumstance occurs during the term hereof that cause any of the same to be untrue, then City, in addition to such other rights or remedies which may then be available to it, all of which are expressly reserved hereby, shall have the option of terminating this Agreement in accordance with Subsection 12.1.

9. PERFORMANCE OF SERVICES

All Services will be performed by Provider in a timely manner with skill and competence in accordance with generally accepted practices of, and pursuant to a standard of care exercised by, companies providing similar services under like circumstances.

10. CONFIDENTIALITY

Provider shall not, at any time during, or after the expiration of, the term of this Agreement, divulge to any person, or use for its or any other person's benefit, any information or fact relating to the conduct, management, or business of City, which shall have come to the knowledge of Provider in the course of providing the Services hereunder. Provider further agrees to treat as confidential, and to use only for the advancement of the interest of City, all data and other information submitted to or obtained by it in connection with the Project during the term of this Agreement. Except as may otherwise be agreed by City, all originals and copies of any such materials shall be returned to City upon completion of the Project or at such earlier time as is requested thereby.

11. EVENTS OF DEFAULT AND REMEDIES

11.1 Events of Default

Any of the following occurrences or acts shall constitute an Event of Default under this Agreement:

(i) Whenever Provider shall do, or permit anything to be done, whether by action or inaction, contrary to any of the covenants, agreements, terms or provisions contained in this Agreement which on the part or behalf of Provider are to be kept or performed, and Provider fails to correct any such breach within ten (10) days after Provider's receipt of written notice of such breach from City; or

(ii) If any determination shall have been made by competent authority such as, but not limited to, any federal, state or local government official, or a certified public accountant, that Provider's management or any accounting for its funding, from whatever source, is improper, inadequate or illegal, as such management or accounting may relate to Provider's performance of this Agreement; or

(iii) whenever an involuntary petition shall be filed against Provider under any bankruptcy or insolvency law or under the reorganization provisions of any law of like import, or a receiver of Provider or of or for the property of Provider shall be appointed without the acquiescence of Provider, or whenever this Agreement or the unexpired balance of the term would, by operation of law or otherwise, except for this provision, devolve upon or pass to any person, firm or corporation other than Provider or a corporation in which Provider may be duly merged, converted or consolidated under statutory procedure, and such circumstance under this subparagraph shall continue and shall remain undischarged or unstayed for an aggregate period of sixty (60) days (whether or not consecutive) or shall not be remedied by Provider within sixty (60) days; or

(iv) whenever Provider shall make an assignment of the property of Provider for the benefit of creditors or shall file a voluntary petition under any bankruptcy or insolvency law, or whenever any court of competent jurisdiction shall approve a petition filed by Provider under the reorganization provisions of the United States Bankruptcy Code or under the provisions of any law of like import, or whenever a petition shall be filed by Provider under the arrangement provisions of the United States Bankruptcy Code or under the provisions of any law of like import, or whenever Provider shall desert or abandon the Project; or

(v) If any competent authority shall have determined that Provider is in default of any federal, state or local tax obligation; or

(vi) Pursuant to Resolutions passed by the Court of Common Council on March 4, 1996 and January 13, 1997, if Provider or any of its principals are in default of any tax or other financial obligations which are owed to City. Default shall be considered to have occurred under this subsection when any payment required to be made to City is more than thirty (30) days past due.

11.2 Election of Remedies

If any Event of Default hereunder shall have occurred and be continuing, City may elect to pursue any one or more of the following remedies, in any combination or sequence:

(i) Take such action as it deems necessary, including, without limitation, the temporary withholding or reduction of payment;

(ii) Suspend Project operation;

(iii) Require Provider to correct or cure such default to the satisfaction of City; and/or

(iv) Terminate this Agreement for cause in accordance with Section 12 hereof.

(v) Deduct from the cash bond/escrow account any penalties, claims, charges or damages assessed against the Operator by the City in the City's reasonable discretion.

The selection of any remedy shall not prevent or stop City from pursuing any other remedy and shall not constitute a waiver by City of any other right or remedy.

12. TERMINATION OF AGREEMENT

12.1 Termination for Cause

Upon the occurrence of any Event of Default, as set forth in Section 11.1 hereof, City may terminate this Agreement by giving five (5) days' written notice thereof to Provider.

12.2 Termination for Non-availability of Funds

In the event City shall not have funds available for the Project, City may terminate this Agreement following written notice thereof to Provider.

12.3 Termination at Will

City or Provider may terminate this Agreement at any time by giving thirty (30) days' prior written notice thereof to the other party.

12.4 Payment upon Termination

In the event this Agreement is terminated pursuant to any of Sections 12.2 through 12.3 above, City shall make full payment to Provider for all Services performed in accordance with this Agreement up to and including the date of termination within sixty (60) days of such date of termination and presentation of Provider's reports therefor in accordance with Section 3 above.

13. ESTABLISHMENT AND MAINTENANCE OF RECORDS; AUDITS

13.1 Provider agrees to establish and maintain fiscal control and accounting procedures that assure proper accounting for all funds paid by City to Provider under this Agreement. Without limiting the generality of the foregoing, Provider agrees that it will maintain accurate and complete records of (i) all charges and any other claims or demands for compensation from City, or any other person or entity, in connection with the Project (including, without limitation, any claims for or arising out of any alleged breach of this Agreement), (ii) the basis (including but not limited to, supporting documentation) therefor, and (iii) the amount and source of any and all payments or other consideration ultimately recovered in respect thereof.

13.2 Any and all records shall be generated by Provider in a manner which is consistent with City's requirements and shall be maintained for a period of not less than six (6) years from the date of termination of this Agreement pursuant to Section 12. Provider further shall permit (and require its Providers to permit) City and/or its duly authorized representatives to examine, review, and audit any records, books, or other documents of Provider or any and all of Provider's Providers relative to the above, and furnish copies thereof, when requested.

14. SUBCONTRACTORS

Portions of the Services may be subcontracted, provided that:

(i) City shall have given prior approval to such subcontract in writing, which approval may be withheld in its sole and absolute discretion;

(ii) All of the terms, covenants, conditions and provisions of this Agreement shall have been incorporated in such subcontract(s) and the subcontractor(s) shall have agreed in writing to assume, perform and be bound by this Agreement and all the
terms, covenants, conditions and provisions hereof and shall have further acknowledged and agreed that City is and will be a third party beneficiary of all of said undertakings; and

(iii) City shall not be liable for payment of any wages, materials, or other expenses of any subcontractors.

15. COMPLIANCE WITH LAWS

Provider shall perform all Services hereunder in accordance with and subject to all applicable federal, state and local laws, statutes, regulations, ordinances, orders and permits, including regulations promulgated by the Department of Motor Vehicles.

16. ANTI-DISCRIMINATION AND AFFIRMATIVE ACTION

Provider agrees to abide by the provisions of Section 2-679 *et seq.* of the City of Hartford Municipal Code (as applicable), Executive Orders Numbers 3 and 17 of the State of Connecticut; and Presidential Executive Orders Numbers 11246, 11375 and 11063. In carrying out the Project, Provider shall not discriminate against any employee or applicant for employment because of race, color, religion, age, sex, national origin, mental disability, physical handicap, or sexual preference.

Provider shall take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment without regard to their race, color, religion, age, sex, national origin, mental disability, physical handicap, or sexual preference. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training; including apprenticeship. Provider shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the federal government, setting forth the provisions of the non-discrimination clause.

Provider shall state that all qualified applicants shall receive consideration for employment without regard to race, color, religion, age, sex, national origin, mental disability, physical handicap, or sexual preference. Provider shall incorporate, or cause to be incorporated, this provision in any and all subcontracts entered into pursuant to this Agreement. Provider agrees to abide by the terms and conditions contained in the City of Hartford's *Contractor's EEO Report*.

17. AMERICANS WITH DISABILITIES ACT (ADA) OF 1990

Provider agrees to abide by the provisions of the Americans with Disabilities Act (the "Act") of 1990; Public Law 101-336, as applicable.

In compliance with this law, Provider shall not discriminate against a qualified individual with a disability because of the disability of such individual in regard to job application procedures, the hiring, advancement, or discharge of employees, employee compensation, job training, and other terms, conditions, and privileges of employment. No qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of services, programs, or activities of Provider, or be subjected to discrimination by Provider. No individual shall be discriminated against on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages or accommodations provided by Provider.

Any television public service announcement that is produced or funded in whole or in part under this Agreement shall include closed captioning of the verbal content of such announcement. Provider shall not discriminate against any individual because such individual has opposed any act or practice made unlawful by the Act or because such individual made a charge, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing under the Act.

Provider shall not permit coercion, intimidation or threatening of, or interference with, any individual in the exercise or enjoyment of, or on account of his or her having exercised or enjoyed, or on account of his or her having aided or encouraged any other individual in the exercise or enjoyment of, any right granted or protected by the Act.

18. DELINQUENCY IN OBLIGATIONS

Provider hereby agrees that throughout the period of this Agreement, all taxes, contractual obligations and audit responsibilities owed to City shall be and remain current.

19. NON-WAIVER

Any failure by City or Provider to insist upon the strict performance by the other of any of the terms and provisions hereof shall not constitute a waiver of that or any other of said other party's obligations hereunder, and each party hereto, notwithstanding any such failure, shall have the right thereafter to insist upon the strict performance by the other, of any and all of the terms and provisions of this Agreement.

20. AMENDMENTS

This Agreement may be amended by written instrument executed by the parties hereto, acting therein by their duly authorized representatives.

21. DISCLAIMER OF AGENCY OR THIRD PARTY BENEFICIARY RIGHTS

City and Provider are the only parties to this Agreement and are the only parties entitled to enforce its terms. Nothing in this Agreement gives, is intended to give, or shall be construed to give or provide, any right or benefit, whether directly or indirectly or otherwise, to third persons.

22. NON-ASSIGNABILITY BY PROVIDER

This Agreement shall not be transferable or assignable by Provider, by operation of law or otherwise, without prior written consent of City, which consent may be withheld in its sole and absolute discretion.

23. SEVERABILITY

If any provision of this Agreement is held invalid, the remainder of this Agreement shall not be affected thereby if such remainder would then continue to conform to the terms and requirements of applicable law.

24. CUMULATIVE REMEDIES

All rights and remedies exercisable by City hereunder shall be cumulative and the exercise or beginning of the exercise by City of any of its rights or remedies hereunder shall not preclude City from exercising any other right or remedy granted hereunder or permitted by law.

25. GOVERNING LAW

This Agreement shall be governed by and construed, interpreted and enforced in accordance with the laws of the State of Connecticut and the ordinances of the City of Hartford without regard or resort to conflict of laws principles.

26. GENDER/NUMBER/TITLE

Words of any gender used in this Agreement shall be held and construed to include any other gender, and words in the singular shall be held and construed to include the plural, unless the Agreement requires otherwise. In the event of any discrepancy or conflict between the name and title of any person referred to in this Agreement, the title shall prevail.

27. NOTICES

All notices, approvals, demands, requests, or other documents required or permitted under this Agreement, other than routine communications necessary for the day-to-day operation of this Agreement, shall be deemed properly given if hand delivered or sent by express courier mail service or United States registered or certified mail, return receipt requested, postage prepaid, to the following addresses:

As to the City:
City of Hartford
550 Main Street
Hartford, CT 06103
Attn: Luke A. Bronin

As to Provider:
Greenwood Emergency Vehicles
530 John Deitsch Boulevard
North Attleboro, MA 02763-1080
Attn: Mark MacDonald, President

With a Copy to:
Corporation Counsel
City of Hartford
550 Main Street
Hartford, CT 06103

Notices provided in accordance with the foregoing shall be deemed received as of the earlier of the date of delivery or the second business day following the date of their being posted with U.S. Postal Service.

30. SUCCESSORS AND ASSIGNS

Subject to the other provisions of this Agreement, this Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and permitted assigns.

31. MERGER/ENTIRE AGREEMENT

This Agreement and its exhibits referenced herein and attached hereto, contain the entire understanding between the parties hereto and supersede any and all prior understandings, negotiations, and agreements whether written or oral, between them respecting the written subject matter hereof.

IN WITNESS THEREOF, the CITY OF HARTFORD and the PROVIDER have executed this Contract as of this 6 day of August, 2019.

PROVIDER

By: _____
Mark MacDonald
its _President

CITY OF HARTFORD

By: _____
Luke A. Bronin
its Mayor

APPROVALS:

As to Form and Legality:

By: _____ 8/2/19
Howard G. Rifkin Date
Corporation Counsel

EXHIBIT A – Detailed Scope of Services

Company Name - GREENWOOD EV

REQUEST FOR PROPOSAL

RFP #5882
PURCHASE OF FIRE APPARATUS 1500 GMP PUMPER

City of Hartford
Procurement Services Unit
550 Main Street
Hartford, CT 06103

DEADLINE: 2:00 PM, FRIDAY, MARCH 22, 2019

Susan Sheppard
Procurement Specialist
860-757-9616

INVITATION TO RESPOND

Dear Sir/Madam:
The City of Hartford (the City) invites responses for:

RFR #: 5882	**SOLICITATION DATE: March 1, 2019**
SOLICITATION TITLE: Purchase of Fire Apparatus 1500 GPM Pumper	
SOLICITATION DESCRIPTION: The City of Hartford (the City) invites responses for the purchase of Fire Apparatus 1500 GMP Pumper.	
SITE LOCATION (if applicable):	
RESPONSE DATE: Friday, March 22, 2019	**RESPONSE TIME: 2:00 p.m.**
DEPT. ASSIGNED CONTRACT #:	**EST. COST OF CONSTRUCTION:**

This solicitation contains the following sections:
Invitation to Respond
Standard Instructions
Project Site Location – *(for construction projects only)*
Table of Contents – *(for construction projects only)*
Section 1 – Response Forms
1.1 Response Information & Signature Form
Contract Compliance
☒ Affirmative Action / Equal Employment Opportunity Requirements – See Section 3.6
☒ Surety Bond Requirements ☒ Bid Bond ☒ Performance & Payment Bonds
☒ Insurance Requirements – see exhibits below
☐ Set Aside – Ord. Section 2-660 ☐ MWBE ☐ Small Contractor
☒ City-Based Small Business Bid Preference – Ord. Section 2-661
☐ 15% Minority Utilization (City of Hartford Certified MWBE) – Ord. Section 2-682
☐ State of Connecticut DAS Prequalification (Public Construction Project > $500,000)
☐ OSHA Compliance (Public Works Project > $100,000)
☐ Wage Requirements – Complete & attach Wage Certification
1.2 Response Pricing – shall be submitted within your proposal
1.3 Statement of Qualifications
1.4 Subcontractor Information
Section 2 – Specifications/Scope of Services
☒ Special Instructions / Conditions included
Section 3 – General Information for Preparation and Delivery of a Response
Section 4 – Terms and Conditions
Exhibits
☒ Exhibit A – 1008 Insurance Requirements

Sincerely,

Susan Sheppard
Procurement Specialist
smsheppard@hartford.gov

STANDARD INSTRUCTIONS:

- **Questions & Addenda**
  Questions related to this project must be submitted electronically within seventy-two (72) hours in advance of the response submittal deadline. Responses to such questions will be posted online bidding website (www.hartford.gov/procurement/purchasing) within twenty-four (24) hours of the response submittal deadline. *Respondents are responsible for obtaining all addenda related to this RFR and thus advised to check for any addenda a minimum of twenty-four (24) hours in advance of the response deadline.*

- **Taxpayer's Identification Number**
  - Respondents must provide their Taxpayer Identification number on the response form (Tax ID#). Award recipients, whether an individual, proprietor, partnership or a non-profit corporation or organization must file the Internal Revenue Service Form W-9, Request for Taxpayer Identification Number and Certification with the City.

- **Responsible Candidate**
  - Respondent must not have any delinquent taxes or financial obligations due
  - Respondent must execute an affidavit to comply with all federal and state requirements
  - Respondent must be certified as an Equal Opportunity Employer

- **Calendar days allowed for contract work / Substantial completion date:** 365 days
- **Liquidated damages for late completion:** $100 / per day
- **Bid Bond / Performance & Payment bonds *(required if checked on invitation to respond)***
  - 10% bid bond, cashiers or certified check with your response. The City of Hartford provides contractors with the option of submitting an electronic Bid Bond through the Surety2000 website. Surety 2000 is an Internet-based surety processing, verification and security system, developed in cooperation with the surety industry. You may contact Surety 2000 at 1-800-660-3263 or www.surety2000.com, for more information.
  - Performance and payment bonds for 100% of the project upon award if the contract value exceeds $50,000.00.

- **DAS prequalification program *(construction / infrastructure projects only)***
  - The DAS Contractor Prequalification Program, Connecticut General Statues Section 4a-100, requires all contractors to prequalify "before they can bid on any construction, alteration, remodeling, repair or demolition of any public building (does not apply to road construction), for work by the state or a municipality, estimated to cost more than $500,000 and which is funded in whole or in part with state funds. "

- **Drawings *(construction / infrastructure projects only)***
  - Drawings are available from Merritt Graphics' PlanWell site located at http://www.merrittgraphics.com . Click on the PlanWell link, select "Public Plan Room" and select this project. You can also contact Merritt Graphics at 800-344-4477. Fees to purchase sets are non-refundable.

- **In addition to your hand delivered response, please submit #** 5 **hard-copies to:**
  - City of Hartford , Procurement Services, 550 Main Street, Room 100, Hartford, CT 06103

Request for Response (RFR)
AFFIDAVIT

STATE OF ~~CONNECTICUT~~ Massachusetts)
) ss. March 19, 2019
COUNTY OF Bristol)

I, Mark MacDonald, being duly sworn, depose and say:
(insert name of authorized agent)

1. I am the President of Greenwood Emergency Vehicles (the "Respondent") and am authorized on behalf of the Proposer to make this Affidavit.
(insert title) (insert name of company)

2. I am over 18 years of age and understand the obligations of an oath.

3. There are no delinquent real and personal property taxes due the City of Hartford from the Respondent.

4. The Respondent is current on all monetary obligations due the City of Hartford.

5. The Respondent is currently in compliance with all applicable laws, regulations and ordinances of the United States, State of Connecticut and the City of Hartford.

Greenwood Emergency Vehicles
(insert name of company)
By: [signature]
Name: Mark MacDonald
Title: President

Subscribed and sworn to before me, Mark MacDonald, the undersigned officer this 19th day of March, 2019.

Lorna R. Marcoux
Notary Public Lorna R. Marcoux
My Commission Expires: December 10, 2021

CITY OF HARTFORD
WAGE CERTIFICATION FORM

I, Mark MacDonald of Greenwood Emergency Vehicles
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the Greenwood Emergency Vehicles
Company Name
530 John Dietsch Blvd.
Street
No. Attleboro MA 02763
City

and all of its subcontractors will pay all workers on the

RFP # 5882 Purchase of Fire Apparatus 1500 GPM Pumper
Project Name and Number

Street and City

the following wages as required for such project (a copy of the rates which is attached hereto):

☐ State of Connecticut Prevailing wage rates

☐ Federal Prevailing wage rates

☐ City of Hartford Living wage rates

Signature

Subscribed and sworn to before me this 19th day of March, 2019

Notary Public

Section 1
RESPONSE FORMS

1.1 RESPONSE INFORMATION & SIGNATURE FORM

Vendor Name - Greenwood Emergency Vehicles				
Trade Name -				
Address - 530 John Dietsch Blvd., No. Attleboro MA 02763				
Phone # - 508-695-7138	**Fax #** 5086917684	**Email Address -** mpinto@greenwoodev.com		
Contact Person - Mike Pinto		**Tax ID# -** 81-2991295		
Delivery / Service Start Date: Upon Signed Contract		**# Calendar days after receipt of executed contract:** 365		
Bid Surety - 10%	For electronic bonds enter bond number, otherwise check the appropriate box	Electronic Bond #	☑ Bond (hard copy)	☐ Cashiers / Certified Check
Cost of Performance Bond included in base bid (if applicable)			$4.00 Per thousand	
EEO Certification Status (check one) See General Information for Preparing a Response paragraph 3.6.3			☐ Current & on file	☑ EEO form attached
DAS Prequalified Contractor? (non highway construction projects >$500,000) http://das.ct.gov/cr1.aspx?page=10			☐ Certificate attached	☐ Update Statement attached
Insurance Agent Name	Woodruff-Sawyer & Co.		Phone # 617-658-7179	
Insurance Agent Address	one Liberty Square, Suite 600 - Boston, MA			

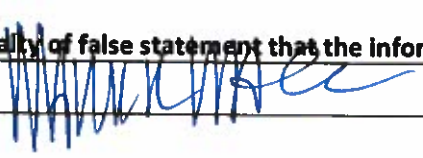
Vendor acknowledges receipt of all addenda issued during the bidding period (if applicable) and understands that they are a part of the bidding documents.

The undersigned hereby declares that he/she or they are thoroughly familiar with the specifications, the various sites, the City's requirements, and the objectives for each element of the project item or service and understands that in signing this proposal all right to plead any misunderstanding regarding the same is waived. The undersigned further understands and agrees that he will furnish and provide all the necessary material, machinery, implements, tools, labor, services, and other items of whatever nature, and to do and perform all the work necessary under the aforesaid conditions, to carry out the contract and to accept in full compensation therefore the amount of the contract as agreed to by the Contractor and the City.

The undersigned hereby declares that no reason or persons other than those named herein are interested in this proposal, which is made without any connection with any other person or persons making any proposal for the same work and is in all respects fair and without collusion or fraud; that no person acting for or employed by the City of Hartford is directly or indirectly interested therein, or in the supplies or works to which it relates, or will receive any part of the profit or any commission there from in any manner which is unethical or contrary to the best interest of said City of Hartford.

The undersigned additionally declares that they are not debarred or suspended, or otherwise excluded from, or ineligible for, participation in City of Hartford, State of Connecticut or federally funded projects (Executive Order 12549).

The undersigned certifies under penalty of false statement that the information provided in this response is true.

Submitted by ***(Signature)***	

Printed name and title	Mark MacDonald - President	Date	3-19-20

(Authorized Agent of Company)

1.2 RESPONSE PRICING

Pricing shall be submitted in the proposal.

The City of Hartford is exempt from all sales and use tax; bid prices shall not incorporate such taxes.

Upon request by the successful respondent, a sales tax exemption certificate will be issued.

1.3 STATEMENT OF QUALIFICATIONS

Please complete the following information. Failure to respond to all items may result in the rejection of your response.

1. Number of years in business - 49 yrs. D-U-N-S Number: 09-321-0680

2. Number of personnel employed Part time - 2 , Full time - 60 ,

3. List up to six past contracts of this type/size your firm has completed within the last three (3) years:

Project	Date	Contact Person	Phone No.
Boston, MA		Lt. Jim O'Brian	617-343-3550
Worcester, MA		Chief Michael Lavoie	508-799-1829
Billerica, MA		Chief Robert Cole	978-671-0940
Watertown, MA		Chief Robert Quinn	617-972-6512
Bourne, MA		Chief Norman Sylvester	508-759-4412
Cranston, RI		Chief William McKenna	401-780-4024

4. DAS CONTRACTOR PREQUALIFICATION *(required for construction / infrastructure projects only)* DAS prequalified? ☐Yes ☐No	You certify that there has been no substantial change in your financial position or corporate structure since your most recent prequalification certificate was issued or renewed, other than those changes noted in the update statement (attached).	YES ☑	NO ☐

5. ORGANIZATIONAL STRUCTURE OF BUSINESS ENTITY (select one)	☐	General partnership (GP)
	☐	Limited partnership (LP)
	☑	Limited liability corporation (LLC)
	☐	Limited liability partnership (LLP)
	☐	Corporation
	☐	Individual doing business under a trade name (sole proprietor)
	☐	other (specify)

6. CITY OF HARTFORD TAX STATUS / OTHER FINANCIAL OBLIGATIONS	**Hartford Businesses** – All City of Hartford taxes & financial obligations (real, motor & personal property) are current and paid in full or subject to a current and approved payment plan. Please attach RFR Affidavit.	Yes ☐	No ☐
	Non-Hartford Businesses - All City of Hartford financial obligations are current and paid in full or subject to a current and approved payment plan. Please attach RFR Affidavit.	Yes ☐	No ☐
7. STATUS OF THE BUSINESS AND ITS CURRENT STANDING WITH THE SECRETARY OF STATE'S OFFICE	**Connecticut businesses** - Are all required filings current with the Secretary of State and will the Secretary of State be able to issue a Certificate of Legal Existence?	Yes ☐	No ☐
	Out-of –State (foreign) businesses – Have you filed a Certificate of Authority / Application of Registration with the Connecticut Secretary of State? If so, submit a copy of your filing with your response. If not, submit a copy of your Certificate of Good Standing from your state of incorporation.	Yes ☐	No ☑ See Attached

8. Is your local organization an affiliate of a Parent company? If so, Indicate the principal place of business of the parent company and the name of agent for service. N/A

Business Name					
Address					
City		State		Zip	
Name of Agent					

9. List all Affiliated Businesses (attach additional sheets as necessary):

Business Name	Address	Ownership Interest %
.	.	.
.	.	.
.	.	.
.	.	.

10. Based on the organizational structure of your business, provide a current listing of all corporate officers, principals, general or managing partners, limited partners, managers and members. If sole proprietorship or general partnership, attach trade name certificate filed with the town clerks office. – See attached

11. Submit copies of all required business (trade & occupational) licenses with your response.

12. Your company may be asked to submit information relative to your company's financial statements and/or a Dun & Bradstreet report may be obtained prior to receiving an award. This information will be protected to the fullest extent required by law.

13. Additional information/documentation may be requested subsequent to your responding to this solicitation.

Intent of Proposal

It is the intent of this proposal to cover the furnishing and delivery to the purchaser of a complete vehicle equipped as hereinafter specified. With a view to obtaining the best results and the most acceptable apparatus, these specifications cover minimum requirements as to the type of construction, finish, and tests to which the apparatus must conform, together with certain details as to equipment and appliances to be furnished. Minor details of construction and materials, where not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design and construction. The apparatus shall conform to the requirements of the current (at the time of bid) NFPA standard to the extent as specified herein.

Pump Panel Approval Drawing

A detailed large scale approval drawing of the pump panel(s) shall be provided. The drawing shall be provided on an purchased unit prior to the construction process.

Approval Drawings

A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.

Vehicles requiring pump controls shall include a general arrangement view of the pump operator`s position, scaled the same as the elevation views.

Approval Drawings - Dash Panel Layout

A detailed large scale approval drawing of the dash/console panel layout shall be provided. The drawing shall be provided on a purchased unit prior to the construction process.

Approval Drawings – Pump Panel Layout

A detailed large scale approval drawing of the pump panel layout shall be provided. The drawing shall be provided on a purchased unit prior to the construction process.

PRE-CONSTRUCTION CONFERENCE

After award of the contract, and prior to construction of the apparatus, a pre-construction conference shall be held at the facility of the dealer or factory. Conference shall have sales personnel, manufacturer's sales and design engineer and a minimum of (3) three Hartford Fire personnel to finalize and make any adjustments needed to specifications. Accommodations for three (3) Fire Department personnel to include all transportation, food and lodging is included in bid price.

INSPECTION TRIPS

A provision shall be provided in the bid price for all travel, food and lodging to accommodate three (3) Fire Department personnel before construction of apparatus body or midpoint of construction and prior to delivery of the completed apparatus shall be provided. Accommodations for three (3) Fire Department personnel to include all transportation, food and lodging shall be included in the bid price.

PROPOSAL GURANTEE/BID BOND

A certified check or bid bond in the sum of ten percent (10%) of the total bid price shall be submitted with the "Bid Proposal" at the time of the bid. The full amount of the bid surety shall be returned to the unsuccessful bidders following the award of the contract to the successful bidder.

PERFORMANCE BOND

Within twenty (20) days of notification to the successful bidder by the purchaser, prior to any work commencing on the proposed apparatus, the successful bidder shall, at their own expense, obtain and submit to the purchasing department a performance bond in the amount of 100% equal to the total contact price.

Additionally, each bidder must disclose the price/amount it pays for bonding, per $1000.00. This is to demonstrate the economic stability and credit worthiness of the bidder.

CAB MODEL

Cab Typhoon Long w/Barrier Style Doors

The vehicle shall be distinguished by an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. It shall incorporate an integral welded substructure of high-strength aluminum alloy extrusions that creates an occupant compartment that is essentially a protective perimeter. The end result is a distinctive structure that is aesthetically appealing, functionally durable, and characterized by increased personnel safety.

The cab shall be constructed from 3/16" (0.188") 3003 H14 aluminum alloy plate roof, floor, and outer skins welded to a high-strength 6063-T6 aluminum alloy extruded subframe. Wall supports and roof bows are 6061 T6 aluminum alloy. This combination of a high-strength, welded aluminum inner structure surrounded on all sides by load-bearing, welded aluminum outer skins provides a cab that is strong, lightweight, corrosion-resistant, and durable.

The inner structure shall be designed to create an interlocking internal "roll-cage" effect by welding two (2) 3" x 3" x 0.188" wall-thickness 6063-T5 aluminum upright extrusions between the 3" x 3" x 0.375" wall-thickness 6061-T6 roof crossbeam and the 2.25" x 3" x 0.435" wall-thickness 6063-T6 subframe structure in the front. An additional two (2) aluminum upright extrusions within the back-of-cab structure shall be welded between the rear roof perimeter extrusion and the subframe structure in the rear to complete the interlocking framework. The four (4) upright extrusions -- two (2) in the front and two (2) in the rear -- shall be designed to effectively transmit roof loads downward into the subframe structure to help protect the occupant

compartment from crushing in a serious accident. All joints shall be electrically seam welded internally using aluminum alloy welding wire.

The subframe structure shall be constructed from high-strength 6061-T6 aluminum extrusions welded together to provide a structural base for the cab. It shall include a side-to-side 3" x 1.5" .375 thick C-channel extrusion across the front, with 3/4" x 2-3/4" (.75" x 2.75") full-width crossmember tubes spaced at critical points between the front and rear of the cab.

The cab floor shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate welded to the subframe structure to give the cab additional strength and to help protect the occupants from penetration by road debris and under-ride collision impacts.

The cab roof shall be constructed from 3/16" (0.188") 3003 H14 aluminum treadplate supported by a grid of fore-aft and side-to-side aluminum extrusions to help protect the occupants from penetration by falling debris and downward-projecting objects. Molded fiberglass or other molded fiber-reinforced plastic roof materials are not acceptable.

The cab roof perimeter shall be constructed from 4" x 6-5/8" (4" x 6.625") 6063-T5 aluminum extrusions with integral drip rails. Cast aluminum corner joints shall be welded to the aluminum roof perimeter extrusions to ensure structural integrity. The roof perimeter shall be continuously welded to the cab roof plate to ensure a leak-free roof structure.

The cab rear skin shall be constructed from 3/16" (0.188") 3003 H14 aluminum plate. Structural extrusions shall be used to reinforce the rear wall.

The left-hand and right-hand cab side skins shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate. The skins shall be welded to structural aluminum extrusions at the top, bottom, and sides for additional reinforcement.

The cab front skins shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate. The upper portion shall form the windshield mask, and the lower portion shall form the cab front. Each front corner shall have a full 9" outer radius for strength and appearance. The left-hand and right-hand sides of the windshield mask shall be welded to the left-hand and right-hand front door frames, and the upper edge of the windshield mask shall be welded to the cab roof perimeter extrusion for reinforcement. The cab front shall be welded to the subframe C-channel extrusion below the line of the headlights to provide protection against frontal impact.

Trim, Rear Engine Cover

The rear portion of the engine cover shall have an overlay of aluminum diamond plate installed to provide additional wear resistance.

Engine Cover

The engine cover shall blend in smoothly with the interior dash and flooring of the cab. The upper left and right sides shall have a sloped transition surface running front to rear providing increased space for the driver and officer.

The engine cover and engine service access door cover shall be molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black and feature a pebble grain finish for slip resistance.

Rear Engine Cover

The rear engine cover shall be provided with a stepped profile for use with rear engine cover options and/or mounting of equipment on the cover.

Cab Exterior

The exterior of the cab shall be 94" wide x 139.5" long to allow sufficient room in the occupant compartment for up to eight (8) fire fighters. The cab roof shall be approximately 101" above the ground with the flat roof option. The back-of-cab to front axle length shall be a minimum of 67.5".

Front axle fenderette trim shall be brushed aluminum for appearance and corrosion resistance. Bolt-in front wheel well liners shall be constructed of 3/16" (0.188") composite material to provide a maintenance-free, damage-resistant surface that helps protect the underside of the cab structure and components from stones and road debris.

Cab Mounts and Cab Tilt System

The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one (1) on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab, one on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one (1) on each side.

An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.

Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or other hydraulic failure.

The safety flow fuses shall operate when the cab is in any position, not just the fully raised position.

The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab on the right side of the apparatus. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking break is set.

The entire cab shall be tilted through a 42-45 degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.

In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A "cab ajar" indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.

Cab Interior

The interior of the cab shall be of the open design with an ergonomically-designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation.

The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab. An all-aluminum subframe shall be provided for the engine cover for strength. The overall height of the engine enclosure shall not exceed 23" from the floor at each side and 27" in the center section. The engine cover shall not exceed 41" in width at its widest point.

The rear portion of the engine cover shall be provided with a lift-up section to provide easy access for checking transmission fluid, power steering fluid, and engine oil without raising the cab. The engine cover insulation shall consist of 3/4" dual density fiberglass composite panels with foil backing manufactured to specifically fit the engine cover without modification to eliminate "sagging" as found with foam insulation. The insulation shall meet or exceed DOT standard MVSS 302-1 and V-0 (UI subject 94 Test).

All cab floors shall be covered with a black rubber floor mat that provides an aggressive slip-resistant surface in accordance with current NFPA 1901.

The rear engine cover area shall be covered with molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black with a pebble grain finish for slip resistance.

A minimum of 57.25" of floor-to-ceiling height shall be provided in the front seating area of the cab and a minimum of 55.25" floor-to-ceiling height shall be provided in the rear seating area. A minimum of 36" of seated headroom at the "H" point shall be provided over each fenderwell.

The interior side to side dimensions shall be 87" from wall padding to wall padding and 89.5" from door to door.

The floor area in front of the front seat pedestals shall be no less than 24" side to side by up to 25" front to rear for the driver and no less than 24" side to side by up to 27" front to rear for the officer to provide adequate legroom.

Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.

All exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

The interior of the cab shall be insulated to ensure the sound (dbA) level for the cab interior is within the limits stated in the current edition of NFPA 1901. The insulation shall consist of 2 oz. wadding and 1/4" (0.25") foam padding. The padding board shall be backed with 1/4" (0.25") thick reflective insulation. The backing shall be spun-woven polyester. Interior cab padding shall consist of a rear cab headliner, a rear wall panel, and side panels between the front and rear cab doors.

The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18" padded steering wheel with a center horn button shall be provided.

Storage areas, with hinged access doors, shall be provided below the driver and officer seats. The driver side compartment shall be approximately 20" deep x 12" wide x 3.5" high and the officer side compartment shall be approximately 14" deep x 12" wide x 11" high (height will be reduced with air or electric seat). Note: With RollTek option the compartments may be occupied by air bag system components.

A black grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab. An additional black grip handle shall be provided on the left and right side windshield post for additional handholds.

Rubber Fenderette

A rubber fenderette shall be provided in place of the standard fenderette. The rubber fenderette shall extend 2.75" out from the mounting point.

CAB ROOF TYPE

Raised Roof

The rear portion of the cab roof shall be raised 12". This will provide at least 5` 7" standing room. The front of the vista hood shall be sloped at 45 degrees from the vertical. The slope shall begin slightly in front of the centerline of the front axle to leave room for warning lights and air conditioning in front of the vista. The main roof extrusion shall extend up into the vista to strengthen the roof perimeter. Windows shall be provided on front, side, and rear unless otherwise specified.

The rear door shall have an 85" vertical dimension for improved ingress/egress characteristics.

Raised Roof Front Windows

The front windows of the raised roof portion of the cab shall be deleted.

Raised Roof Side Windows

The side windows of the raised roof portion of the cab ahead of the rear doors shall be deleted.

Raised Roof Rear Windows

The rear windows of the raised roof portion of the cab shall be deleted.

EXTERIOR GLASS

The cab windshield shall be of a two-piece replaceable design for lowered cost of repair. The windshield shall be made from 1/4" (0.25") thick curved, laminated safety glass with a 75% light transmittance automotive tint. A combined minimum viewing area of 2,700-sq. in. shall be provided. Forward visibility to the ground for the average (50th percentile) male sitting in the driver`s seat shall be no more than 11 feet 7 inches from the front of the cab to ensure good visibility in congested areas.

Cab Door Windows

Front and Rear Driver and officer side door windows shall be full width.

Cab Canopy Window

There shall be a fixed window provided between the front and rear doors on the driver`s side of the cab.

Window dimensions shall be as follows:

- 44" C/A cab (short cab): 16"W x 24.5"H
- 58" - 80" C/A cab (medium - extended): 26.69"W x 24.5"H

Cab Canopy Window

There shall be a fixed window provided between the front and rear doors on the officer`s side of the cab.

Window dimensions shall be as follows:

- 44" C/A cab (short cab): 16"W x 24.5"H
- 58" - 80" C/A cab (medium - extended): 26.69"W x 24.5"H

Glass Tint

The rear of the cab shall be equipped with dark tint glass. The glass shall have 20% light transmittance (+/- 10%). The dark tint shall be provided for the following windows (as equipped):

- Window on cab sides between front and rear door
- Rear door glass
- Rear cab wall glass
- Vista roof glass

Sun Visors

Lexan sun visors shall be provided for the driver and officer matching the interior trim of the cab and shall be flush mounted into the underside of the overhead console

CAB STEP OPTIONS

Cab Steps

The lower cab steps shall extend 3.5" past the side of the cab to provide increased surface area.

The front cab steps shall be a minimum of 8" deep x 24" wide. The first step shall be no more than 22.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The rear cab steps shall be a minimum 12" deep x 21" wide. The first step shall be no more than 22.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The front and rear steps shall incorporate full width intermediate steps for easy access to the cab. The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with

current NFPA 1901. A white LED light shall illuminate each interior cab step. These lights shall illuminate whenever the battery switch is on and the cab door is opened.

Cab Doors

There shall be reflective signs on each cab door in compliance with all NFPA requirements.

Four (4) side-opening cab doors shall be provided. Doors shall be constructed of a 3/16" (0.188") aluminum plate outer material with an aluminum extruded inner framework to provide a structure that is as strong as the side skins.

Front cab door openings shall be approximately 36" wide x 63" high, and the rear cab door openings shall be approximately 33.75" wide x 63" high. The front doors shall open approximately 75 degrees, and the rear doors shall open approximately 80 degrees.

The doors shall be securely fastened to the doorframes with full-length, stainless steel piano hinges, with 3/8" (0.375") diameter pins for proper door alignment, long life, and corrosion resistance. Mounting hardware shall be treated with corrosion-resistant material prior to installation. For effective sealing, an extruded rubber gasket shall be provided around the entire perimeter of all doors.

Stainless steel paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901.

The front door windows shall provide a minimum viewing area of 530 sq. in. each. The rear door windows shall provide a minimum viewing area of 500 sq. in. each. All windows shall have 75% light transmittance automotive safety tint. Full roll-down windows shall be provided for the front cab doors with worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.

CAB DOOR OPTIONS

Rear Cab Door Position

The cab rear doors shall be moved to the rear of the wheel opening. This door placement facilitates easier entry and egress by reducing the rear facing seat protrusion into the door opening.

Rear door position to the 58" or (medium cab).

Cab Door Panels

The inner door panels shall be made from 14 gauge brushed finish stainless steel for increased durability. The cab door panels shall incorporate an easily removable panel for access to the latching mechanism for maintenance or service.

Cab Door Exterior Latches

All cab doors shall have "L" style exterior door latches.

Door Mounted Flashing Lights

There shall be four (4) door mounted red LED flashing lights, one (1) per door.

The lights shall be located on each cab door in the outboard position.

Each light shall be activated by the cab door ajar circuit.

Cab Door Anodize Aluminum Trim

Each cab door shall have a anodize aluminum trim on the trailing edge of the door opening. Rear doors shall have full vertical height trim; front cab doors shall be 50" tall on rear vertical edge above floor level.

Cab Door Reflective Material

Reflexite V98 Red/Fluorescent Yellow Green reflective striping shall be supplied on each of the cab doors. The stripes shall run from the lower outer corner to the upper inside corner of the panel, forming an "A" shape when viewed from the rear. The material shall meet NFPA 1901 requirements for size (96 square inches) and reflectivity.

Cab Door Area Lighting

There shall be four (4) clear TecNiq model T440 4" circular LED lights provided to illuminate the cab step well area. Each light shall be mounted in a resilient shock absorbent grommet and be located in the cab step well area. Each light shall be activated by the cab door ajar circuit.

Cab Crashworthiness Requirement

The apparatus cab shall meet and/or exceed relevant NFPA 1901 load and impact tests required for compliance certification with the following:

Side Impact Dynamic Pre-Load per SAE J2422 (Section 5).

Testing shall meet and/or exceed defined test using 13,000 ft-lbs of force as a requirement. The cab shall be subject to a side impact representing the force seen in a roll-over. The cab shall

exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.

Cab testing shall be completed using 13,776 ft-lbs of force **exceeding** testing requirements.

Quasi-static Roof Strength (proof loads) per SAE J2422 (Section 6) / ECE R29, Annex 3, paragraph 5.

Testing shall meet and/or exceed defined test using 22,046 lbs of mass as a requirement. Testing shall be completed using platen(s) distributed uniformly over all bearing members of the cab roof structure.

Cab testing shall be completed using 23,561 lbs of mass **exceeding** testing requirements. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and doors shall remain closed.

Additional cab testing shall be conducted using 117,336 lbs of mass **exceeding** testing requirements by **over five (5) times**. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and the doors shall remain closed.

Frontal Impact per SAE J2420.

Testing shall meet and/or exceed defined test using 32,549 ft-lbs of force as a requirement. The cab shall be subject to a frontal impact as defined by the standard. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.

Cab testing shall be completed using 34,844 ft-lbs of force **exceeding** testing requirements.

Additional cab testing shall be conducted using 65,891 ft-lbs of force **exceeding** testing requirements by **over two (2) times**.

The cab shall meet all requirements to the above cab crash worthiness; **NO EXCEPTIONS**.

A copy of a certificate or letter verifying compliance to the above performance by an independent, licensed, professional engineer shall be provided upon request.

For any or all of the above tests, the cab manufacturer shall provide either photographs or video footage of the procedure upon request.

MISC INTERIOR CAB OPTIONS

Cab Interior Color

Cab instrument panel, overhead console, trim panels, headliner, and door panels shall be gray.

Cab Dash - Severe Duty

The center and officer side dash shall be constructed from .125" smooth aluminum plate painted to match the cab interior. A hinged access panel shall be provided on top of the center dash to provide easy access to components within.

The lower kick panels below the dash to be constructed from .125" aluminum diamond plate. The panels shall be removable to allow for servicing components that may be located behind the panels.

GLOVE BOX

A glove box shall be provided and located directly in front of the officer position.

Cup Holder / Storage Tray

A cup holder and tray assembly shall be provided on the cab engine cover between the driver and officer. The tray shall be approximately 14" wide x 10" long x 1.5" tall and constructed from .125" aluminum plate. The top edge of the tray sides shall have a .5" lip and the front corners of the tray shall be tapered for dash access. The two (2) cup holders shall be constructed from 3.5" diameter pipe approximately 2.5" tall and be located one each side at the rear corners of the tray. The assembly shall be painted to match the cab interior color.

Overhead Console

A severe duty forward overhead console, air conditioning plenum and rear facing blower cover shall be provided. Each overhead console section shall be constructed of aluminum smooth plate painted to match the cab interior. The console shall be installed using stainless steel fasteners.

Severe Duty Driver Dash

The driver side upper dash shall be provided constructed of smooth aluminum painted to match the cab interior. The upper gauge package shall be provided with an ABS housing only.

Handrails

Cab door assist handrails shall consist of two (2) 1.25" diameter x 18" long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer door openings one each side of

the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.

Handrails

Cab door assist handrails shall consist of two (2) 1.25" diameter x 24" long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer rear door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.

Knurled Hand Rail Extrusion

Cab exterior hand rails shall utilize Austin Hardware model GR-002-AL-BRT-144 knurled bright anodized aluminum tubes. The hand rail extrusions shall be machine extruded with integral ribbed surfaces and knurled grip surfaces to assure a good grip for personnel safety.

Handrail Recess Mount

A recess mount shall be provided for the front cab handrails. The recess mount shall be painted to match the exterior of the cab.

Pike Pole Mounts

One (1) 6' pike pole and mount shall be provide inside a recessed box on each side of the exterior cab behind the rear cab doors. The mounts shall be provided with a lower cradle within the lower portion of the recess box, PAC 1004 retaining bracket and a stainless steel scuff plate located from top to bottom.

Heat, Supplemental

A single 40,000 BTU water heater shall be supplied in the front area of the cab. The unit shall heat the lower section of the driver`s and officer`s footwell.

Climate control will be achieved via switch installed on a front instrument panel.

HVAC

Air Conditioning

An overhead air-conditioner / heater system with a single roof mounted condenser shall be supplied.

The unit shall be mounted to the cab interior headliner in a mid cab position, away from all seating positions. The unit shall provide ten (10) comfort discharge louvers, four (4) to the back area of the cab and six (6) to the front. These louvers will be used for AC and heat air delivery. Two (2) additional large front louvers shall be damper controlled to provide defogging and defrosting capabilities to the front windshield as necessary.

The unit shall consist of a high output evaporator coil and heater core with one (1) high output dual blower for front air delivery, and two (2) high performance single wheel blowers for rear air delivery.

A serviceable filter shall be installed on the A/C evaporator. The filter shall consist of a steel perimeter frame with a foam filter.

The control panel shall actuate the air-distribution system with air cylinders, which are to be separated from the brake system by an 85-90 psi pressure protection valve. A three-speed blower switch shall control air speed.

The condenser shall be roof mounted and have a minimum capacity of 65,000 BTU`s and have dual fans with a built in receiver drier.

Performance Data: (Unit only, no ducting or louvers)

AC BTU: 55,000

Heat BTU: 65,000

CFM : 1300 @ 13.8V (All blowers)

The compressor shall be a ten-cylinder swash plate type Seltec model TM-31HD with a capacity of 19.1 cu.in. per revolution.

The system shall be capable of cooling the interior of the cab from 100 degrees ambient to 75 degrees or less with 50% relative humidity in 30 minutes or less.

HVAC Control Location

Heating and air conditioning controls shall be located in the center dash area.

Fast Idle System

A fast idle system shall be provided and controlled by the cab-mounted switch. The system shall increase engine idle speed to a preset RPM for increased alternator output.

Pump Shift

The pump shift shall be pneumatically-controlled using a power shifting cylinder.

The power shift control valve shall be mounted in the cab and be labeled ``PUMP SHIFT``. The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission.

A green indicator light shall be located in the cab and be labeled ``PUMP ENGAGED``. The light shall not activate until the pump shift has completed its full travel into pump engagement position.

A second green indicator light shall be located in the cab and be labeled ``OK TO PUMP``. This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lockup (4th gear lockup).

One (1) pump panel-mounted ``GREEN`` indicator light shall be positioned above the throttle control on the pump operator`s panel. The light shall be energized when the pump shift has been competed, chassis automatic transmission has obtained converter lockup (4th gear lockup), and the chassis parking brake is set.

Test Ports

Two (2) test plugs shall be pump panel-mounted for third part testing of vacuum and pressures of the pump.

Cab Instruments and Controls

Cab controls shall be located on the cab instrument panel in the dashboard on the driver`s side where they are clearly visible and easily reachable. Emergency warning light switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:

- Master battery switch/ignition switch (rocker with integral indicator)
- Starter switch/engine stop switch (rocker)
- Heater and defroster controls with illumination
- Marker light/headlight control switch with dimmer switch
- Self-canceling turn signal control with indicators
- Windshield wiper switch with intermittent control and washer control

- Master warning light switch
- Transmission oil temperature gauge
- Air filter restriction indicator
- Pump shift control with green "pump in gear" and "o.k. to pump" indicator lights
- Parking brake controls with red indicator light on dash
- Automatic transmission shift console
- Electric horn button at center of steering wheel
- Cab ajar warning light on the message center enunciator

Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.

Horn Button Switch

A two (2) position rocker switch shall be installed in the cab accessible to the driver and properly labeled to enable operator to activate the OEM traffic horn or air horn from the steering wheel horn button.

ATC Override

An Automatic Traction Control (ATC) override switch shall be provided. The switch shall be located within reach of the driver and allow for momentary disabling of the ATC system due to mud or snow conditions.

English Dominant Gauge Cluster

The cab operational instruments shall be located in the dashboard on the driver side of the cab and shall be clearly visible. The gauges in this panel shall be English dominant and shall be the following:

- Speedometer/Odometer
- Tachometer with integral hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Fuel gauge
- Voltmeter
- Transmission oil temperature gauge

This panel shall be backlit for increased visibility during day and night time operations.

Officer Speedometer

An electronic speedometer shall be mounted on the passenger`s side of the cab, mounted on the switch panel.

DPF Regeneration Override

A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.

ELECTRICAL SYSTEMS

Electrical System

The cab and chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area.

A 6 place, constantly hot, and 6 place ignition switched fuse panel and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.

All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3" on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.

A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, the message center, and related pump panel gauges. Communication between the VDC and chassis system gauges shall be through a 4 wire multiplexed communication system to ensure accurate engine and transmission data is provided at the cab dash and pump. The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.

Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.

Multiplex Electrical System

Electrical System

The apparatus shall incorporate a Weldon V-MUX multiplex 12 volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current 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 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

Multiplex System

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

- The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.
- Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.
- All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
- Each module that controls a device shall hold its own configuration program.
- Each module should be able to function as a standalone module. No "add-on" module will be acceptable to achieve this form of operation.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.
- Self-contained diagnostic indicators.

- Wire harness needed to interface electrical devices with multiplex modules.
- The grounds from each device should return to main ground trunk in each sub harness by the use of ultrasonic splices.

Wiring

All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions.

- NFPA 1901-Standard for Automotive Fire Apparatus
- SAE J1127 and J1127
- IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)

All wiring shall be copper or copper alloys of a gauge rated to carry 125 of the maximum current for which the circuit is protected. Insulated wire and cable 8 gauge and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6 gauge and larger shall be SXL or SGT per SAE J1127.

All wiring shall be colored coded and imprinted with the circuits function. Minimum height of imprinted characters shall not be less than .082" plus or minus .01". The imprinted characters shall repeat at a distance not greater than 3".

A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work.

Wiring Protection

The overall covering of the conductors shall be loom or braid.

Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04" and a tensile strength of 22 lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.

Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape.

Wiring Connectors

All connectors shall be Deutsch series unless a different series of connector is needed to mate to a supplier's component. The connectors and terminals shall be assembled per the connector/terminal manufacturer's specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab.

NFPA Required Testing of Electrical System

The apparatus shall be electrical 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 NFPA 1901. 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 test fail.

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 shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in NFPA 1901 Standard, or a system voltage of less than 11.7 volts DC for a 12 volt nominal system, for more than 120 seconds, shall be considered a test failure.

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 nominal 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.

NFPA Required Documentation

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

A. Documentation of the electrical system performance tests required above.

B. 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.

Multiplex Display

The V-MUX multiplex electrical system shall include a Vista IV color display.

The display shall have the following features:

- Aspect ratio of 16:9 (Wide Screen)
- Diagonal measurement of no less than 7"
- Master warning switch
- Engine high idle switch
- Five (5) tactile switches to access secondary menus
- Eight (8) multi-function programmable tactile switches
- Specific door ajar indication
- Real time clock
- Provides access to the multiplex system diagnostics
- Video capability for optional back-up camera(s) and GPS display

The display shall be located driver's side engine cover.

Electrical Connection Protection

The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components shall also be protected.

The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellant film. The coating shall protect electrical connections against the environmental conditions apparatus are commonly exposed to.

Coated Fasteners

The custom chassis frame assembly shall be assembled using GEOMET 720 coated fasteners for corrosion resistance.

Smart Truck Technology

User Interface

The apparatus shall be equipped with a smart truck technology system designed specifically for first responder apparatus. The system shall interconnect major apparatus CAN networks including but not limited to the chassis J1939/OBD2 data, vehicle multiplex system, water pump pressure governor, electric valves and electric actuated deck gun. The system shall securely report real-time vehicle information from these systems via cellular data to a globally supported cloud computing service for storage and real time access via web dashboards. The dashboards shall be accessible by the department's computers, tablets and smartphones.

The smart truck technology installed on the apparatus shall provide real-time notification via text or e-mail when a check engine light is displayed. The notification shall include the fault code and brief explanation for the code to reduce down-time.

The system shall feature a truck down feature on the web-based user interface to allow instant notification of needed apparatus service to both the authorized dealership and OEM via text or e-mail.

The system shall provide remote diagnostics of vehicle subsystems such as VMUX, pressure governors, electric monitors and electric valves.

By use of the web based user interface, the system shall allow for over the air programming updates to various subsystems should the need arise.

The web-based user interface shall also provide the following:

- Fuel and DEF levels
- GPS tracking
- Data logging for apparatus multiplex system
- Easy access to the NFPA VDR data

The smart truck technology shall also feature seamless integration to the HAAS ALERT Safety Cloud providing Responder to Vehicle (R2V) alerts to motorists using navigation apps such as WAZE.

The system shall be designed with an open architecture to incorporate future growth with new technology partners designed to enhance fireground operations

Hardware

Vehicle Gateway

The vehicle gateway module shall be rugged in construction using a durable cast aluminum enclosure designed for emergency vehicle applications. The module shall have sealed Deutsch connectors providing four (4) CAN network ports, one (1) RS-485 port, one (1) Ethernet RJ45 port, embedded cellular modem, Bluetooth and GPS capability. The IoT Core Vehicle Gateway shall be capable of 2 way vehicle telemetry, supporting both remote diagnostics and remote over-the-air software updates.

Antenna

A low profile cellular antenna shall be installed on the cab roof.

Data Plan

A 5 year data plan shall be provided with the initial vehicle purchase. At the end of the 5 year period the department shall be given the option to extend service.

Hazard (Door Ajar) Light

There shall be a 2" red LED hazard light installed as specified.

The light shall be located center overhead.

Cab Door Warning Lights

One (1) Whelen model PSR01FCR LED red flashing strip light with clear lenses shall be provided on each interior cab door panel. The lights shall be horizontal mounted on the lower kick panels and wired through the door switch.

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901. The following data shall be monitored:

- Vehicle speed MPH
- Acceleration (from speedometer) MPH/Sec.
- Deceleration (from speedometer) MPH/Sec.
- Engine speed RPM
- Engine throttle position % of full throttle
- ABS Event On/Off
- Seat occupied status Occupied Yes/No by position
- Seat belt status Buckled Yes/No by position
- Master Optical Warning Device Switch On/Off
- Time: 24 hour time
- Date: Year/Month/Day

Headlights

The front of the cab shall have four (4) headlights. The headlights shall be mounted on the front of the cab in the lower position. The headlights shall be day time operational.

LED Cab Headlights

Peterson LED headlights shall be provided. LED lights shall be provided in the low and high beam position of the head lamp assembly.

Alternating Headlights

The chassis high beam headlights shall alternately flash and shall be controlled by a switch inside the cab.

Hand Held Spotlight

A Whelen PAR46 hand held 12 volt super LED spotlight with mounting bracket shall be provided. It shall be hardwired and located at the officer`s side of the cab dash.

Mobile Data Computer mount

Supplied by dealer upon delivery

Knox Box Key Secure 5

Key Secure 5 system with key coded to Hartford Fire Department installed below officer seat supplied and mounted by dealer upon delivery

Cab Dome Lights

A Weldon LED dome light assembly with one (1) white lens and one (1) red lens and plastic housing shall be installed. The white light activates with appropriate cab door and light assembly switch, the red light activates with light assembly mounted switch only.

There shall be two (2) mounted in the front of the cab, one (1) in the driver and one (1) in the officer ceiling.

There shall be two (2) mounted in the rear of the cab, one (1) in the driver side and one (1) in the officer side ceiling.

MIRRORS

Mirrors, Heated

Driver and officer cab mirrors to be heated. Includes all surfaces (flat and convex, as applicable).

Cab Mirrors

Two (2) Ramco model 6001FFR remote controlled aluminum mirrors shall be installed. The mirrors shall incorporate a full face main section with a convex mirror with housing model CAS750, mounted to the top. The adjustment of main sections shall be through dash mounted switches. Location: Driver side mounted on frt cab door, officer side mounted on frt cab corner.

10in Convex Mirror

Retrac stainless steel 10" 3-Arm Convex mirror. (3) piece adjustable telescoping arm assembly (model 604671) and a 10" stainless steel center mounted convex head (model 604953). Mirror shall be mounted horizontally above the officer`s position to permit rapid viewing of the rear cab area.

Helmet Storage

Provided by dealer as needed upon delivery

Seat Belt Anchor Strength

The cab seat belt mounting points shall be third party tested and in compliance with FMVSS 571.210.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus cab shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer`s Quality Manual, as well as all

Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus cab that is built to exacting standards, meets the customer`s expectations, and satisfies the customer`s requirements.

Occupant Detection System

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

The audible warning shall activate when the vehicle's park brake is released and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.

The visual warning shall consist of a graphical representation of each cab seat in the multiplex display screen that will continuously indicate the validity of each seat position.

The system shall include a seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.

Technology CABINETS

Technology Storage Cabinet Finish

The storage cabinet(s) shall have a Zolatone gray finish. The finish shall be applied to the interior, exterior, shelves (if equipped) and trays (if equipped) of the cabinet.

Technology Cabinet Doors

All cabinets on the custom cab shall be ROM brand roll-up type doors.

Technology Cabinet

There shall be one (1) storage cabinet provided at the officer`s side wheel well of the cab. The cabinet shall be constructed of 1/8" smooth aluminum plate. The cabinet shall be approximately 45" high x 21" wide x (approx)18" deep interior.

Three (3) vertically adjustable shelves shall be provided and installed in the medical cabinet. The shelves shall be constructed of 1/8" smooth aluminum plate. Each shelf shall have a 1" front for added strength and reinforcement. The shelves shall be sized to the interior dimensions of the medical cabinet. The shelves shall be mounted with extruded aluminum adjustable shelf tracking attached to the cabinet walls and the shelves to be secured with aluminum brackets to the tracks

to allow for vertical height adjustment. As necessary a 3/4" x 2-3/4" aluminum extrusion shall be mounted to the underside of the shelves to provide additional reinforcement as needed.

There shall be a locking roll-up door provided to secure contents.

Additional Technology Cabinet Shelf [Qty: 3]

One (1) additional adjustable shelf shall be provided in the storage cabinet. The shelf shall be constructed of 1/8" (.125") smooth aluminum plate. The shelf shall have a 1" front and rear lip for strength and reinforcement. The shelf shall be sized to the interior dimensions of the medical storage cabinet.

Location: officer wheel well medical cabinet.

Rear Facing Storage

Recessed storage areas shall be provided in the rear face of the cab wheel well risers. Each area shall provide 900 cubic inches of storage space.

SEATS

Cab Seats

All cab seats shall be Bostrom brand.

Seat Fabric Color

All seats shall be Grey in color.

Seating Capacity Tag

A tag that is in view of the driver stating seating capacity of six (7) personnel shall be provided.

Seat, Driver

One (1) H. O. Bostrom Sierra 500 Series high back bucket seat with air suspension shall be provided for the driver's position.

Features shall include:

- Air-30RX air suspension with 1.5" vertical motion
- Weight, height and ride adjustment
- Built in lumbar support
- 5" fore and aft adjustment
- Automatic dual retractors with anti-binding webbing guide built into the seat assembly
- RiteHite™ adjustable shoulder belt
- Tether for seat back

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat Cover Material [Qty: 7]

Seat cover low seam Durawear Plus (EA). Bostrom seats on bottom cushion only.

Seat, Officer

One (1) Bostrom Tanker 550 ABTS seat with high back SCBA storage shall be provided in the officer's position with storage under the seat.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated dual retractor seat belt with an additional 8-12" of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

Seat features shall include:

- Removable "Store-All" side cushions
- Auto-pivot and return headrest to open for improved exit with SCBA
- 12.5" wide SCBA cavity to store leading SCBA brands
- Shoulder strap holder
- Replaceable seat, side and headrest cushions

Rear Wall Seat, Rear Wall Seats

Two (2) fold down seat with Bostrom Res-Q-Back seat back with SCBA storage. Location on the rear wall to be driver's side inboard, officer's side inboard.

One (1) Rear Facing Officer Side

Features shall include:

- Seat bottom constructed of high density foam with a heavy wear resistant covering
- Automatically fold up when not in use to provide increased room in the rear of the cab.
- Removable "Store-All" side cushions.
- Auto-pivot and return headrest to open for improved exit with SCBA.
- 12.5" wide SCBA cavity to store leading SCBA Brands.
- Built in lumbar support.
- Replaceable seat, side and headrest cushions.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Bostrom SecureAll Locking System

The H.O. Bostrom SecureAll™ SCBA Locking System shall be one bracket model and store all U.S. and international SCBA brands and sizes while in transit or for storage on fire trucks. The bracket shall be easily adjustable; all adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the tank in-place for a safe and comfortable fit in seat cavity. Firefighters shall simply push the SCBA unit against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.

The SecureAll™ bracket shall fit in all H.O. Bostrom Tanker SCBA seats including ABTS and non-ABTS seats and all flip-up ABTS and non-ABTS seats. Additional seat depth shall not be required for proper bracket fit; changes to the shroud back shall not be required for proper mounting of the bracket.

The standard release handle shall be integrated into the seat cushion for quick and easy release and shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.

The H.O. Bostrom SecureAll™ system meets NFPA 1901 standards and requirements of EN 1846-2.

The bracket(s) shall be located officer's seat.

Flip Up Seat, Rear Wall

Two (2) fold down jump seats shall be provided.

The seats shall be located on the rear wall driver's side outboard, officer's side outboard.

Features to include:

• Seat bottom cushion shall be constructed of high-density foam with a heavy duty, wear resistant material.
• Seat bottom automatically folds up when not in use to provide increased room in the rear of the cab.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat Belt Extender

ReadyReach seat belt extenders shall be provided. The extender shall include an arm that places the shoulder belt D-loop in a closer, easier to reach location.

The extenders shall be provided for the driver's seat, officer's seat, inboard driver's side rear wall, inboard officer's side rear wall seat.

Crew Seat Compartments

Storage compartment below the forward facing rear seats addressed and designed at prebuild at no additional cost to Hartford Fire Department

Customer Supplied Antenna

The customer supplied external antenna shall be mounted on the cab roof. The antenna shall be located driver side forward with coaxial cable terminating at the center of the dash board, officer side forward with coaxial cable terminating at the center of the dash board, officer side rearward with coaxial cable terminating at the center of the dash board.

Rear Cab Door Windows

The rear cab door windows shall be manually operated to raise and lower.

Cab Front Windows

The front windows of the cab shall have manual actuation.

Cab Door Locks

Each cab door shall have a manual operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a barrel style keyed lock below the cab door handle.

Cab Door Locks

The cab shall have 1250 keyed door locks provided on exterior doors to secure the apparatus.

Air Horns

Dual Grover air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper. The front bumper shall have two (2) holes punched to accommodate the horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure.

Windshield Wipers

Two (2) pantograph-style windshield wipers with two (2) separate electric motors shall be provided for positive operation. Air-operated windshield wipers are not acceptable because of their tendency to accumulate moisture, which can lead to corrosion or to freezing in cold weather. The wipers shall be a wet-arm type with a one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit. Wiper arm length shall be approximately 28", and the blade length approximately 20". Each arm shall have a 70 degree sweep for full coverage of the windshield.

FRAME ASSEMBLY

Rear Underbody Support Frame

The body shall be supported at the rear by a steel frame extension bolted to the chassis frame rails. The frame rails and frame extension shall be isolated from the aluminum body extrusions by 5/16" x 2" fiber reinforced rubber.

The frame extension shall be built with (2) 2.5" sq. x .25 wall thickness x full width cross rails welded to (2) 2.5" sq. x .25 wall thickness side rails. The frame extension assembly will be welded to steel weldments, which are secured to the chassis frame with grade 8 5/8" bolts. The frame shall have a hot-dipped galvanized zinc coating in place of standard for increased corrosion resistance. The coating shall be done in compliance with the ASTM A123 Standard.

The frame extension shall not interfere with N.F.P.A. minimum requirements for angle of departure.

Frame Assembly

The frame shall consist of two (2) C-channel frame rails with heavy-duty cross-members. Each frame rail shall have the following minimum specifications in order to minimize frame deflection under load and thereby improve vehicle ride and extend the life of the frame:

Dimensions: 10-1/4" x 3-1/2" x 3/8"

Material: 110,000-psi minimum yield strength, high strength, low alloy steel

Section Modulus: 16.61 cu. in.

Resistance to Bending Moment (RBM): 1,827,045 in. lbs.

If larger rails are provided, the maximum height of each frame rail shall not exceed the 10-1/4" dimension by more than 1/2" in order to ensure the lowest possible body height for ease of access as well as the lowest possible vehicle center of gravity for maximum stability.

There shall be a minimum of six (6) cross-members joining the two (2) frame rails in order to make the frame rigid and hold the rails/liners in alignment. The cross-members shall be a combination of a formed steel C-channel design along with heavy duty steel fabricated designs as required for the exact chassis configuration. The cross-members shall be attached to the frame rails with not less than four (4) bolts at each end arranged in a bolt pattern to adequately distribute the cross-member load into the rail/liner and minimize stress concentrations.

All frame fasteners shall be high-strength Grade 8, flanged-head threaded bolts and nuts for frame strength, durability, and ease of repair. The nuts shall be Stover locknuts to help prevent loosening. The frame fasteners shall be tightened to the proper torque at the time of assembly.

The frame rails shall be hot-dip galvanized and powder coated for improved corrosion resistance. The galvanization shall be a minimum of 4 mils thick and done in accordance with ASTM A123. The powder coat shall be 6.5 mils thick (+/- 1.5 mils) and pass ASTM D3359 testing.

The frame cross-members and frame mounted components (suspensions, axles, air tanks, battery boxes, fuel tank, etc.) shall be painted black.

The apparatus manufacturer shall supply a full lifetime frame warranty including cross-members against defects in materials or workmanship. Warranties that provide a lifetime warranty for only the frame rails, but not the cross-members, are not acceptable. NO EXCEPTIONS.

The custom chassis frame shall have a WHEEL ALIGNMENT in order to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer`s internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery upon request.

Galvanized Frame Components

The front chassis frame extensions, rear subframe (If equipped), crossmembers and battery brackets shall be hot-dip galvanized for increased corrosion resistance. The coating shall be done in compliance with the ASTM A123 Standard.

BUMPERS

Bumper Extension

The bumper extension shall be approximately 16" from the face of the cab as required.

Bumper Gravel Shield

The extended front bumper gravel shield shall be made of 3/16" (.188") aluminum treadplate material. The gracel shield shall include 1" turn down lips to protect the top edge of the heavy duty bumper from damage.

Bumper

A heavy duty 12" high steel channel type front bumper shall be provided. The front corners of the bumper shall be tapered to produce an 8" wide mounting surface and to reduce swing clearance. The center of the bumper shall have a notch to allow room for a flush mounted Q2B siren. The bumper shall be painted job color.

BUMPER TRAYS

Bumper Tray - Center

A hose tray constructed of 1/8" aluminum shall be recessed into the front bumper extension. The tray shall be located in the center of the bumper and be approximately 14" deep (13" to the top of the slats). One inch thick aluminum slats shall be included in the bottom of the hose tray to aid in the dissipation of water from the tray.

Lid, Bumper Tray

There shall be a diamond plate lid covering the center hose tray. The lid shall be approximately 5.25" high allowing for additional capacity of hose or installation of a hydraulic reel in the hose tray (24" extension only). It shall include a chrome grab handle, rubber hood latch and gas shock.

A 1" x 1.5" angle shall be provided behind the extra capacity bumper tray lid for added water protection for the bumper trays.

Overall Length Restriction

The completed unit shall have an overall length of 30'8". Compartment modification can be made at point of order to reduce to 30'6" as noted in exception page.

AXLE OPTIONS

Front Axle

The vehicle shall utilize an Meritor FL-941 front axle with a rated capacity of 18,000 lbs. It shall have "easy steer" knuckle pin bushings and 68.5" kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal cramp angle of 45 degrees, plus two (+ 2) degrees to minus three (- 3) degrees including front suction applications.

The front axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels in order to improve wheel centering and extend tire life.

The front springs shall be parabolic tapered, minimum 4" wide x 54" long (flat), minimum three (3) leaf, progressive rate with bronze bushings and a capacity of 18,000 lbs. at the ground.

Tapered leaf springs provide a 20% ride improvement over standard straight spring systems. Supporting documentation/data shall be provided upon request.

The vehicle shall be equipped with a Sheppard model M-110 integral power steering gear. The steering assembly shall be rated to statically steer a maximum front axle load of 18,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.

In order to achieve maximum vehicle road performance and to promote long tire life, there shall be a wheel alignment. The alignment shall conform to the manufacturer`s internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery.

Rear Axle

The vehicle shall be equipped with an Meritor RS-24-160 single rear axle with single-reduction hypoid gearing and a manufacturer`s rated capacity of 24,000 lbs. The axle shall be equipped with oil-lubricated wheel bearings with Meritor oil seals. The rear axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels to improve wheel centering and extend tire life.

Vehicle Speed

The maximum speed shall be electronic limited to 68 MPH as required by NFPA 1901.Note: Maximum speed may be set at 65 MPH due to tire rating.

On-Spot Tire Chains

The chassis shall be provided with On-Spot automatic tire chain system. The system shall include:

- An air cylinder containing one diaphragm, one return spring, one pushrod and a collapsible dust boot held in place with an Oetiker® style retainer to prevent foreign material from entering the air cylinder. The cylinder will be assembled with a two-piece cylinder clamp. The air cylinder will be cast aluminum and the lid will be threaded to receive a 90-degree DOT approved air fitting. The cylinder and lid must be anodized for corrosion resistance. Each cylinder will have 6 strengthening ribs. The cylinder wall thickness will be a minimum of 6mm.
- An extension rod and ball joint assembly that is fastened to the cylinder pushrod by means of a left hand thread. The ball joint must have a provision for greasings.
- A swing arm that is connected to the ball joint assembly with a nylock lock nut on one side and is fastened to the cylinder bracket at the pivot point. The arm will be supported by 2 greaseable arm bushings. The arm will be one-piece hardened alloy material that is formed in such a fashion that it allows the chainwheel to contact the vehicle tire at 3-1/2 to 4 inches off the ground.
- A chainwheel that is fastened to the arm with one 20mm bolt that is hardened to Metric Grade 8.8 along with a hardened lock nut. The bolt will also come with one chainwheel spacer for wheel height adjustment. The chainwheel will be 7-3/4 inches in diameter and will be constructed of a one-piece cast aluminum center hub that contains two maintenance-free sealed bearings. The circumference of the chainwheel will be rubber coated so that it may ride on the inside of the vehicle tire without causing any damage to the tire. There will be 6 lengths of chains approximately 13 inches long that will be welded to a single steel ring at 60-degree intervals. The steel ring will be bolted to the center hub with 6 Grade 8 cap screws and locknuts. Each length of chain will contain up to10 twisted links that are square-cut to provide for maximum traction in forward and reverse. Each chainwheel will be delivered with a chainwheel helmet to protect the chainwheel bearing and casting.

A switch shall be provided in the cab for activation of the tire chains.

Battery Jumper Terminal

Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab. Each terminal tagged to indicate positive/negative.

ALTERNATOR

320 Amp Alternator

There shall be a 320 amp Leece Neville alternator installed as specified. The alternator shall be a Leece Neville 4890JB series brushless type with integral rectifier and adjustable voltage regulator with an output of 272 amps per NFPA 1901 rating (320 amps per SAE J56).

BATTERIES

Battery System

The manufacturer shall supply four (4) heavy duty Group 31 12-volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be two (2) steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. Each battery box shall hold (2) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.

Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas.

One (1) positive and one (1) negative jumper stud shall be provided.

Batteries shall have a warranty of twelve (12) months that shall commence upon the date of delivery of the apparatus.

Battery Charger

A Kussmaul Auto-Charge 1200 battery charger and air compressor with automatic battery charger shall be installed.

The battery charger shall be completely automatic with an output of 0-40 amps @ 12 volts DC and an input current requirement of 10 amps @ 120 volts AC.

Battery Charger Location

The battery charger shall be located behind driver's seat.

Auto-Eject Battery Charger Receptacle

The battery charger receptacle shall be a Kussmaul 20 amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect.

The receptacle shall be located outside driver's door next to handrail and the cover color shall be Yellow.

BRAKE SYSTEMS

Front Brakes

The front axle shall be equipped with Meritor DiscPlus EX225H 17 inch disc brakes.

The brakes shall be covered by the manufacturer`s standard warranty which is two years, unlimited mileage and parts only.

Rear Brakes

The rear axle shall be equipped with ArvinMeritor 16-1/2" x 7" S-cam brakes with cast brake drums. Q-Plus shoes shall be provided with up to 24,000 lb. axle ratings and P-Type shoes with over 24,000 lb. axle ratings.

The rear axle brakes shall be furnished with automatic slack adjusters. ArvinMeritor brand shall be supplied on RS-24-160 and RS-25-160 axles, and Haldex brand shall be supplied on RS-26-185 and RS-30-185 axles.

A 3 year/unlimited miles parts and 3 year labor rear brake warranty shall be provided as standard by ArvinMeritor Automotive. The warranty shall include bushings, seals, and cams.

Brake System

The vehicle shall be equipped with air-operated brakes and an anti-lock braking system (ABS). The brake system shall meet or exceed the design and performance requirements of the current

Federal Motor Vehicle Safety Standard (FMVSS)-121, and the test requirements of the current NFPA 1901 Standard.

A dual-treadle brake valve shall correctly proportion the braking power between the front and rear systems. The air system shall be provided with a rapid pressure build-up feature, designed to meet current NFPA 1901 requirements, to allow the vehicle to begin its emergency response as quickly as possible.

A pressure-protection valve shall be installed to prevent use of the air horns or other air-operated devices should the air system pressure drop below 85 psi. This feature is designed to prevent inadvertent actuation of the emergency/parking brakes while the vehicle is in motion.

Two (2) air pressure needle gauges, one (1) each for front and rear air pressure, with a warning light and buzzer shall be installed at the driver's instrument panel.

The braking system shall be provided with a minimum of three (3) air tank reservoirs for a total air system capacity of 5,214 cu. in. One (1) reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.

Tank Capacities in Cubic Inches:

Wet	Front	Rear	Total
1,738	1,738	1,738	5,214

Spring-actuated emergency/parking brakes shall be installed on the rear axle.

A Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, shall provide automatic emergency brake application when the air brake system pressure falls below 40 psi in order to safely bring the vehicle to a stop in case of an accidental loss of braking system air pressure.

A four-channel Wabco ABS shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to both front and rear axles. All electrical connections shall be environmentally-sealed for protection against water, weather, and vibration.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall detect approaching wheel lock-up and instantly modulate (or pump) the brake pressure up to five (5) times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual-circuit design configured in a diagonal pattern. Should a malfunction occur in one circuit, that circuit shall revert to normal braking action. A warning light at the driver's instrument panel shall signal a malfunction.

The system shall also be configured to work in conjunction with all auxiliary engine, exhaust, or driveline brakes to prevent wheel lock-up.

To improve maintenance troubleshooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started, and a dash-mounted light shall go out once the vehicle is moving above 4 MPH.

A 3 year/300,000 mile parts and labor Anti-Locking Braking System (ABS) warranty shall be provided as standard by Meritor Automotive.

AIR SYSTEM OPTIONS

Air Dryer

The chassis air system shall be equipped with a Meritor/Wabco System Saver 1200 air dryer located under the cab. The air dryer shall utilize a single spin-on desiccant cartridge.

Heated Moisture Ejectors

All air reservoirs shall be equipped with a Bendix DV-2 automatic reservoir drain valve which shall automatically eject moisture and contaminants from the reservoirs. The moisture ejectors shall be heated.

Air Lines

Air brake lines shall be constructed of color coded nylon tubing routed in a manner to protect them from damage. Brass fittings shall be provided.

Park Brake Release

One (1) Bendix-Westinghouse PP-5 parking brake control valve shall be supplied on the lower dash panel within easy reach of the driver.

Electronic Stability Control

The apparatus shall be equipped with a G4 4S4M Electronic Stability Control (ESC) system that combines the functions of Roll Stability Control (RSC) with the added capability of yaw - or rotational – sensing.

RSC focuses on the vehicle's center of gravity and the lateral acceleration limit or rollover threshold. When critical lateral acceleration thresholds are exceeded, RSC intervenes to regulate the vehicle's deceleration functions. The added feature of ESC is to automatically intervene to reduce the risk of the vehicle rotating while in a curve or taking evasive action, prevents drift out through selective braking, and controlling and reducing vehicle speed when lateral acceleration limits are about to be exceeded.

Intervention by the system occurs in three forms - engine, retarder and brake control. The ESC system uses several sensors to monitor the vehicle. These include a steering wheel angle sensor, lateral accelerometer, and yaw position sensor. ESC constantly monitors driving conditions and intervenes if critical lateral acceleration is detected or if the vehicle begins to spin due to low friction surfaces. The system provides control of engine and retarder torque as well as automatically controlling individual wheels to counteract both over steer and under steer.

To further improve vehicle drive characteristics, the unit shall be fitted with Automatic Traction Control (ATC). This system shall control drive wheel slip during acceleration from a resting point. An extra solenoid valve shall be added to the ABS system. The system shall control the engine and brakes to improve acceleration slip resistance. The system shall have a dash mounted light that shall come on when ATC is controlling drive wheel slip.

3 year/300,000 miles parts and labor warranties for ESC, RSC, and ATC shall be provided as standard by Meritor Automotive.

COOLING PACKAGE

Engine Cooling Package

Radiator

The cooling system shall include an aluminum tube-and-fin radiator with a minimum of 1,408 total square inches of frontal area to ensure adequate cooling under all operating conditions. There shall be a drain valve in the bottom tank to allow the radiator to be serviced. A sight glass shall be included for quick fluid level assessment. The radiator shall be installed at the prescribed angle in order to achieve the maximum operational effectiveness. This shall be accomplished according to established work instructions and properly calibrated angle measurement equipment.

Silicone Hoses

All radiator and heater hoses shall be silicone. Pressure compensating band clamps shall be used to eliminate hose pinching on all hoses 3/4" diameter and larger. All radiator hoses shall be routed, loomed, and secured so as to provide maximum protection from chafing, crushing, or contact with other moving parts.

Coolant

The cooling system shall be filled with a 50/50 mixture of water and antifreeze/coolant conditioner to provide freezing protection to minus 40 (- 40) degrees F for operation in severe winter temperatures.

Coolant Recovery

There shall be a coolant overflow recovery system provided.

Charge Air Cooler System

The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.

Charge Air Cooler Hoses

Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air. The hoses shall incorporate a flexible hump section to allow motion and misalignment of the engine relative to the charge air cooler. Charge air cooler hose clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

Fan/Shroud

The fan shall be 30" in diameter with eleven (11) blades for maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance. The fan shall be installed with grade 8 hardware which has been treated with thread locker for additional security. A fan shroud attached to the radiator shall be provided to prevent recirculation of engine compartment air around the fan in order to maximize the cooling airflow through the radiator. The fan shroud shall be constructed of fiber-reinforced high temperature plastic. The shroud shall be specifically formed with curved surfaces which improves air flow and cooling.

Transmission Cooler

The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission. When a transmission retarder is selected, the cooler shall have an increased capacity to handle the additional heat load.

Engine Cooler

A water to water type heat exchanger shall be provided to lower the chassis engine water temperature during prolonged pumping operations.

The heat exchanger shall be installed in the engine coolant system in such a manner as to allow cool pump water to circulate around engine water, thus forming a true heat exchanger action.

Cooler inlet and outlet shall be continuous, preventing intermixing of engine coolant and pump water.

Drivelines

Drivelines shall have a heavy duty metal tube and shall be equipped with Spicer 1710HD universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.

Engine/Transmission Package

Engine

The vehicle shall utilize a Cummins L9 engine as described below:

- 380 maximum horsepower at 2000 rpm
- 1150 lb-ft peak torque at 1400 rpm
- Six (6) cylinder, charge air cooled, 4-cycle diesel
- 543 cu. in. (8.9 liter) displacement - 4.49 in bore x 5.69 in stroke
- 16.6:1 compression ratio
- Viable Geometry Turbocharged
- Engine shall be equipped with Full-Authority Electronics
- Electronic Timing Control fuel system
- Fuel cooler (when equipped with a fire pump)
- Fleetguard FS1022 fuel filter with integral water separator and water-in-fuel sensor approved by Cummins for use on the ISL engine
- Fleetguard LF9009 Venturi Combo combination full-flow/by-pass oil filter approved by Cummins for use on the ISL engine
- Engine lubrication system, including filter, shall have a minimum capacity of 25 quarts
- Delco-Remy 39 MT-HD 12-volt starter
- Cummins 18.7 cubic foot per minute (cfm) air compressor
- Corrosion inhibitor additive for coolant system
- After treatment system consisting of a oxidation catalyst and diesel particulate filter and selective catalyist reduction system
- Ember separator compliant with current NFPA 1901 standard
- The engine shall be compliant with 2017 EPA Emission standards

The engine air intake shall draw air through the front cab grill. The intake opening shall be located on the officer (right) side behind front cab face with a plenum that directs air to the air filter. The air cleaner intake piping shall be made from aluminized steel tubing with flexible rubber hoses. The intake piping clamps shall be heavy-duty, constant-torque, T-bolt style to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

The air cleaner shall be an 11" diameter K&N for lower restriction and high air flow. The filtration media shall be washable and easily accessed for service. The air filter shall have a 3 year / 300,000 mile warranty.

The engine exhaust piping shall be a minimum of 4" diameter welded stainless steel tubing. The aftertreatment system shall be mounted horizontally under the right-hand frame rail in back of the cab in order to minimize heat transmission to the cab and its occupants. The exhaust shall be directed away from the vehicle on the right side ahead of the rear wheels in order to keep exhaust fumes as far away as possible from the cab and pump operator position.

A 5-year/100,000-miles parts and labor warranty shall be provided as standard by Cummins.

A copy of the Engine Installation Review stating the engine installation meets Cummins recommendations shall be provided as requested. The engine installation shall not require the operation of any type of "power-down" feature to meet engine installation tests.

Engine Fan Clutch

The engine shall be equipped with a thermostatically controlled engine cooling fan. The fan shall be belt driven and utilize a clutch to engage when the engine reaches a specified temperature and / or the water pump is engaged (if equipped).

When disengaged, the fan clutch shall allow for improved performance from optional floor heaters, reduced cab interior noise, increased acceleration and improved fuel economy.

The fan shall be equipped with a fail-safe engagement so that if the clutch fails the fan shall engage to prevent engine overheating.

Engine Compartment Light

There shall be lighting provided to illuminate the engine compartment area in compliance with NFPA 1901. The light shall be an Optronics ILL22 Series LED that has a polycarbonate lense, sealed / waterproof housing and integral switch. The light wiring circuit shall activate when the cab is tilted and master power is switched on.

SECONDARY BRAKING

Jacobs Engine Brake

One (1) Jacobs engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1901 for vehicles with gross vehicle weight ratings (GVWR) of 36,000 lbs. or

greater. An on-off control switch and a high-medium-low selector switch shall be mounted in the cab accessible to the driver.

When activated, the Jacobs engine brake shall cut off the flow of fuel to the cylinders and alter the timing of the exhaust valves. This shall transform the engine into a high-pressure air compressor, driven by the wheels, and the horsepower absorbed by the engine in this mode shall slow the vehicle. The selector switch allows the driver to select the amount of retarding power.

When the on-off switch is in the "on" position, the engine brake shall be automatically applied whenever the accelerator is in the idle position and the automatic transmission is in the lock-up mode. If the accelerator is depressed or if the on-off switch is placed in the "off" position, the engine brake shall immediately release and allow the engine to return to its normal function.

DEF Tank

A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided.

The DEF tank shall include a heater fed by hot water directly from the engine block to prevent the DEF from becoming too cool to operate correctly per EPA requirements. The tank shall include a temperature sensor to control the heater control valve that controls the feed of hot water from the engine to the DEF tank heater.

A sender shall be provided in the DEF tank connected to a level gauge on the cab dash.

The tank shall be located left side below rear of cab.

FUEL SYSTEMS

Fuel Re-Prime

An auxiliary 12 volt fuel pump shall be included in the fuel system. The electric pump shall permit re-priming of the fuel lines and engine. The pump may be manually operated with a switch located accessible to driver. The electric pump shall also automatically operate in conjunction with the mechanical fuel pump as long as engine oil pressure is present. The system shall be plumbed to allow full flow to by-pass the pump.

Fuel Shut-Off

A shut-off valve shall be supplied to prevent drain back of fuel into the main supply line during filter changes. The valve(s) shall be located: one (1) at fuel tank.

Fuel Line Hose

Wire braided fuel hose meeting SAE J-1402 shall be provided for the chassis fuel system. The hose shall have a working temperature rating of -55 degree F to 300 degree F.

The ends of the hose shall have connections that shall allow the hose to be reattached if removed.

Fuel/Water Separator

A Racor fuel/water separator shall be installed in place of the Cummins fuel/water separator with drain. The unit shall utilize a three-step separate process: centrifuge for primary contaminant separation, conical baffles for water coalescing, and a replaceable filter for final particulate removal. The separator shall have a bottom drain for removing contaminants, shall be heated and shall have a rated maximum flow of 3.16 GPM. A sensor with indicator light and audible alarm shall be provided for the Racor fuel/water separator. The indicator light shall be mounted in the cab visible to the driver with the unit located inside the frame rails. The unit will alert the driver of high water content in the separator bowl.

Fuel System

One (1) 50 gallon fuel tank shall be provided. The tank shall be of an all-welded, stainless-steel construction with anti-surge baffles and shall conform to all applicable Administration (FHWA) 393.65 and 393.67 standards. The tank shall be mounted below the frame rails at the rear of the chassis for maximum protection. The tank shall be secured with two (2) wrap-around T-bolt type stainless steel straps. Each strap shall be fitted with protective rubber insulation and shall be secured with grade 8 hardware. This design allows for tank removal from below the chassis.

The fuel tank shall be equipped with a 2" diameter filler neck. The filler neck shall extend to the rear of the vehicle behind the rear tires and away from the heat of the exhaust system as required by NFPA 1901 Standard for Automotive Fire Apparatus. The open end of the filler neck shall be equipped with a twist-off filler cap with a retaining chain.

The tank shall be plumbed with top-draw and top-return fuel lines in order to protect the lines from road debris. Bottom-draw and/or bottom-return fuel lines are not acceptable. A vent shall be provided at the top of the tank. The vent shall be connected to the filler neck to prevent splash-back during fueling operations. A .50" NPT drain plug shall be provided at the bottom of the tank.

The tank shall have a minimum useable capacity of 50 gallons of fuel with a sufficient additional volume to allow for thermal expansion of the fuel without overflowing the vent.

A mechanical fuel pump shall be provided and sized by the engine manufacturer as part of the engine.

Fuel Fill

A recessed fuel fill shall be provided at the driver side rear wheel well area.

EXHAUST OPTIONS

Exhaust End Modification

The end of the exhaust tail pipe shall be modified to accommodate a Plymovent in-house exhaust extraction system. The tail pipe will be at 90 degrees and straight out below the side of body. A stop ring shall be provided on the tail pipe to properly position the Plymovent nozzle. The exhaust outlet shall be vented for use with 2013 and newer EPA engines.

Steering

The vehicle shall be equipped with a Sheppard model M-110 integral power steering gear. The steering assembly shall be rated to statically steer a maximum front axle load of 18,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.

Power Steering Cooler

A heat exchanger (cooler) shall be installed to maintain desired power steering fluid temperature. The cooler shall be a model DH-073-1-1 with air / oil design rated at 6300 BTU/HR @10 GPM. The cooler shall be mounted in front of the radiator and plumbed with #10 lines.

SUSPENSIONS

Front Suspension

The front suspension shall be a variable rate taper-leaf design. Long life bushed spring shackles shall be utilized. All spring and suspension mounting shall be attached directly to frame with high strength fasteners.

The front suspension shall also be furnished with two (2) heavy duty, double acting shock absorbers, one (1) on each side.

Rear Suspension

The rear suspension shall be Hendrickson FIREMAXX EX Air Ride suspension.

TIRE OPTIONS Tire Pressure Indicators

The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps. When the tire is under inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The indicators shall be calibrated by attaching to valve stem of a tire at proper air pressure per load ratings and easily re-calibrated by simply removing and re-installing them during service.

Real Wheel Part number RWC1234 was superseded by RWC1235 as of June 2015

Front Wheel Trim Package

The front wheels shall have stainless steel lug nut covers (for use with aluminum wheels) or chrome plated plastic (for use with steel wheels). The front axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel universal baby moons. All stainless steel baby moons shall carry a lifetime warranty plus a 2 year re-buffing policy. There shall be two (2) baby moons and twenty (20) lug nut covers.

Rear Wheel Trim Package, Single Axle

The rear wheels shall have stainless steel lug nut covers (chrome plated steel lug nut covers not acceptable), or American made chrome plated plastic lug nut covers. The rear axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel, spring clip band mount high hats, DOT user friendly. All stainless steel high hats shall carry a lifetime warranty plus a 2 year re-buffing policy. There shall be two (2) high hats and twenty (20) lug nut covers.

Front Mud Flaps

Black linear low density polyethylene (proprietary blend) mud flaps shall be installed on the rear of the cab front wheel wells. The design of the mud flaps shall have corrugated ridges to distribute water evenly.

Front Tires

Front tires shall be two Michelin 315/80R22.5 tubeless type 20 PR radial tires with X Multiway 3D XZE tread.

Tires with wheels shall have the following weight capacity and speed rating:

18,000 lbs. @ 75 MPH. (Intermittent fire service max load 19,452 lbs)

The tires and wheels shall conform to the Tire and Rim Association requirements.

Rear Tires

The rear tires shall be Michelin 11R22.5 tubeless type radial tires with XDN2 all weather tread.

The tires with wheels shall have the following weight capacity:

24,000 lbs. (dual) @ 75 MPH

The wheels and tires shall conform to the Tire and Rim Association requirements.

Mud Flaps

Black mud flaps with E-ONE logo shall be provided for the body wheel wells.

Front Wheels

The front wheels shall be steel hub-piloted disc sized appropriately for the tires.

Rear Wheels

There shall be four hub-piloted steel disc wheels sized appropriately for the tires.

Paint Wheels

The inboard side of the front wheels shall be painted the same color as the outboard side.

Paint Wheels

The inboard side of the rear wheels shall be painted the same color as the outboard side. Includes the outboard side of the inboard wheels.

Paint Wheels

The exterior outer chassis wheels shall be painted Job Color. The paint shall be of the highest quality finish for low maintenance, long life, and attractive appearance. The finish shall consist of a corrosion-resistant primer, urethane high build primer, and high performance durable color coat.

The paint process shall meet or exceed current State regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. Manufacturer shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

Paint process shall feature Akzo-Nobel's high solid LV products and be performed in the following steps:

- Corrosion Prevention - all raw material shall be pre-treated with the Weather Jacket Corrosion Prevention system to provide superior corrosion resistance and excellent adhesion of the top coat.
- Akzo-Nobel Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.

- Akzo-Nobel High Solid LV (Top coat) - a lead-free, chromate-free high solid acrylic urethane top coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Akzo-Nobel High Solid LV (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Front Tow Eyes

Two (2) 3/4" thick heavy duty steel tow eyes shall be securely attached to the chassis frame rails at the front of the apparatus. They shall be mounted down below the bumper / cab.

Rear Tow Eyes

Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2-1/2" diameter holes shall be mounted below the body at the rear of the vehicle to allow towing (not lifting) of the apparatus without damage. The tow eyes will be welded to the lower end of a 5" steel channel that is bolted at the end of the chassis frame rails. The tow eyes shall be painted chassis black.

TRANSMISSIONS

Transmission Selector

A push-button transmission shift module, Allison model 29538373, shall be located to the right side of the steering column within easy reach of the driver. The shift position indicator shall be indirectly lit for after dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light. The shift module shall have means to enter a diagnostic mode and display diagnostic data including oil life monitor, filter life monitor, transmission health monitor and fluid level. A transmission temperature gauge with warning light and buzzer shall be installed on the cab instrument panel.

Transmission Fluid

The transmission fluid shall be TranSynd, Shell Spirax S6ATF A295, or equivalent synthetic.

Transmission

The vehicle shall utilize an Allison EVS3000P, electronic, 5-speed automatic transmission.

A push button shift module shall be located right side of the steering column, within easy reach of the driver. The shift position indicator shall be indirectly lit for after-dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light that are clearly visible to

the driver. The shift module shall have means to enter a diagnostic mode and display diagnostic data.

A transmission oil temperature gauge with warning light and buzzer shall be installed on the cab instrument panel to warn the driver of high oil temperatures that may damage the transmission.

The transmission shall have a gross input torque rating of 1250 lb.-ft. and a gross input power rating of 450 HP.

The gear ratios shall be as follows:

1 - 3.49

2 - 1.86

3 - 1.41

4 - 1.00

5 - .75

R - 5.03

The transmission shall have an oil capacity of 23 quarts and shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the driver.

A water-to-oil transmission oil cooler shall be provided to ensure proper cooling of the transmission when the vehicle is stationary (no air flow). Air-to-oil transmission oil coolers, which require constant air flow, are not acceptable.

The transmission shall be provided with two (2) engine-driven PTO openings located at the 4 o`clock and 8 o`clock positions for flexibility in installing pto-driven equipment.

The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent down shifting of the transmission when the engine speed is decreased during pump operations, thereby maintaining a constant gear ratio for safe operation of the pump. The transmission lock-up shall be automatically activated when the pump is engaged in gear. The transmission lock-up shall be automatically deactivated when the pump is disengaged for normal road operation.

A 5-year/unlimited miles parts and labor warranty shall be provided as standard by Allison Transmission.

Automatic Shift to Nuetral

The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.

Transmission Programming

The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released and the Jacobs engine brake (or Telma retarder wired to activate with release of throttle) is engaged. This feature is designed to increase brake life and aid vehicle braking.

Wheelbase

Wheelbase shall be between 170"-180"

PUMPS

Pump Rating

The fire pump shall be rated at 1500 GPM.

Fire Pump System

Pump

The pump shall be a midship-mounted Hale DSD 750-1500 single stage centrifugal pump. The pump shall be mounted on the chassis frame rails and shall be split shaft driven.

The entire pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI (207 Mpa). All metal moving parts in contact with water shall be of high quality bronze or stainless steel. Pump body shall be vertically on a single plane, for easy removal of impeller assembly, including clearance rings.

The pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machined, hand-ground, and individually balanced. The vanes of the impeller intake eye shall be hand-ground and polished to a sharp edge, and be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

The impeller shaft shall be constructed of heat-treated stainless steel and shall be rigidly supported by two (2) ball bearings for minimum deflection. Impeller clearance rings shall be bronze and easily removable without replacing impellers or pump volute body. The pump drive line shall be of heat-treated chrome nickel steel and shall withstand the full torque of the engine in both road and pump operating conditions. The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI.

The pump shaft shall have only one (1) mechanical seal. The mechanical seal shall be spring-loaded, maintenance-free, and self-adjusting. Impeller clearance rings shall be bronze, easily renewable without replacing impellers or pump volute body.

Pump Shift

Pump shift shall be pneumatically operated and shall use a standard automotive air valve control to a double action air shift cylinder so that the pump shift remains in its latest position in the event of loss of air pressure. Control shall be in cab and shall include a detent lock to prevent accidental shifting.

PUMP CERTIFICATION

Pump Certification

The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer`s facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901.

The pump shall deliver the percentage of rated capacities at pressures indicated below:

- 100% of rated capacity at 150 psi net pump pressure
- 100% of rated capacity at 165 psi net pump pressure
- 70% of rated capacity at 200 psi net pump pressure
- 50% of rated capacity at 250 psi net pump pressure

A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine.

A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer`s Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.

Trident Primer

A Trident air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,600 LPM) or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with ¾" NPT connection to the fire pump.

The primer shall be mounted above the pump impeller so that the priming line will automatically drain back to the pump. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass "wye" type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The system shall create vacuum by using air from the chassis air brake system through a two-barrel multi-stage internal "venturi nozzles" within the primer body. The noise level during operation of the primer shall not exceed 75 Db.

PUMP MODULE

Pump Module Width

Pump module shall be 76" wide.

Pump Module

Pump Module Frame

An extruded aluminum pump module shall be provided and located forward of the apparatus body. The pump module shall be constructed entirely of welded aluminum alloy extrusions and interlocking aluminum plates. The pump module framework shall consist of 1.5" x 3" x .188" wall, 1.5" x 3" x .375" wall with center web and 3" x 3" x .188" wall extrusions.

The pump module design and mounting shall be separate from the body to allow the pump module and body to move independently of each other in order to reduce stress from frame twisting and vibration.

The exterior surface of the pump module framework shall have a sanded finish.

Pump Module Mounting

The pump module shall be attached to the chassis using four (4) center bonded isolation mounts and a steel mounting frame. The isolation mounts shall be 2.75" diameter and mount to the chassis with two (2) 4" x 4" x .312" A36 steel angles.

Pump Access

A pump service access door shall be provided at the front of the pump module. The door shall be secured with two (2) thumb latches. (Access door not provided on fixed cab applications)

Pump Module Running Boards

The pump module shall include a running board on each side. The running boards shall be in accordance with NFPA in both step height and stepping surface. The running boards shall be formed from .125" aluminum treadplate.

Stepping Surface

Each running board shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall extend vertically from the diamond plate sheet a minimum of .125". Gripping

surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4". Each running board shall be bolted on to the pump module and be easily removable for replacement in the case of damage.

Pump Panel Opening

The panel opening on the pump module shall be 39" wide.

Pump Module Height

The pump module height shall be 80".

PUMP PANELS

Zolatone Pump Panels

The driver and officer side pump panels shall have a black zolatone painted finish.

Pump Access Door

The officer side pump module shall include an upper horizontally-hinged pump access door.

The compartment door shall be securely attached with a full-length stainless steel piano type hinge with 1/4" pins. The hinge shall be "staked" on every other knuckle to prevent the pin from sliding. The door shall include two (2) push-button style latches to secure the door in the closed position and two (2) hold-open devices to hold the door in the open position.

The door shall have a Zolatone painted finish the same color as the pump panels and of the same material.

MISC PUMP PANEL OPTIONS

Pump Panel Tags

Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.

PUMP MODULE OPTIONS

Flex Joint

The area between the pump modules and body shall include a rubber flex joint.

Module Logos

Logos with the OEM brand name shall be provided and shall be mounted one (1) each side on pump module/pre-connect panels. Logos shall be sized as applicable to available space on panel(s).

Air Horn Switch

A heavy duty weatherproof push-button switch shall be installed at the pump operator`s panel to operate the air horns.

The switch shall be labeled "Evacuation Alert".

Location: driver side pump panel.

Storage Pan

A storage pan shall be provided in the upper pump module area. The pan shall be constructed of 3/16" (.188") aluminum treadplate and be removable to service items in the pump module below. Holes shall be provided in the corners of the pan to facilitate drainage of water.

PUMP OPTIONS

Steamers, Flush+1

The pump 6" steamer intake(s) shall be mounted approximately 1" from the pump panel to back of cap when installed. The "Flush+1" dimension can vary + or - 1-1/4" or as practicable depending on the pump module width and options selected. (Example 72" or 76" modules.)

Location: driver's side, officer's side.

Zinc Anodes

The zinc anodes help prevent damage caused by galvanic corrosion within the fire pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One anode will be located on the suction side and one will be located on the discharge side of the pump.

Thermal Relief Valve

A Hale thermal relief valve that protects the pump from overheating shall be provided. The valve shall automatically dump a controlled amount of water to the ground when the pump water exceeds the pre-set temperature of the relief valve.

Vernier Engine Throttle

One (1) vernier type throttle shall be mounted on the pump operator`s panel and shall be used to control the engine RPM. This system, specifically designed for fire apparatus, shall monitor and control the engine providing power to the fire pump. The system shall control the engine speed when the pump system has been placed into gear. The system shall monitor engine RPM and shall maintain the engines selected speed.

One (1) pump panel mounted "GREEN" indicator light shall be positioned above the throttle control on the pump operator`s panel. The light shall be energized when the pump shift has been completed, chassis automatic transmission has obtained converter lock-up (4th gear lock-up), and the chassis parking brake is set.

An interlock system shall be provided to prevent the advancement of the engine speed until the apparatus parking brake is applied, the chassis transmission is in the proper gear, and the fire pump gearbox is properly engaged. When the above conditions have been met, the "OK TO PUMP" light shall be illuminated.

Monarch Valve

A manual Waterous Monarch intake valve shall be provided. This includes an extra short intake fitting, an intake butterfly valve and a Waterous relief valve.

Features:

• Flexible lip seat allows tight shut-off and compensates for wear. Does not require additional O-rings or fillers to maintain tightness.
• Stainless-backed TFE shaft bearings are self-lubricating and provide high corrosion resistance.
• Offset shaft and patented seat design reduces opening and closing torque.

• Easy seat maintenance. Remove the body`s insert and replace the seat. Disassembly of the disc and shaft connection is not required.

A 3/4" air bleeder valve shall be provided and controlled at the pump operator`s position.

A Waterous intake relief valve, designed to dump excess pressure from the inlet side of the valve, shall be provided.

Location: officer side pump panel.

Master Drain Valve

A manual master drain valve shall be installed on the pump panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal. The master drain shall have a rubber seal to prevent water from running out on the running board.

The manual master drain valve shall have twelve (12) individual-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.

The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

Auxiliary Engine Cooler Control

The auxiliary engine cooler shall be controlled from the pump operator`s panel by an Innovative Controls 1/4 turn valve with "T" handle. The 1/4 turn handle grip shall feature built-in color-coding label and a verbiage tag.

1/2" lines shall be installed from the pump discharge via the valve to the cooler and back to the pump intake to allow a small amount of water to circulate through the engine cooler.

Air Flow Requirements

The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied "protected" air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.

Primer Control

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

Warranty

The primer shall be covered by a five (5) year parts warranty.

Intake Manifold

Two (2) 6.0`` diameter suction ports with 6`` NST males threads and removable screens shall be provided, one (1) each side. The ports shall be mounted one (1) on each side of the midship pump and shall extend through the side pump panels. Inlets shall come equipped with long handle chrome caps.

Discharge Manifold

The pump system shall utilize a stainless steel discharge manifold system that allows a direct flow of water to all discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.

Master Pump Intake Valve

An Akron valve (electric) shall be provided for the specified pump inlet. The inlet valve shall be operated by a 12 VDC electric motor with a remote switch provided at the pump operator`s position. The 12 VDC motor shall be provided with an automatic resetting, thermally-compensated overcurrent protection circuit breaker to protect the 12 VDC motor and apparatus electrical system. The gear actuator on the valve will cycle from full closed to full open in not less than three (3) seconds. A manual override shall be provided.

An adjustable pressure relief valve shall be provided. The pressure relief valve shall be factory set to 125 psi. The pressure relief valve shall provide overpressure protection for the suction hose even when the intake valve is closed.

A 1/4" air bleeder valve shall be provided and controlled at the pump panel.

A 3/4" water bleeder shall be supplied and controlled at the pump panel.

Location: driver side pump panel, officer side pump panel.

INTAKES

Left Intake 3 Akron Valve

One (1) 3" suction inlet with a manually operated Akron valve shall be installed in the left side pump panel with the valve body behind the panel.

The suction shall be equipped with a device that will not allow the valve to open or close in less than three (3) seconds.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 3" female NST chrome inlet swivel and shall be equipped with a chrome plated rockerlug plug with a retainer device.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

A 3/4" bleeder valve assembly will be installed on the left pump panel.

Front Intake with Valve 5 with Relief

A 5" stainless steel pipe shall extend from the right intake side of the pump to the front of the apparatus. The intake shall be controlled by a 5" butterfly valve and shall be air operated and controlled from the operator`s panel. A valve(s) shall be provided to allow water to be drained.

A adjustable pressure relief valve shall be provided. The pressure relief valve shall be factory set to 125 psi. The pressure relief valve shall provide overpressure protection for the suction hose even when the intake valve is closed.

A 1/4" air bleeder valve shall be provided and controlled at the pump operator`s position.

INTAKE OPTIONS

Front Intake Swivel, 5"

A heavy duty 5" 90 degree cast brass elbow designed and constructed specifically for fire/emergency vehicle usage shall serve as the auxiliary front suction inlet. The elbow, also referred to as the "swivel", shall be attached to the front suction piping. This component shall have the following features:

1) The ability to rotate 180 degrees.

2) A rugged twist-lock mechanism to hold the elbow in place at the desired position.

3) A double-ball race with bronze balls.

4) A 5" NPT free swivel female inlet.

5) A 5" NST male outlet with strainer.

6) Cast brass with polished chrome finish.

The elbow/swivel shall be mounted so that it extends above the extended front bumper.

DISCHARGES AND PRECONNECTS

Front Jump Line 1.5 Akron Valve

One (1) 1-1/2" preconnect outlet with a manually operated Akron valve shall be supplied to the extended front bumper. The preconnect shall consist of a 2" heavy duty hose coming from the pump discharge manifold to a 2" FNPT x 1-1/2" MNST mechanical swivel hose connection to permit the use of the hose from either side of the apparatus.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

An air blow-out valve shall be installed between the chassis air reservoir and the front jump line. The control shall be installed on the pump operator`s panel.

The discharge shall be supplied with a Class 1 automatic 3/4" drain valve assembly. The automatic drain shall have an all-brass body with stainless steel check assembly. The drain shall normally be open and automatically close when the pressure is greater than 6 psi.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Left Front 2.5 Hose Bed Akron Valve

One (1) 2-1/2" preconnect outlet with a manually operated Akron handwheel valve shall be supplied to the lower left of the apparatus hose bed. The preconnect shall consist of a 2-1/2" heavy-duty hose coming from the pump discharge manifold to a 2-1/2" adapter.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Deck Gun 3" Discharge Akron Valve

One (1) 3" deck gun discharge outlet with a manually operated Akron handwheel valve and 3" stainless steel pipe shall be provided above the pump compartment.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve shall be equipped with a device that limits the opening and closing speeds to comply with the current edition of NFPA 1901.

The handwheel valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Swivel Elbow, Polished Stainless Steel

There shall be a polished stainless steel swivel elbow provided for the front bumper discharge located on top of the bumper driver's side outboard.

1.5 Single Crosslay Akron Valve [Qty: 2]

One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay shall include one (1) 2" brass swivel with a 1-1/2" hose connection to permit the use of hose from either side of the apparatus.

The crosslay hose bed shall consist of a 2" heavy-duty hose coming from the pump discharge manifold to the 2" swivel. The hose shall be connected to a manually operated 2" Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: crosslay 1 & 2.

Single Crosslay 2.5 Akron Valve

One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay shall have one (1) 2-1/2" mechanical swivel hose connection to permit the use of the hose from either side of the apparatus.

The crosslay hose bed shall consist of a 2-1/2" heavy-duty hose coming from the pump discharge manifold to the 2-1/2" swivel. The hose shall be connected to a manually operated 2-1/2" Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: crosslay 3.

Discharge Left Panel 2.5 Akron Droop

One (1) 2-1/2" discharge outlet with a manually operated Akron handwheel valve shall be provided at the left hand side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

The discharge shall extend out beyond the pump panel with a 30 degree downward angle with 2-1/2" NST threads to help prevent kinking of the discharge hose. The 30 degree chrome droop shall be an integral part of the discharge valve and shall be equipped with a chrome plated rocker lug cap with a retainer chain.

The discharge shall be supplied with a 3/4" bleeder valve assembly. The bleeder valve shall be installed to drain water from the gauge pressure line to prevent freezing of the line. The drain shall be controlled with a quarter-turn valve on the pump panel.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left side discharge 1, left side discharge 2.

Discharge Right Panel 2.5 Akron Droop

One (1) 2-1/2" discharge outlet with a manually operated Akron handwheel valve shall be provided at the right side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

The discharge shall extend out beyond the pump panel with a 30 degree downward angle with chrome plated 2-1/2" NST threads to help prevent kinking of the discharge hose. The 30 degree chrome droop shall be an integral part of the discharge valve and shall be equipped with a chrome plated rocker lug cap with a retainer chain.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharge 2.

Right Panel 3 Discharge Akron Valve

One (1) 3" discharge outlet with a manually operated Akron handwheel valve shall be provided at the right side pump panel.

The discharge shall be equipped with a device that shall not allow the valve to open or close in less than three (3) seconds.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharge 1.

Decontamination Discharge

A .75" decontamination discharge outlet shall be provided on the driver side pump panel. The outlet shall include a 1/4 turn valve, hose bib connection and pressure reducing valve.

Deck Gun Location

Deck gun piping shall be positioned centered in deck gun channel. This location shall allow for optimal operation of a deck gun monitor once installed.

DISCHARGE OPTIONS

Elkhart 8598 Extender

Elkhart model 8598 3" electrically acutated extender 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" using panel mounted controls. These controls shall be capable of moving the waterway in either the raised or lowered position while maintaining the ability to horizontally rotate the monitor device 360 degrees. There shall be an accessible manual override control for use in the event power failure occurs. A power cable shall be supplied for connection from the panel control box to the extender.

A sensor shall be located on the waterway that signals a 12 volt indicator light installed in the cab to illuminate to indicate that the monitor is raised.

The extender shall have a 3" waterway and a connection for an Elkhart remote controlled monitor.

Monitor Elkhart 8297-25

An Elkhart Stinger model 8297-25 with portable base and an adapter to mount to deck gun discharge or extend-a-gun shall be provided with a (2) 2-1/2" swivel inlets on portable base with a 2-1/2" outlet. The monitor shall flows up to 800 GPM and shall be capable of handwheel controlled vertical travel, 344 degree horizontal rotation (in deck mount mode), vertical travel 95 degree (in deck mount mode), and a red urethane enamel with hard anodized trim finish.

IC Push/Pull Control

The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed ¼ turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated zinc panel-mounting bezel with areas for color-coding and/or FOAM and CAFS identification labels.

Bleeder Drain Valve [Qty: 10]

The bleeder/drain valves shall be Innovative Controls ¾" ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature

built-in color-coding labels and a verbiage tag identifying each valve, also supplied by Innovative Controls. The color labels shall also include valve open and close verbiage.

Discharge/Intake Bezel

Innovative Controls intake and/or discharge swing handle bezels shall be installed to the apparatus with mounting bolts. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage. These bezel are designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies feature a chrome-plated panel-mount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

Akron Electric Valve 9333 Controller

An Akron Brass Style 9333 Valve Controller shall be provided with a five year manufacturer warranty. The display shall be a full color LCD display with a backlight and manual adjustment of the brightness as well as an auto-dimming option. The electric controls shall provide true position feedback, requiring no clutches in the motor or current limiting. The unit shall be sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. The controller will provide an LCD display showing valve position indication and have up to three preset locations that can be user set and easily recalled upon each use. Valve position indication will be determined from true position feedback and indicate the exact position of the valve.

Two additional buttons shall be available to be used for preset selection, preset activation and menu navigation.

Locate on pump operator panel to control diver side 6 in pump inlet, officer side 6 in pump inlet.

TANK PLUMBING

Tank Fill 2 Akron Valve

One (1) 2" pump-to-tank fill line having a 2" manually operated full flow valve. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times. The fill line shall be controlled using a chrome handle with an integral tag.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Crosslay/Speedlay Cover

A cover constructed of heavy duty black nylon cargo netting with airline style quick release buckles at bottom and twist locks at top shall be installed on either side of the crosslay/speedlay hose storage areas. Boston Style

Triple Crosslay Hosebed

Three (3) crosslay hosebeds shall be provided on the pump module. Each of the three (3) crosslay areas shall have a capacity for up to 200` of 1.75" double-jacket fire hose double stacked. The crosslay floor and side walls shall be constructed of 3/16" (.188) smooth aluminum plate. The floor shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. Two (2) 1/4" (.25") smooth aluminum plate fixed divider with a sanded finish shall be provided to separate the three (3) hose storage areas.

Tank To Pump

One (1) manually operated 3" Akron valve shall be installed between the pump suction and the booster tank. Includes flex hose with stainless steel hose clamps for connection to the 4" tank sump outlet . The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

FOAM SYSTEMS

Foam System Certification

The foam system performance shall be tested and certified in compliance with the applicable NFPA 1901 requirements.

Foam System

A Class 1 SmartFoam 2.1A, 12 volt DC powered variable-speed electronic direct-injection foam-concentrate proportioning system with a 2.1 gpm foam concentrate pump shall be integrated into the apparatus to provide foam proportioning. The pump shall be capable of handling Class A foam concentrate only and be operated by a full-function panel mounted digital display.

The system shall operate via a paddlewheel flow sensor mounted in a 3 inch stainless steel double waterway check-valve manifold that includes a 1/2 inch chemical injection point check valve. This double check-valve assembly is required for backflow prevention and NFPA compliance. A single check valve assembly will not be permitted.

The inlet of this stainless steel manifold/double check-valve assembly will be connected to the fire pump, and the outlet connected to the foam capable discharge outlet(s) on the fire apparatus, as specified. The flow sensor/stainless steel foam manifold combination shall be capable of water or foam solution flow rates of 30 to 750 gpm.

The foam proportioning system shall be equipped with a panel mounted digital display control unit with a microprocessor that monitors total water flow and foam concentrate pump output to provide the operator preset proportional amount of foam concentrate injected on the discharge side of the fire pump. Total foam concentrate pump concentrate output shall be 2.1 gallons per minute. Proportioning rate is push-button set by the pump operator on the digital display from 0.1% to 1%, in 0.1% increments.

The foam system shall be equipped with a Class1 UltraViewSmartFOAMController. The SmartFOAM Controller will show the water flow per minute, foam percentage, total water flowed, and total foam flowed on the main screen without having to press any buttons.The SmartFOAM Controller will maintain a running total of the amount of water and foam used during the current power cycle. The SmartFOAM Controller shall provide on-screen tutorials to assist the user during calibration. The SmartFOAM Controller will allow push-button modification of the foam proportioning rate from 0.1% to 10.0% in 0.1%

increments. The Controller will always begin operation at the preset foam proportioning rate which is configured with a password protected set-upscreen.

The foam concentrate pump shall be fed concentrate by a non-metallic housing foam concentrate strainer that is equipped with a service shut-off valve.

The unit will be fed 12 volt DC power from the apparatus electrical system, and be equipped with a chassis frame ground strap, per the foam proportioner manufacturer`s installation and operating instruction manual.

FOAM SYSTEM OPTIONS

Foam System Plumbing

The specified foam system shall be plumbed to 1.5 first crosslay, 1.5 second crosslay, 1.5 third crosslay.

FOAM TANK

50 Gallon Foam Cell

A 50 gallon (U.S.) foam cell for Class A foam shall be supplied. The foam cell shall be integral to the water tank.

The integral tank top, sides, and bottom shall be constructed of black polypropylene material. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.

The foam tank shall have a manual fill tower. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). Foam fill tower shall be constructed of a Green colored material indicating type of foam utilized. The capacity of the tank shall be engraved on the top of the fill tower lid. The fill tower shall be located in the forward area of the tank. The tower shall have a 1/4" thick removable polypropylene screen. Inside the fill tower, approximately 1.5" down from the top, there shall be an anti-foam fill tube that extends down to the bottom of the tank. A pressure vacuum vent shall be provided in the lid of the fill tower. The foam fill tower shall be removable to facilitate the cleaning of the foam tank.

The foam tank shall undergo extensive testing prior to installation in the truck. All foam tanks shall be tested and certified as to capacity. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

GAUGES

4" MASTER GAUGES

Class 1 liquid filled Zytel Nylon Case freeze proof pump pressure and vacuum gauges shall be provided. The gauges shall be in 4" in diameter with white faces and black lettering. The gauges shall have a pressure range of 30" -0-400 psi.

2.5" PRESSURE GAUGES

Class 1 liquid filled Zytel Nylon Case freeze proof individual line pressure gauges shall be provided. The gauges shall be 2.5" in diameter with white faces and black lettering. The gauges shall have a pressure range of 0-400 psi.

GAUGE IC 10 LED WATER TANK LEVEL

One (1) Innovative Controls brand water tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the water tank level. Ten (10) high-intensity light emitting diodes (LED`s) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

GAUGE IC 10 LED FOAM TANK LEVEL

One (1) Innovative Controls brand foam tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the foam tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

Gauge Pressure 4.5" 30-0-400 [Qty: 2]

A Class 1 weatherproof 4-1/2" compound vacuum pressure gauge with a range of 30-0-400 shall be installed on the pump panel. The gauge shall be filled with a liquid solution.

Engine Gauge Package

An engine gauge package shall be supplied at the pump operator`s panel to monitor the vehicle`s engine. The weatherproof package shall include the following:

- Tachometer - to monitor engine revolutions per minute.
- Oil pressure gauge - to monitor engine oil pressure w/integrated low oil indicator.
- Water temperature gauge - to monitor the engine water temperature w/integrated high water

temperature indicator.
• Voltmeter - connected to the vehicle electrical system w/integrated high and low voltage indicator.
• Engine alarm system and buzzer alarm for audible warning.

Flow Meter Totalizer Button

The apparatus shall be equipped with a Class 1 Totalizer button. When the totalizer button is dispressed and held it will give the total volume of water that has flow through each specified discharge that is equipped with a flowmeter.

Gauge Pressure 2.5 [Qty: 10]

Class 1 weatherproof 2-1/2" pressure gauge with a range of 0-400 shall be installed on the pump panel. The gauge shall be filled with a liquid solution to assure visual reading to within 1% accuracy.

LED Pump Panel Light Package

Three (3) TecNiq model E10 LED lights shall be mounted under a light shield directly above each side pump panel. The work light switch in the cab shall activate the lights when the park brake is set.

Apparatus Body

The Apparatus Body width shall be 96"

Body Height and Mainframe Construction

The body mainframe shall be entirely constructed of aluminum. The complete framework shall be constructed of 6061T6 and 6063T5 aluminum alloy extrusions welded together using 5356 aluminum alloy welding wire.

The body mainframe shall include 3" x 3" 6061-T6 aluminum 3/8" (0.375") wall cross member extrusion or 3" x 3" I-beam section aluminum extrusion depending on the application at the front of the body. A solid 3" x 3" "I-beam" section aluminum extrusion shall be provided the full width of the body forward and rearward of the rear wheel well. The cross members shall be designed to support the compartment framing and shall be welded to 1-3/16" x 3" (1.188" x 3") solid 6063-T5 aluminum frame sill extrusions. The frame sill extrusions shall be shaped to contour with the chassis frame rails and shall be protected from contact with the chassis frame rails by 5/16" x 2" (0.31" x 2") fiber-reinforced rubber strips to prevent wear and galvanic corrosion caused when dissimilar metals come in contact.

Body Mounting System

The main body shall be attached to the chassis frame rails with six (6) of 5/8" (0.625") diameter steel U-bolts. This body mounting system shall be used to allow easy removal of the body for major repair or disassembly.

Intermediate Rear Step

An 10" intermediate step below the hosebed shall be provided.

The step shall be constructed of 3/16" (.187") aluminum embossed treadplate. The step shall be bolted below the hosebed and be easily removable for replacement in the case of damage. The top rear surface of the step to have three (3) hand hold cut-outs horizontally.

BODY COMPT LEFT SIDE

Driver Side Assembly

The driver side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The driver side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16" (0.188") wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The driver side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Driver Side Compartments

The three (3) driver side compartments shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be one (1) compartment located ahead of the rear wheels. This compartment shall be approximately 30" wide x 68" high x 26" deep in the lower 56" high section and 12" deep in the upper 16" high section. The compartment shall contain approximately 28.6 cu. ft. of combined storage space. The door opening shall be approximately 36" wide x 68" high.

There shall be one (1) compartment located over the rear wheel. The compartment shall be approximately 56" wide x 34" high x 26" deep in the lower 22" high section and 12" deep in the upper 16" high section. The compartment shall contain approximately 13.2 cu. ft. of storage space. The door opening shall be approximately 56" wide x 34" high.

There shall be one (1) compartment located behind of the rear wheels. This compartment shall be approximately 50" wide x 68" high x 26" deep in the lower 56" high section and 12" deep in the upper 16" high section. The compartment shall contain approximately 48.4 cu. ft. of combined storage space. The door opening shall be approximately 50" wide x 68" high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally-mounted compartment top shall be provided and constructed of a 1/8" (.125") aluminum treadplate.

BODY COMPT RIGHT SIDE

Officer Side Assembly

The officer side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The officer side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16" (0.188") wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The officer side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Officer Side Compartments

The three (3) officer side compartments shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be one (1) compartment located ahead of the rear wheels. This compartment shall be approximately 30" wide x 48" high x 26" deep in the lower 30" high section and 14" deep in the upper 16" high section. The compartment shall contain approximately 20.2 cu. ft. of combined storage space. The door opening shall be approximately 30" wide x 48" high.

There shall be one (1) compartment located over the rear wheel. The compartment shall be approximately 56" wide x 18" high x 12" deep and contain approximately 6.2 cu. ft. of storage space. The door opening shall be approximately 56" wide x 14" high.

There shall be one (1) compartment located behind of the rear wheels. This compartment shall be approximately 50" wide x 48" high x 26" deep in the lower 30" high section and 14" deep in the upper 16" high section. The compartment shall contain approximately 28.1 cu. ft. of combined storage space. The door opening shall be approximately 50" wide x 48" high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally-mounted compartment top shall be provided and constructed of a 1/8" (.125") aluminum treadplate. The compartment top shall be removable for easy access to the main body wiring harness.

BODY COMPT REAR

Rear Body Assembly

The rear body shall be constructed entirely of aluminum extrusions and interlocking aluminum plates and includes a full height center rear compartment.

The rear body frame shall be 6063-T5 1.5" x 4" and 1.5" x 3"aluminum extrusions with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius and 1/8" (0.125") smooth plate. The rear extrusions shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

Rear Body Compartment

The full height center rear compartment shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartment shall be modular in design and shall not be a part of the body support structure.

The compartment shall be approximately 38" wide and shall vary in height and depth dependent upon water tank capacity. The lower area of this compartment shall be transverse through to the side rear compartments.

The compartment seams shall be sealed using a permanent pliable silicone caulk. Machined louvers shall be provided for adequate ventilation.

Transverse Modification

The lower center back walls of compartments L3 and R3 shall be modified to include a transverse pass through into compartment B1. Openings shall be approximately 26" H x 26" wide.

Tailboard

Tailboard Step

A tailboard step shall be provided at the rear of the body. The tailboard shall 10" in depth and in accordance with NFPA in both step height and stepping surface. The maximum rear step height to the tailboard shall not exceed 24".

The tailboard step shall be formed from 3/16" (0.188") aluminum treadplate and shall be reinforced with 6063-T5 1.5" x 3" aluminum extrusion. The tailboard shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend in a vertical direction from the diamond plate sheet a minimum of 1/8" (0.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

The tailboard step shall be bolted on to the body from the underside assuring a clear surface and shall be easily removable for replacement in the case of damage.

Rear Access Handrails

Handrails shall be provided at the rear of the body to assist ground personnel accessing the tailboard step and hosebed area. Each handrail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, and shall be mounted between chrome stanchions.

The handrails shall be located- two (2) handrails, one (1) on each side, appropriately sized handrail mounted vertical on the trailing edge of the body and appropriately sized handrail(s) mounted horizontal below the rear hosebed opening

SCBA BOTTLE STORAGE

SCBA Strap

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

SCBA 1 BOTTLE STORAGE E-ONE

E-ONE designed (1) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located in the wheel well adjacent to the SCBA storage.

U-shaped trough made out of aluminum smooth plate with rubbert insert shall be provided to store SCBA bottles.

Location: driver side rear wheel well offset rearward

SCBA 3 BOTTLE STORAGE E-ONE

E-ONE designed (3) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located adjacent to the SCBA storage.

U-shaped troughs made out of aluminum smooth plate with rubbert inserts shall be provided to store standard size SCBA bottles up to 6.75" in diameter and 24.5" in length. The upper two troughs can also store a standard size 20lbs ABC Extinguisher or 2.5 gal Water Extinguisher in each trough.

Location: driver side rear wheel well offset forward, officer side rear wheel well offset forward, officer side rear wheel well offset rearward

DOORS

Roll Up Compartment Door

A ROM brand roll up door with satin finish shall be provided on a compartment up to 45" tall. The door(s) shall be installed in the following location(s): B1.

The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal to prevent any metal to metal contact and inhibit moisture and dust penetration.

The track shall be anodized aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment.

The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device.

A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.

The door opening shall be reduced by 2" in width and approximately 8-9" in height depending on door height.

Roll Up Compartment Door

A ROM brand roll up door with satin finish shall be provided on a compartment greater than 45" tall. The door(s) shall be installed in the following location(s): L1, L3, R1, R3.

The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal to prevent any metal to metal contact and inhibit moisture and dust penetration.

The track shall be anodized aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment.

The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device.

A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.

The door opening shall be reduced by 2" in width and approximately 8-9" in height depending on door height.

Drip Pan

A ROM drip pan shall be supplied for each roll-up door. The drip pan shall be made from a high strength aluminum alloy. The splashguard and end caps shall be made from extruded and injection molded high-impact plastic. Drip pan location(s): L1, L3, R1, R3, B1.

Single Compartment Door

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pan shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.

The compartment door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have gas shock-style hold-open devices.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): L2

Single Compartment Door

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16" (0.188") aluminum smooth plate. Inner door pan shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.

The compartment door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have chain style hold-open devices.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): R2

Hose Bed

Hose Bed

The area above the booster tank shall have a hose storage area provided. The hose bed shall be constructed entirely from maintenance-free, 3/4" deep x 7.5" wide, extruded aluminum slats that shall be pop-riveted into a one-piece grid system. Each slat shall have all sharp edges removed and have an anodized ribbed top surface that shall prevent the accumulation of water and allow for ventilation of wet hose.

The hose bed design shall incorporate adjustable tracks in the forward area and the rearward area of the hose bed for the installation of an adjustable divider(s). The adjustable tracks shall hold an adjustable divider(s) mounting nut straight, so only a Philips head screwdriver is required to adjust a divider(s) from side to side (as is practical with other hose bed mounted equipment).

The hose bed shall be easily removable to allow access to the booster tank below

Hose Bed Side Assembly

The hose bed side assemblies shall be made of 3" x 3" slotted aluminum extrusion and 3/16" (.188") smooth plate. The hose bed side assemblies shall provide a 90" high body.

The exterior hose bed side surface shall be completely sanded and deburred to assure a smooth finish and painted job color. The interior hose bed side surface shall be completely sanded and deburred to assure a smooth sanded finish.

Capacity

The hose bed shall have the capacity to store the following hose from the driver side to the officer side. 1500' 4" LDH, 500' 2.5"

Hose Bed Divider [Qty: 2]

There shall be a hose bed divider provided the full fore-aft length of the hose bed.

The hose bed divider shall be constructed of 1/4" (0.25") smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall have a 3" radius

corner to protect personnel. The divider shall be natural finish aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose.

The divider shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

Storage Pan

A storage pan shall be provided in the forward area of the hose bed.

The storage pan shall be constructed of 3/16" (.188") aluminum tread plate.

Divider Support

Divider Support shall run full width of hosebed (side to side) at the front of the hosebed and towards the rear of the hosebed at top of the divider(s). Attach to each hosebed divider to provide additional support.

Hose Bed Divider Hand Hold

There shall be a hand hole cut-out(s) on the trailing edge of each hose bed divider. The cut-out(s) is specifically sized for use in adjusting of the hose bed divider

Hose Bed Cover

A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed over the apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.

The front edge of the cover shall be mechanically attached to the body. The sides of the cover shall be held in place with heavy duty Velcro strips running the length of the hose bed.

Rear Hose Bed Cover

A cover constructed of heavy duty black nylon cargo netting shall be installed at the rear apparatus hose bed.

The bottom of the cargo netting shall be mechanically attached to the hose bed. The cover shall be attached to comply with the latest edition of NFPA 1901.

Cover shall secure the hoseload at the rear open back of the hosebed and shall compliment separate top cover of vinyl, diamond plate pr similar cover that secures top of body open areas over hoseload.

Hose Bed Cover

A cover constructed of heavy duty black nylon cargo netting with airline style quick release buckles shall be installed at the rear apparatus hose bed.

Hosebed Deflector

The forward area of the hosebed shall have bolt-on diamond plate deflector.

Hand Rails

All body and pump module (if applicable) exterior hand rails shall utilize Austin Hardware model GR-002-AL-BRT-144 knurled bright anodized aluminum tubes. The hand rail extrusions shall be machine extruded with integral ribbed surfaces and knurled grip surfaces to assure a good grip for personnel safety

Hose Bed Folding Steps

Innovative Controls dual lighted LED folding steps shall be positioned to the driver side rear of the body. The steps shall be NFPA compliant for access to the hose bed storage area and in step height and surface area. The steps shall be staggered stepped as applicable with tailboard depth, not applicable with recessed step mounting.

Innovative Controls dual lighted folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18" below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance qualifications. Corrosion resistance shall be demonstrated by a 1000 hr salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) hand rail shall be installed (as applicable) in compliance with current NFPA. The hand rail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Hose Bed Light [Qty: 2]

One (1) Federal Signal GHSCENE flush-mounted scene light with a clear lens shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. The light shall include (2) 20 watt halogen light fixtures within the light housing. The two light fixtures shall be adjustable horizontally and vertically to provide the desired coverage. All electrical connectors are to be enclosed in the housing providing protection against the elements.

The hose bed light shall be switched with work light switch in the cab.

Slide Out Platform

A slide out platform shall be provided and located below compartment R1, below compartment R3.

Rub Rail

The pump area module(s) and body shall have rub rails mounted along the sides and at the rear. **

The rub rail shall be a Solid High Density Poly Rail. The rub rail shall be 2.75" high x 1.25" deep and shall extend beyond the body width to protect compartment doors and the body side. The rub rail depth shall allow marker and/or warning lights to be recessed inside for protection.

The top surface of the rub rail shall have minimum of five (5) raised serrations. Each serration being a minimum of .1" in height and with cross grooves to provide a slip-resistant edge for the tailboard step and pump module running board areas. The rub rail shall be mounted a minimum of 3/16" off the pump module and body with nylon spacers. The ends of each section shall be provided with a finished rounded corner piece.

Treadplate

The platform shall be constructed of 3/16" (.187") aluminum treadplate. The platform shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

WATER TANK

500 Gallon Tank

A 500 gallon (U.S.) "L" shaped booster tank shall be supplied.

The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.

The booster tank top, sides, and bottom shall be constructed of a minimum 1/2" (0.50") thick black UV-stabilized copolymer polypropylene. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The tank cover shall be constructed of 1/2" thick polypropylene

and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions.

The tank shall have a combination vent and manual fill tower with a hinged lid. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

The booster tank shall have two (2) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates per the tank fill inlet size.

The sump shall be constructed of a minimum of 1/2" polypropylene. The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3" above the inside floor.

The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength.

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, thus reducing the possibility of freeze-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.

The booster tank shall undergo extensive testing prior to installation in the truck. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.

Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that

is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include the capacity of the water and foam (s), the maximum fill and pressure rates, the serial number of the tank, the date of manufacture, the tank manufacturer, and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

Tank capacity is 500 US gallon / 441 Imperial gallons / 2006 Liters.

Fill Tower Location

Fill tower(s) shall be located offset to officer side of water tank.

Water Tank Mounting System

The body design shall allow the booster tank to be completely removable without disturbing or dismounting the apparatus body structure. The water tank shall rest on top of a 3" x 3" frame assembly covered with rubber shock pads and corner braces formed from 3/16" angled plate to support the tank. The booster tank mounting system shall utilize a floating design to reduce stress from road travel and vibration. To maintain low vehicle center of gravity the water tank bottom shall be mounted within 5" of the frame rail top.

Fill Tower Location

The fill tower(s) shall be located inside the hose bed storage pan as applicable.

GROUND LADDERS

Alco-Lite Roof Ladder

An Alco-Lite PRL-14, 14` aluminum roof ladder shall be provided. Folding steel roof hooks shall be attached to one end of the ladder with steel spikes on the other.

Alco-Lite Extension Ladder

One (1) Alco-Lite PEL-24, 24` aluminum 2-section extension ladder shall be provided. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931.

LADDER STORAGE / RACKS

Adjustable Ladder Brackets

Adjustable ladder brackets shall be provided on the officer side of the body. The brackets shall be mounted in adjustable tracks mounted to the side of the body.

Ladder Brand

The ladder brand capable of being carried on the unit shall be Alco-Lite.

Ladders

The length of ladders capable of being stored shall be the following: 24' 2-section and 14' roof ladder.

Electrical System

The cab and chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area.

A 6 place, constantly hot, and 6 place ignition switched fuse panel and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.

All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3" on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.

A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, the message center, and related pump panel gauges. Communication between the VDC and chassis system gauges shall be through a 4 wire multiplexed communication system to

ensure accurate engine and transmission data is provided at the cab dash and pump. The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.

Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.

License Plate Bracket and Light

One License Plate brack shall be provided at the rear of the apparatus and (1) Truck-Lite model 15905 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body.

Compartment Light Package

Two (2) ROM V4 compartment light strips shall be mounted in each body compartment greater than 4 cu. ft. Transverse compartments shall have four (4) lights, located two (2) each side.

Each light bar shall include super bright white LEDs mounted to circuit boards that have acrylic conformal coating for corrosion protection. The LED circuit boards shall be mounted to an extruded aluminum base with lexan lens. The light shall produce 250 lumens per foot and be waterproof up to 1 meter (3.3 feet).

Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.

The wiring connection for the compartment lights shall be made with a weather-resistant plug in style connector. A single water- and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.

Technology Cabinet Lighting

One (1) ROM V4 LED compartment light strip shall be mounted in the medical cabinet(s).

The light bar shall include super bright white LEDs mounted to circuit boards that have acrylic conformal coating for corrosion protection. The LED circuit boards shall be mounted to an extruded aluminum base with lexan lens. The light shall produce 250 lumens per foot and be waterproof up to 1 meter (3.3 feet).

The light shall be controlled by a compartment door switch.

Cab Turn Signals

There shall be a pair of Whelen M6 LED (Light Emitting Diode) turn signal light heads with populated arrow pattern and amber lens mounted upper headlight bezel and wired with weatherproof connectors.

Tail Lights

Three (3) Whelen model M6 series LED (Light Emitting Diode) lights shall be installed in a vertical 3 light housing each side at rear.

Light functions shall be as follows:

- LED red running light with red brake light in upper position.
- LED amber populated arrow pattern turn signal in middle position.
- LED clear back-up light in lower position.

A one-piece chrome plastic trim shall be mounted around the three (3) individual lights in a vertical position.

Cab Brow Light

One (1) Pioneer Summit Series 12V LED model S72MW 72" white housing brow light with integral marker lights shall be provided. The light shall be installed on the front cab brow in place of the standard DOT marker lights. the light shall feature 60 LEDs` and five (5) DOT approved marker lights. The 235W 12V light shall draw 18 amps.

DOT LIGHTING

LED Marker Lights

LED clearance/marker lights shall be installed on the cab. The body marker lights shall be TecNiq 3/4" grommet mounted LED.

Upper Cab:

- Five (5) amber LED clearance lights on the cab roof.

Lower Cab:

- One (1) amber LED side turn/marker each side of cab ahead of the front door hinge.

Upper Body:

• One (1) red LED clearance light each side at rear of body, facing rear.

Lower Body:

• Three (3) red LED clearance lights centered at rear.
• One (1) red LED clearance light side facing at the trailing edge on either side of the apparatus body.
• One (1) amber LED clearance light side facing at front of body/pump module.
• One (1) amber LED auxiliary turn light side facing at front of body/pump module.

Step Lights

The Pump Module running board area shall be illuminated by LED lights mounted on each side of the front of the body in chrome flanges.

One (1) LED Shall be mounted under each step on the rear of the body to illuminate the tailboard and steps.

Ground Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4" circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector.

Ground area lights shall be switched from the cab dash with the work light switch.

One (1) ground light shall be supplied under each side of the front bumper extension if equipped.

Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

Rear Work Lights

Two (2) FireTech LED lights model FT-WL3500-FT-W shall be installed. The lights shall produce 1,981 effective lumens and have a white housing. The lights shall be switched with work light switch in the cab.

Location: rear body/beavertail area on the trailing edge up high.

Crosslay Light

A FireTech LED light model WL2000 shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1901. The crosslay light shall be switched with work light switch in the cab.

WARNING LIGHT PACKAGES

LIGHT BARS

Light Bar Mount

One (1) pair of Whelen 1.5" tall (model MKEZ7) mounts shall be provided on the front light bar.

Front Light Bar Color(s)

The front light bar shall be provided with the following color LED modules: Red/White with clear lenses

If applicable, includes side facing light bars when colors are the same.

Light Bar

A Whelen Freedom IV Series 72" LED light bar model F4X7 with ten (10) LED modules shall be provided; two (2) front corner mounted LED modules, six (6) forward facing LED modules and two (2) side facing LED modules (with front vista windows) or two (2) rear corner LED modules (without front vista windows).

No rear facing LEDs.

The light bars shall have clear lenses.

The white LEDs (if equipped) shall be switched off in blocking right of way mode.

The light bar shall be installed centered on the front cab roof.

Lower Level Warning Light Package

Eight (8) Whelen C-Series Super LED model C6L light heads and two (2) Whelen ION-T Series Super LED model TLI light heads shall be provided. The lights shall be Red with clear lenses.

The rectangular lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors and shall be mounted as close to the corner points of the apparatus as is practical as follows:

• Two (2) C6L lights on the front of the apparatus facing forward.
• Two (2) C6L lights on the rear of the apparatus facing rearward.
• Two (2) lights each side of the apparatus, one (1) C6L each side at the forward most point (as practical), and one (1) TLI each side at the rearward most point (as practical).
• One (1) C6L light each side of the apparatus centrally located to provide mid ship warning light.

The side facing lights shall be located at forward most position, centered in rear wheel well, and side facing at rear of body in rubrail if equipped.

All warning devices shall be surface mounted in compliance with NFPA standards.

WARNING LIGHTS

Upper Rear Warning Lights

Whelen model B6LED beacons shall be supplied on polished aluminum mounts. Each unit shall consist of a LED upper beacon with red dome and a 700 series Super LED with Red lens.

The lights shall be located rear upper body on aerial style brackets to meet upper Zone C requirements.

Warning Lights

Two (2) Whelen C-Series model C6L Super LED light heads shall be provided. The lights shall be Red with clear lenses. The rectangular lights shall include chrome flanges where applicable.

Location: (1) each side of cab centered over wheel well.

SIRENS

Mechanical Siren

A chrome plated flush mounted Federal Q2B-NN coaster siren shall be installed in the front bumper. An electric siren brake switch shall be located in the cab accessible to driver.

The siren shall be located driver side front bumper.

Foot Switch

A heavy duty metal floor mounted foot switch shall be installed to operate the Q2B siren. It shall be located officer's side.

Electronic Siren

A Whelen 295SLSA1 electronic siren shall be installed in the cab. The siren amplifier and control panel module shall include a rotary selector for six (6) functions, on/off switch, push button switch for manual siren or air horn tones, and noise canceling microphone.

Electronic Siren Control Location

The electronic siren control shall be located in the center overhead console offset to driver side.

SPEAKERS

Siren Speaker

One (1) Federal Signal model ES100 Dynamax 100 watt speaker shall be flush mounted as far forward and as low as possible on the front of the vehicle. A polished model MSFMT with "E-ONE" grille shall be provided on the outside of the speaker to prevent road debris from entering the speaker.

Speaker dimensions shall be: 5.5 in. high x 5.9 in. wide x 2.5 in. deep. Weight = 5.5 lbs.

The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1901 requirements.

The speaker shall be located officer side front bumper inboard of frame.

Air HornFoot Switch

A heavy duty metal floor mounted foot switch shall be installed to operate the air horns. It shall be located driver's side, officer's side.

Scene Lights

Two (2) Whelen model M9 series Linear Super LED clear scene lights shall be provided.

Each shall have Linear Super LED diodes with internal light deflecting optics. The internal light deflecting optics shall redirect the light without the use of angle brackets.

The lights shall be located (1) each side of vista forward of rear doors and be controlled by a switch in cab accessible to driver (lights on sides of apparatus to be switched separately).

Scene Lights

Two (2) Whelen model M6ZC series Linear Super LED clear scene lights shall be provided.

Each shall have Linear Super LED diodes with internal light deflecting optics. The internal light deflecting optics shall redirect the light without the use of angle brackets.

The lights shall be located (1) each side rear compartment face up high and be controlled by a switch in cab accessible to driver (lights on sides of apparatus to be switched separately).

Whelen Pioneer 12V LED Flood Light

A Whelen Pioneer Plus series 160 watt 12V LED flood light model PFH2P dual panel light head shall be provided on a Whelen 3000 series external pole mount. The rectangular extruded light fixture with die cast end caps shall measure 14" wide by 4.25" high by 3" deep and have a FLNA3225E-1 red powder coat finish. The light fixture shall have thirty-six (36) white Super-LEDs with molded vacuum metalized reflector that draws 13 amps and produce 17,750 usable lumens. The light shall be attached to the external pole mount with an electromagnetic sensor to indicate if the pole is not in the stored position. A locking swivel joint shall be provided to allow the lights to be manually tilted up/down and locked in position by the operator. Handle standard.

The light assembly shall be externally mounted as specified. The pole shall allow for 360-degree rotation of the light. A locking knob shall hold the pole at the desired height.

Location: officer side back of cab, driver side back of cab.

EXTERIOR PAINT

Paint Sample Spray Out will be provided to ensure E-ONE color coding matches Hartford Fire Departments required Paint Code of Axalta 865041 EW Red

A paint sample spray out of the base cab / body paint color will be provided for approval prior to painting.

Un-Painted Pump/Pre-Connect Module(s)

All applicable pump application modules shall have a sanded finish (not painted job color). Includes upper and lower pump modules, crosswalk module and/or speedlay/pre-connect module (as applicable). Rear mounted body/pump module shall be painted job color.

Paint Custom Cab

The apparatus cab shall be painted Sikkens FLNA3225E-1 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum cab exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces. Cab doors and any hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on cab, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Paint Body Small

The apparatus body shall be painted Sikkens FLNA3225E-1 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the body. Any vertically or horizontally hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on body, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

INTERIOR PAINT

Cab Interior Paint

The interior of the cab shall be painted Zolatone gray #20-64. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

All LETTERING and STRIPING included in bid price and shall be handled by dealer in accordance to Hartford Fire Departments spec requirements prior to delivery of apparatus.

MISCELLANEOUS EQUIPMENT FURNISHED

1 pt. touch-up paint
Elkhart Apollo 2 portable monitor base
4- Pro bar 30 haligan tools
4- Leatherhead tools 6' New York Hook
4- Multipurpose hook tool with Boston Rake end

8- Spanner wrench sets and holder for 2.5" hose and smaller
8- Spanner wrench sets and holder for LDH hose
A $3000 tool mounting allowance shall be included
A $17000 Motorola radio allowance to be included
A $4750 allowance for ILC Auto lube grease system installed at customer facility by Lubrication Engineers of West Springfield.

WHEEL CHOCKS
Two (2) Ziamatic #SAC-44 folding wheel chocks with SQCH-44H holders shall be provided. The wheel chocks shall be located in an area close to the rear axles easily accessible from the side of the apparatus.

SUPPORT, DELIVERY, INSPECTIONS AND MANUALS

Electronic Manuals

Two (2) copies of all operator, service, and parts manuals MUST be supplied at the time of delivery (2) in paper format (2)in digital format -NO EXCEPTIONS! The electronic manuals shall include the following information:

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- Instructions regarding the frequency and procedure for recommended maintenance.
- Maintenance instructions for the repair and replacement of installed components.
- Parts listing with descriptions and illustrations for identification.
- Warranty descriptions and coverage.

The electronic document shall incorporate a navigation page with electronic links to the operator`s manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.

The electronic document must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.

A find feature shall be included to allow for searches by text or by part number.

These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept file at both the local dealership and at the manufacturer`s location.

NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.

Fire Apparatus Safety Guide

Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations. This manual is NOT a substitute for the E-ONE`s fire apparatus operator and maintenance manuals or commercial chassis manufacturer`s operator and maintenance manuals.

Chevron

Reflexite V98 Red/Fluorescent Yellow Green reflective striping shall be supplied and affixed to the inboard and outboard right and left portions of the rear body. The striping shall be set in a manner to have the effect of an inverted "V" shape. The stripe shall travel low to high from the outside to the inside.

WARRANTY / STANDARD & EXTENDED

Standard 2 Year Warranty

The apparatus manufacturer shall provide a full 1-year standard warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 1-year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the proposal.

Lifetime Frame Warranty

The apparatus manufacturer shall provide a full lifetime frame structural warranty. This warranty shall cover all apparatus manufacturer designed frame, frame members, and cross-members against defects in materials or workmanship for the lifetime of the covered apparatus. A copy of the warranty document shall be provided with the proposal. Frame warranties that do not cover cross-members for the life of the vehicle shall not be acceptable.

10 Year 100,000 Mile Structural Warranty

The apparatus manufacturer shall provide a comprehensive 10 year/100,000 mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.

10 Year Stainless Steel Plumbing Warranty

The apparatus manufacturer shall provide a full 10-year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal.

10 Year Paint and Corrosion Warranty

The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.

The paint shall be prorated for 10 years as follows:

Topcoat & Appearance:
(Gloss, Color Retention, Cracking)
0 to 72 months 100%
73 to 120 months 50%

Coating System, Adhesion & Corrosion:
(Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling)
0 to 36 months 100%
37 to 84 months 50%
85 to 120 months 25%

Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.

The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.

UV paint fade shall be covered in a separate warranty supplied by Akzo Nobel (Sikkens) and shall be for a minimum of 10 years.

25 Year Frame Rail Corrosion Warranty

The chassis manufacturer shall provide a 25 year corrosion warranty on the chassis frame rails. This warranty shall cover the chassis frame rails, including frame rail liners (if equipped), for a period of 25 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.

20 Year Frame Components Corrosion Warranty

The chassis manufacturer shall provide a 20 year corrosion warranty on the galvanized chassis frame components. This warranty shall cover the front frame extensions, chassis crossmembers (from engine rearward), battery tray brackets and rear underbody support (if applicable) for a period of 20 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.

Meritor Front Axle Warranty

A 5-year/unlimited miles, 5-year parts and 5-year labor **front non-drive steer** axle warranty shall be provided by Meritor Automotive or a 2-year/unlimited miles, 2-year parts and 2-year labor **front drive steer** axle warranty shall be provided by Meritor Automotive.

Meritor Rear Axle Warranty

A 5-year/unlimited miles, 5-year parts and 5-year labor rear drive single or rear drive tandem axle warranty shall be provided by Meritor Automotive.

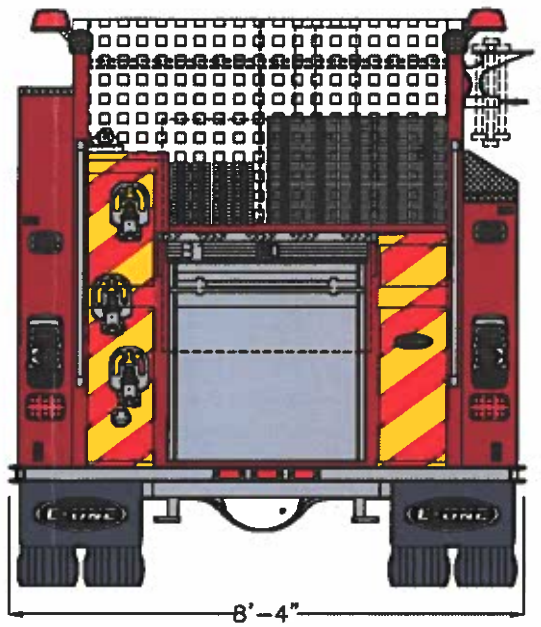
EXCEPTION TO SPECIFICATIONS:

Page: 34 paragraph 3

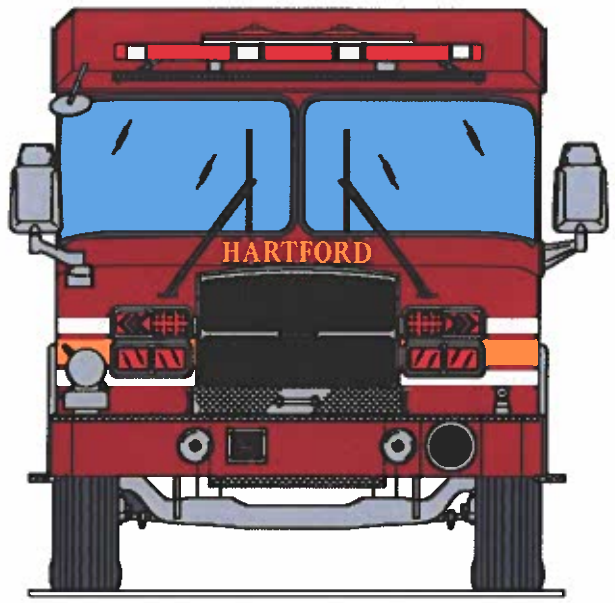
Overall Length: The overall length of our proposed apparatus is currently 30'8" and exceeds the bid requirement by 2". We can however reduce the truck length down 2" to meet 30'6" at the time of a prebuild meeting if required at no additional cost to the City of Hartford.

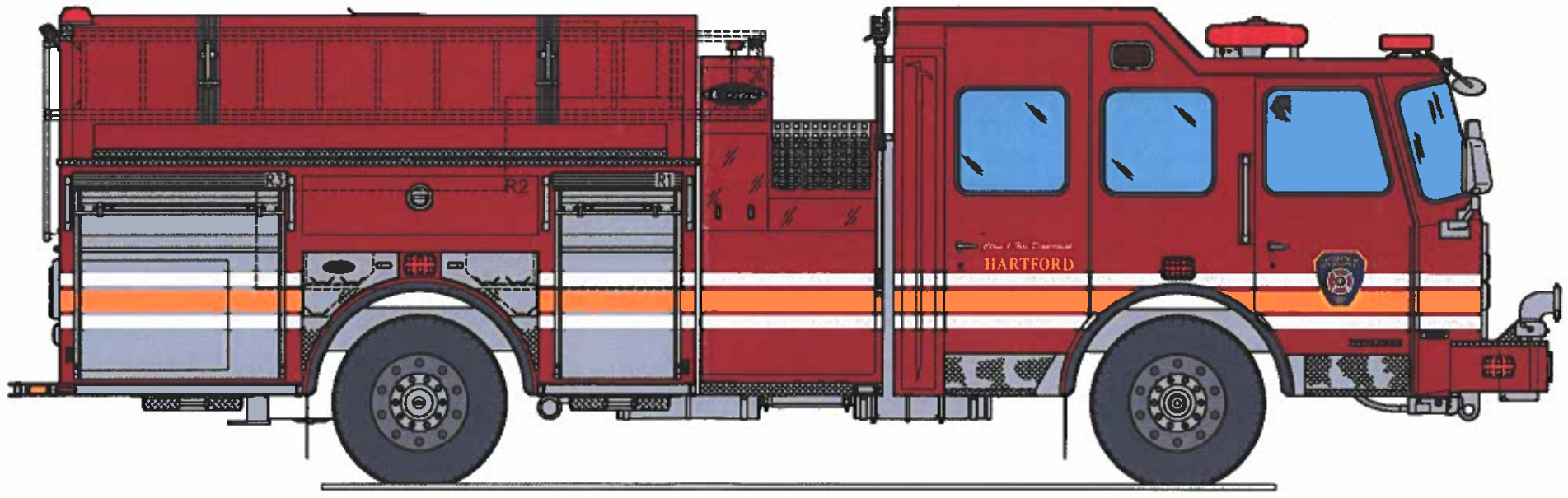
HARTFORD FIRE DEPT
HARTFORD, CT
QUOTE 92365
CUSTOM PUMPER 36
TYPHOON X LONG 4X2 CHASSIS

THIS DRAWING IS FOR REFERENCE PURPOSES. ALL DIMENSIONS ARE SUBJECT TO MINOR VARIATIONS DUE TO MANUFACTURING PROCESSES.



HOSEBED HEIGHT: (FOR REFERENCE ONLY)	
TO TAILBOARD:	43"
TO GROUND:	67"





HARTFORD FIRE DEPT
HARTFORD, CT
QUOTE 92365
CUSTOM PUMPER 36
TYPHOON X LONG 4X2 CHASSIS

	HOSE LOAD:
1500 GPM HALE DSD PUMP	500' OF 2.00" DJ
500 GALLON WATER TANK	1200' OF 4.00" LDH
30 GALLON INTEGRAL "A" FOAM CELL	

COMPT.	OPENING		INTERIOR DIMENSION			
L1	28W	59H	30W 30W	3H 56H	12D 26D	UPPER LOWER
L2	56W	34H	56W 56W	12H 22H	12D 26D	UPPER LOWER
L3	48W	59H	50W 50W	3H 56H	12D 26D	UPPER LOWER
R1	28W	39H	30W 30W	5H 30H	12D 26D	UPPER LOWER
R2	56W	14H	56W	18H	12D	
R3	48W	39H	50W 50W	5H 30H	12D 26D	UPPER LOWER
B1	36W	25H	38W	34H	26D	

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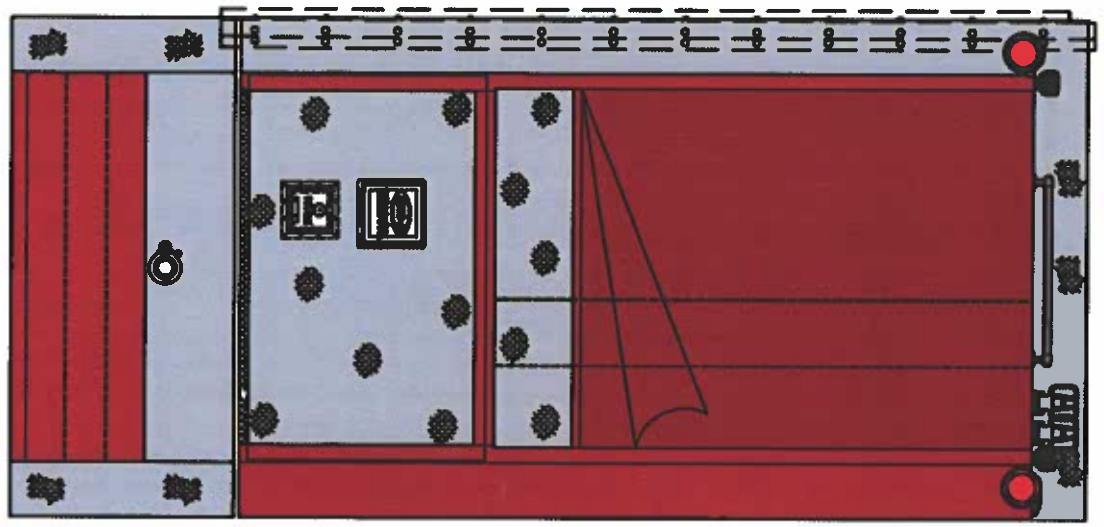

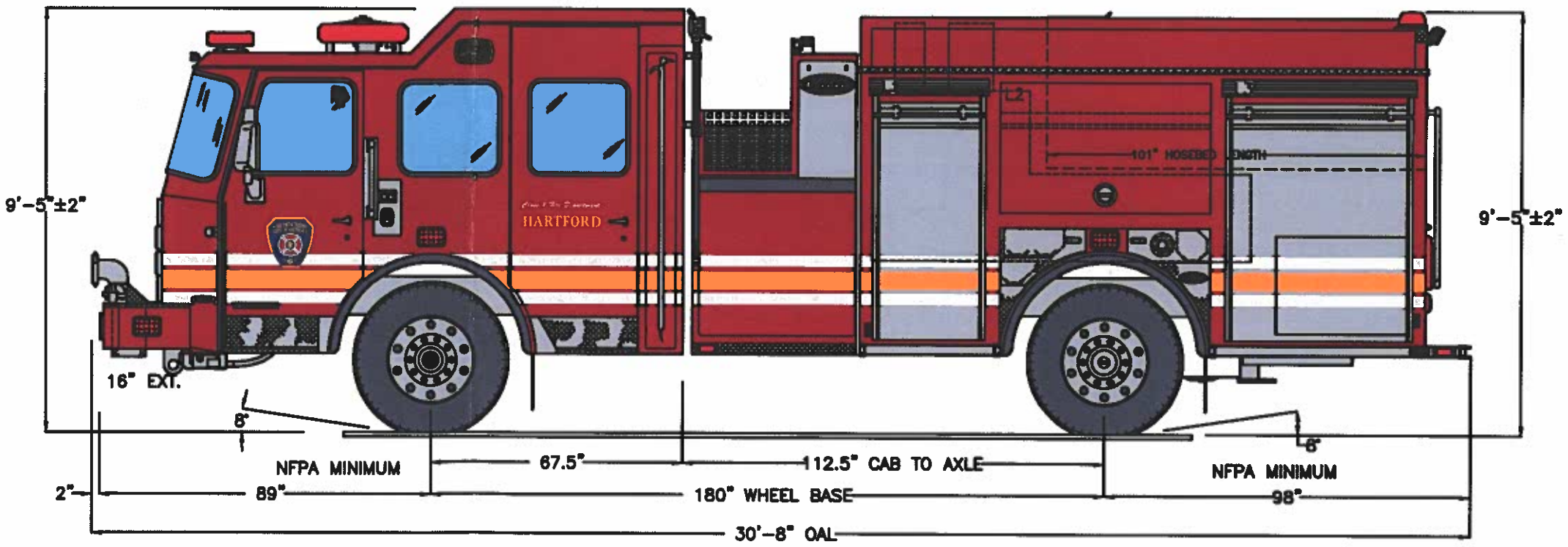

DRAWN BY	REV	DESCRIPTION	DATE	APPROVED
		APPROVAL REVISIONS		SHEET 1 OF 2

Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:
(Name, legal status and address)

Greenwood Emergency Vehicles, LLC
530 John Dietsch Boulevard
North Attleboro, MA 02763

SURETY:
(Name, legal status and principal place of business)

Travelers Casualty and Surety Company of America
One Tower Square
Hartford, CT 06183

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

Hartford Fire Department
253 High Street
Hartford, CT 06103

BOND AMOUNT: $ 10%

Ten Percent of Amount Bid

PROJECT:
(Name, location or address, and Project number, if any)

Supply One (1) Custom Pumper

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 21st day of March, 2019

(Witness)

Greenwood Emergency Vehicles, LLC
(Principal) *(Seal)*

By: VP-SALES & MARKETING
(Title)

(Witness)

Travelers Casualty and Surety Company of America
(Surety) *(Seal)*

By:
(Title) Kayla A. Woodward Attorney-in-Fact

TRAVELERS CASUALTY AND SURETY COMPANY OF AMERICA HARTFORD, CONN.

TRAVELERS

POWER OF ATTORNEY

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company

Surety Bond No. Bid Bond

OR

Project Description: Supply One (1) Custom Pumper

Principal: Greenwood Emergency Vehicles, LLC

Obligee: Hartford Fire Department

KNOW ALL MEN BY THESE PRESENTS: That Farmington Casualty Company, St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, are corporations duly organized under the laws of the State of Connecticut, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc. is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint **Kayla A. Woodward** of the City of , State of , their true and lawful Attorney-in-Fact, to sign, execute, seal and acknowledge the surety bond(s) referenced above.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this **24th** day of **June, 2016.**

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company

State of Connecticut

City of Hartford ss.

By: _____
Robert L. Raney, Senior Vice President

On this the **24th** day of **June , 2016,** before me personally appeared **Robert L. Raney,** who acknowledged himself to be the Senior Vice President of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal.

My Commission expires the **30th** day of **June, 2021.**

MARIE C. TETREAULT NOTARY PUBLIC CONNECTICUT

Marie C Tetreault
Marie C. Tetreault, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, Kevin E. Hughes, the undersigned, Assistant Secretary, of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 21st day of March, 2019.

Kevin E. Hughes, Assistant Secretary

To verify the authenticity of this Power of Attorney, call 1-800-421-3880 or contact us at www.travelersbond.com. Please refer to the Attorney-In-Fact number, the above-named individuals and the details of the bond to which the power is attached.

CLERK'S CERTIFICATE

I, Lorna R. Marcoux, Clerk of GREENWOOD EMERGENCY VEHICLES, LLC, A Massachusetts Company, hereby certify that at Special Meeting in lieu of Annual Meeting of Directors, held on the 1st day of February 2019, duly called, with all Directors present and voting, it was unanimously

VOTED: That the President, Chief Executive Officer Mark R. MacDonald; Audra Jaconetti, Vice President; Erica Brown, Treasurer; Jerry Kassner, Vice President of Finance; Aonghus O'Nia, Vice President of Customer Service; or any of them be, and hereby is, authorized and empowered to enter into, execute, and deliver contracts of all kinds, including without limitation bid or performance bonds, in the name and behalf of Greenwood Emergency Vehicles, LLC, upon such terms and conditions as may be deemed in the best interest of this Company by such officer.

WITNESS the execution hereof under seal this 1st day of February, 2019

Lorna R. Marcoux

Lorna R. Marcoux - Clerk

COMMONWEALTH OF MASSACHUSETTS

Bristol, ss. February 1, 2019

Then personally appeared the above-named Lorna R. Marcoux, Clerk of Greenwood Emergency Vehicles, LLC, and acknowledged the foregoing instrument to be his free act and deed, as clerk, before me,

Gale A Demers

Gale A. Demers - Notary Public
My commission expires: August 16, 2024

MASSACHUSETTS DEPARTMENT OF REVENUE
PO BOX 7044
BOSTON, MA 02204-7044
CONTACT CENTER
(617) 887-6367

Letter ID: L0925803520
Notice Date: August 25, 2016
Case ID: 0-000-136-332

CERTIFICATE OF GOOD STANDING AND/OR TAX COMPLIANCE

GREENWOOD EMERGENCY VEHICLES L
530 JOHN L DIETSCH BLVD
NORTH ATTLEBORO MA 02763-1080

Why did you receive this notice?

The Commissioner of Revenue certifies that, as of the date of this certificate, GREENWOOD EMERGENCY VEHICLES LLC is in compliance with its tax obligations under Chapter 62C of the Massachusetts General Laws.

This certificate doesn't certify that the taxpayer is compliant in taxes such as unemployment insurance administered by agencies other than the Department of Revenue, or taxes under any other provisions of law.

This is not a waiver of lien issued under Chapter 62C, section 52 of the Massachusetts General Laws.

Where can you find additional information?

Visit our website at mass.gov/dor for one-stop access to taxpayer information. You can learn more about state tax laws and DOR policies and procedures, including your Taxpayer Bill of Rights and the appeals process.

You can file most business tax returns, make payments and manage your account at mass.gov/masstaxconnect. You may also contact us by phone at (617) 887-6367 or toll-free in Massachusetts at (800) 392-6089, Monday through Friday, 8:30 a.m. to 4:30 p.m.

Charlene Hannaford
Acting Deputy Commissioner

REQUIRED BY MASSACHUSETTS LAW

ATTESTATION

Pursuant to M.G.L. Ch 62C, Sec. 49A, I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all state tax returns and paid all state taxes required under law.

Greenwood Emergency Vehicles, LLC

Signature of Ind. or Company Name

By: Corporate Officer

81-2991295

Soc. Sec.# or Federal Identification #

Massachusetts General Laws, Chapter 701 of Acts of 1983 requires that each bidder must certify as follows:

The undersigned certifies under penalties of perjury that this bid is in all respects bona fied, fair and made without collusion or fraud with any other person. As used in this paragraph, the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

Name of person signing

Greenwood Emergency Vehicles, LLC

Company

STATEMENT OF WARRANTY
2 YEAR STANDARD

E-ONE (the "Company") warrants each new item of fire and rescue apparatus manufactured by it against defects in material and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of two years from the date of delivery to the original user-purchaser.

E-ONE'S obligation under this warranty is strictly limited to replacing or repairing, as the Company may elect, any part or parts of such apparatus which the Company's examination discloses to be defective in material or workmanship.

The Company reserves the right to require any such repairs to be made either at a Company owned service facility or another approved service facility at the Company's option. Transportation cost to and from the servicing location are the responsibility of the user-purchaser.

The E-ONE warranty shall not apply to:
1. Major components or trade accessories such as purchased chassis, engines, transmissions, tires, pumps, signaling devices, or batteries that have a separate warranty by the original manufacturer or to ancillary equipment used in fire fighting.
2. Normal adjustments and maintenance services.
3. Replacement of consumable parts including, but not limited to; filters, lubricants, belts, light bulbs, wiper blades, brake linings and brake pads.
4. Failure resulting from the apparatus being operated in a manner or for a purpose not recommended by E-ONE.
5. Any apparatus, which shall have been repaired, modified or altered in any way so as, in the Company's sole judgment, to have adversely affected the unit's stability or reliability.
6. Items subjected to misuse, negligence, accident or improper maintenance.
7. Loss of time or use of the vehicle, inconvenience or other incidental expenses.

Nothing contained in this warranty shall make E-ONE liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure in this vehicle.

To the extent permitted by law, THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

To the extent permitted by law, this warranty is also in lieu of all other obligations or liabilities on the part of E-ONE or the Seller, including liability for incidental and consequential damages.

E-ONE makes no representation that the vehicle has the capacity to perform any functions other than as contained in the Company's written literature, catalogs or specifications accompanying delivery of the vehicle.

No person or affiliated Company representative is authorized to give any other warranties or to assume any other liability on behalf of E-ONE in connection with sale, service or repair of any apparatus manufactured by the Company.

E-ONE reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

Whenever a performance bond is required under a contract or purchase order, coverage under the performance bond shall only extend for two years from the delivery date of the equipment. This limitation under the performance bond shall not affect any extended warranties offered by E-One or any OEM's.

STATEMENT OF WARRANTY
TEN YEAR LIMITED PAINT AND PERFORATION

E-ONE, warrants each new fire and rescue apparatus during the warranty period, when used in normal and reasonable manner. All apparatus shall be warranted against peeling, cracking, blistering and corrosion. This warranty shall provide for repair or replacement at E-One's option, any claim in accordance with the following terms and conditions.

WHAT IS COVERED

- **WARRANTY APPLIES** - This warranty is for all new fire and rescue apparatus manufactured by EONE and is extended only to the original user-purchaser. The warranty registration must be received by E-ONE within 30 days of the in-service for the warranty to apply.
- **REPAIRS COVERED** –The warranty covers repair or replacement at E-ONE'S option. Repairs shall be made at an E-ONE owned service facility or another approved service facility at E-ONE's option.
- **OBTAINING REPAIRS** –The original user-purchaser must notify E-ONE in writing within 30 days after any claimed defect has appeared. Transportation costs to and from the servicing center shall be the responsibility of the user-purchaser.
- **WARRANTY PERIOD** –The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. Corrosion perforation shall be covered for **TEN YEARS.** Corrosion perforation is defined as **complete penetration** through the exterior metal of the apparatus. The following percentages apply:

Topcoat & Appearance: Gloss, Color Retention, Cracking	**Coating System, Adhesion & Corrosion:** Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling
0 to 72 months 100% 73 to 120 months 50%	0 to 36 months 100% 37 to 84 months 50% 85 to 120 months 25%

NOTES:
-Under carriage, cab and body interiors are covered under our standard one year warranty.
-Demonstration vehicles sold to an end user will have the full warranty, if sold within one year of demonstration service, and will be prorated if sold after the first year

WHAT IS NOT COVERED

- Any cab not manufactured by E-ONE.
- Damage caused by fire, misuse, negligence or accident.
- Damage caused by theft, vandalism, riot or explosion.
- Damage caused by lightning, earthquake, windstorm, hail, flood or use in an acidic environment.
- Any repairs, modifications, alterations or after market parts added after manufacture without the authorization of E-ONE.
- Damage from lack of, or poor maintenance and cleaning.
- Gold leaf or striping except that which is affected by repair. (Gold leaf or striping must have been installed during manufacturing to be covered under this limited warranty).
- Loss of time, loss of use of the product, inconvenience, lodging, food or other consequential or incidental loss that may result from a failure.
- UV paint fade (UV paint fade is covered by a separate Sikkens Warranty. Refer to Sikkens Warranty for complete details).

STATEMENT OF WARRANTY
10 YEAR/100,000 MILE
STRUCTURAL WARRANTY

The STATEMENT OF WARRANTY ensures the original user-purchaser that any E-ONE manufactured cab and/or body is, and will remain free of structural defects, provided they are used in a normal and reasonable manner. The cab and body are defined as modular structures, fabricated with aluminum extrusion and plate. Excluded is all hardware, mechanical items, electrical items or paint finishes. Structural componentry is defined as the body/cab supports and mountings as identified in E-ONE's specifications.

The STATEMENT OF WARRANTY is strictly limited to the repairing or replacing, as E-ONE (the "Company") may elect, any part or parts of such apparatus which the Company's examination discloses to be defective in material or workmanship.

The STATEMENT OF WARRANTY shall extend for a period of 10 years/100,000 miles from the delivery date to the original user-purchaser. The Company reserves the right to require any such repairs to be made either at a Company owned service facility or another approved service facility at the Company's option. Transportation cost to and from the servicing location is the responsibility of the user-purchaser.

The STATEMENT OF WARRANTY shall not cover the following:

1. Damage caused by fire, misuse, negligence, or accident.
2. Damage caused by theft, vandalism, riot or explosion.
3. Damage caused by lightning, earthquake, windstorm, hail, water or flood.
4. Any body and/or cab, which shall have been repaired, modified or altered without the Company's authorization.
5. Damage caused from exposure to road de-icing compounds or use in an acidic environment.
6. Damage from lack of maintenance or cleaning.
7. Loss of time, loss of use of the product, inconvenience, lodging, food or other consequential loss that may result from a failure.

Nothing contained in the STATEMENT OF WARRANTY shall make E-ONE liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure in the cab and/or body.

E-ONE reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

NOTE: Surety bond, if required, applies only to E-ONE's Basic One Year Limited Warranty, and not to this or any other extended warranty made by E-ONE or any of E-ONE's suppliers.

Statement of Warranty

ZINC COATED FRAME ASSEMBLY 20 YEAR CORROSION PERFORATION

E-ONE, INC. (E-ONE) warrants that the ZINC COATED FRAME RAIL, FRONT FRAME EXTENSIONS, CROSS MEMBERS AND BATTERY BRACKETS used in the construction of each new fire, and rescue apparatus during the warranty period when used in a normal and reasonable manner shall be warranted against corrosion. E-ONE'S obligation under this warranty is strictly limited to replacing or repairing, as E-ONE may elect, any frame rail, front frame extensions, cross members and battery brackets which the Company's examination discloses to be defective in material or workmanship.

This warranty shall provide for repair or replacement of the frame rail, front frame extensions, cross members and battery brackets at E-ONE's option, for any claim in accordance with the following terms and conditions.

WHAT IS COVERED

- WARRANTY APPLIES - This warranty is for all new fire, and rescue apparatus manufactured by E-One with zinc coated frame rails, front fame extensions cross members and battery brackets and is extended only to the original user-purchaser.
- REPAIRS COVERED - The warranty covers repair or replacement, at E-ONE's option. Repairs shall be made at an E-ONE owned service facility or another approved service facility at E-ONE' s option.
- OBTAINING REPAIRS - The original user-purchaser must notify E-ONE in writing within a reasonable amount of time after any claimed defect has appeared. Transportation costs to and from the servicing center shall be the responsibility of the user-purchaser.
- WARRANTY PERIOD - The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. The warranty period shall be for a period of TWENTY (20) YEARS.

WHAT IS NOT COVERED

- Any item that is bolted to the frame rail. Including the item attachment hardware (bolts, nuts, etc.)
- Any damage caused by fire, misuse, negligence or accident.
- Any damage caused by theft, vandalism, riot or explosion.
- Any damage caused by lightning, earthquake, windstorm, hail, flood, or use in an acidic environment.
- Any repairs, modifications, alterations or after market parts added after manufacture without the authorization of E-ONE.
- Any damage from lack of maintenance and/or cleaning.
- Paint, except that which is affected by an E-ONE approved warrantable repair.
- Loss of time, loss of use of the product, inconvenience, lodging, food or other consequential or incidental loss that may result from a failure.
- This warranty shall be null and void if the frame rails, front frame extensions, cross members and battery brackets shows any evidence of alterations, cutting, splicing, welding or drilling of rails or flanges without the written authorization of E-ONE. Further, this warranty shall be void if the vehicle is involved in an accident, shows signs of abuse, neglect, or evidence of being operated in a manner or purpose not recommended by E-ONE.

Nothing contained in this warranty shall make E-ONE liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure of the chassis.

To the extent permitted by law, **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATIONS, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

To the extent permitted by law, this warranty is also in lieu of all other obligations or liabilities on the part of E-ONE or the Seller, including liability for incidental and consequential damages.

E-ONE makes no representation that any E-ONE chassis has the capacity to perform any functions other than as contained in the Company's written literature, catalogs or specifications accompanying delivery of the vehicle.

No person or affiliated company representative is authorized to give any other warranties or to assume any other liability on behalf of E-ONE in connection with sale, service or repair of any apparatus manufactured by the Company.

E-ONE reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

STATEMENT OF WARRANTY
ZINC PLATED AND POWDER COATED FRAME RAIL
25-YEAR CORROSION PERFORATION

E-ONE, Inc. (the "Company") warrants that the ZINC PLATED AND POWDER COATED FRAME RAIL, used in the construction of each new fire and rescue apparatus during the warranty period when used in a normal and reasonable manner shall be warranted against corrosion. E-ONE's obligation under this warranty is strictly limited to replacing or repairing, as E-ONE may elect, any frame rail which the Company's examination discloses to be defective in material or workmanship.

This warranty shall provide for repair or replacement at E-ONE's option, for any claim in accordance with the following terms and conditions.

WHAT IS COVERED

- **WARRANTY APPLIES** – The warranty is for all new fire and rescue apparatus manufactured by E-ONE with zinc coated frame rails, and is extended only to the original user-purchaser.
- **REPAIRS COVERED** – The warranty covers repair or replacement at E-ONE's option. Repairs shall be made at an E-ONE owned service facility or another approved service facility at E-ONE's option.
- **OBTAINING REPAIRS** – The original user-purchaser must notify E-ONE in writing within a reasonable amount of time after any claimed defect has appeared. Transportation costs to and from the servicing center shall be the responsibility of the user-purchaser.
- **WARRANTY PERIOD** – The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. The warranty period shall be for a period of **TWENTY FIVE (25) YEARS**. Corrosion perforation is defined as complete penetration through the frame rail.

WHAT IS NOT COVERED

- Any item that is bolted to the frame rail, including the item attachment hardware (bolts, nuts, etc.).
- Any damaged caused by fire, misuse, negligence or accident.
- Any damage caused by theft, vandalism, riot or explosion.
- Any damaged caused by lightning, earthquake, windstorm, hail, or flood.
- Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of E-ONE.
- Any damage from lack of maintenance and non-compliance of annual/semi-annual undercarriage cleaning as recommended in the vehicle service and maintenance manual.
- Paint, except that which is affected by an E-ONE approved warrantable repair.
- Loss of time, loss of use of the product, inconvenience, lodging, food or other consequential or incidental loss that may result from a failure.
- This warranty shall be null and void if the frame rails show any evidence of alterations, cutting, splicing, welding or drilling of rails or flanges without the written authorization of E-ONE. Further this warranty shall be void if the vehicle is involved in an accident, shows signs of abuse, neglect or evidence of being operated in a manner or purpose not recommended by E-ONE.

Nothing contained in this warranty shall make E-ONE liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure of the chassis.

To the extent permitted by law, **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATIONS, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

To the extent permitted by law, this warranty is also in lieu of all other obligations or liabilities on the part of E-ONE or the Seller, including liability for incidental and consequential damages.

E-ONE makes no representation that any E-ONE chassis has the capacity to perform any functions other than as contained in the Company's written literature, catalogs or specifications accompanying delivery of the vehicle.

No person or affiliated company representative is authorized to give any other warranties or to assume any other liability on behalf of E-ONE in connection with sale, service or repair of any apparatus manufactured by the Company.

E-ONE reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or beach thereof, shall be settled by arbitration administered by the American Arbitration Association in Milwaukee, Wisconsin in accordance with the Commercial Arbitration Rules of the American Arbitration Association. The laws of the State of Wisconsin shall be applied in any arbitration proceedings, without regard to principles of conflict of law. Each party shall bear its own costs, fees and expenses of arbitration. The arbitrator(s) determination and the basis for that determination shall be in writing and shall include an explanation of the basis for the determination. The determination of the arbitrator(s) shall be final and binding and judgment upon such determination may be entered in any court having jurisdiction. The arbitration proceedings and arbitration award shall be maintained by the parties as strictly confidential, except as otherwise required by court order or as is necessary to confirm, vacate, or enforce the award and for disclosure in confidence to the parties' respective attorneys, tax advisors, or senior management personnel. Furthermore, any action for breach of warranty must be commenced within three months following the expiration of the warranty period.

NOTE: Surety bond, if required, applies only to E-ONE's Basic One Year Limited Warranty, and not to this or any other extended warranty made by E-ONE or any of E-ONE's suppliers.

STATEMENT OF WARRANTY
LIFETIME FRAME WARRANTY

E-ONE (the "Company") warrants to the original user-purchaser only of an E-ONE chassis that the frame and frame members are free of defects in material and workmanship, ordinary wear and tear excepted, for the lifetime of the vehicle.

E-ONE'S obligation under this warranty is strictly limited to replacing or repairing, as the Company may elect, any part or parts of such frame or frame members which the Company's examination discloses to be defective in material or workmanship. This company reserves the right to require any such repairs to be made either at a Company owned service facility or another approved service facility at the Company's option. Transportation cost to and from the servicing location are the responsibility of the user-purchaser.

This warranty shall be null and void if the frame shows any evidence of alterations, cutting, splicing, welding or drilling of rails or flanges without the written authorization of E-ONE. Further, this warranty shall be void if the vehicle is involved in an accident, shows signs of abuse, neglect, or evidence of being operated in a manner or purpose not recommended by E-ONE.

Nothing contained in this warranty shall make E-ONE liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure of the chassis.

To the extent permitted by law, THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATIONS, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

To the extent permitted by law, this warranty is also in lieu of all other obligations or liabilities on the part of EONE or the Seller, including liability for incidental and consequential damages.

E-ONE makes no representation that any E-ONE chassis has the capacity to perform any functions other than as contained in the Company's written literature, catalogs or specifications accompanying delivery of the vehicle.

No person or affiliated Company representative is authorized to give any other warranties or to assume any other liability on behalf of E-ONE in connection with sale, service or repair of any apparatus manufactured by the Company.

E-ONE reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

Statement of Warranty

Stainless Steel Plumbing Components
10 YEAR WARRANTY POLICY

E-ONE (the "Company") warrants all E-ONE manufactured stainless steel plumbing components used in the construction of E-ONE fire apparatus water/foam plumbing systems against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of ten years from the date of delivery to the original user-purchaser, whichever occurs first.

The company reserves the right to require any such repairs to be made either at a Company owned service facility or another approved service facility at the Company's option. Transportation cost to and from the servicing location is the responsibility of the user-purchaser.

E-ONE will repair, or replace the specific E-ONE manufactured stainless steel plumbing component, at our option, with a new E-ONE manufactured stainless steel plumbing component. E-ONE will cover all customary and reasonable costs to remove and install the E-ONE manufactured stainless steel plumbing component. This warranty will not cover components that have been misused or abused, or due to accident or natural disaster. E-ONE will not cover any unauthorized third party repairs or alterations. Any of these actions may void the warranty.

Nothing contained in this warranty shall make E-ONE liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure in the E-ONE manufactured stainless steel plumbing components.

To the extent permitted by law, THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

To the extent permitted by law, this warranty is also in lieu of all other obligations or liabilities on the part of E-ONE or the Seller, including liability for incidental and consequential damages.

E-ONE makes no representation that the E-ONE manufactured stainless steel plumbing components have the capacity to perform any functions other than as contained in the Company's written literature, catalogs or specifications accompanying delivery of the apparatus.

No person or affiliated company representative is authorized to give any other warranties or to assume any other liability on behalf of E-ONE in connection with sale, service or repair of any apparatus manufactured by the Company.

E-ONE reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

NOTE: Surety bond, if required, applies only to E-ONE'S Basic One Year Limited Warranty, and not to this or any other extended warranty made by E-ONE or any of E-One's suppliers.

UPF POLY-TANK®IIE

THE ALL-OUT™ NO FAULT LIFETIME WARRANTY

UNITED PLASTIC FABRICATING, 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 original vehicle (vehicle must be actively used in fire suppression). The warranty is transferable within the United States, and Canada by notifying UPF within thirty (30) days of the vehicle transfer date. Every UPF POLY-TANK®IIE is thoroughly inspected and tested for leaks before leaving our facility and must be installed in accordance with the United Plastic Fabricating Installation Guidelines. Should any problems develop with your UPF POLY-TANK®IIE Booster/Foam tank, please notify UPF in writing or call our TOLL FREE SERVICE HOT LINE at 1-800-USA-POLY and provide UPF with the serial number and a description of the problem. If UPF determines that the tank problem has rendered the truck out of service, UPF will dispatch a service technician WITHIN 48 HOURS (2 DAYS) to repair the tank (This time period is for the United States and Canada Only). If it is determined that the vehicle can remain in service, UPF will dispatch a service technician within a mutually agreed upon time period. Should the vehicle be located outside of the United States and Canada, UPF will assume costs for labor and material for the repair and for any travel costs to the U.S. port of embarkation. Costs for airline or other means of travel outside of the U.S. and Canada will not be the responsibility of United Plastic Fabricating, Inc.

UPF will repair or, at its option, 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. This warranty will not cover tanks that have been improperly installed, misused or abused, and the serial number must not have been altered, defaced or removed. UPF will not cover any unauthorized third party repairs or alterations. Any of these actions may void the warranty.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF UNITED PLASTIC FABRICATING, INC.

This warranty contains the entire warranty. It is the sole warranty and price agreements or representation, whether oral or written, are either merged herein or expressly canceled. UNITED PLASTIC FABRICATING, INC. neither assumes, nor authorizes any person supposing to act on its behalf to change, nor assume for it, any warranty or liability concerning its product.

IN NO EVENT WILL UNITED PLASTIC FABRICATING, INC. BE LIABLE FOR AN AMOUNT IN EXCESS OF THE CURRENTLY PUBLISHED RETAIL PRICE PLUS INSTALLATION AND REMOVAL COST OF THE BOOSTER TANK, FOR ANY LOSS OR DAMAGE, WHETHER DIRECT OR INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR OTHERWISE ARISING OUT OF FAILURE OF ITS PRODUCT.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow exclusion or limitation of incidental or consequential damage, so the above limitation or exclusion may not apply to you. Since some states do not allow limitations on the length of an implied warranty, the above limitation may not apply to you.

UNITED PLASTIC FABRICATING, INC.
"Think Tank . . . Think UPF"

FILL IN THE INFORMATION CONTAINED ON YOUR WARRANTY CARD IN THE FORM TO THE RIGHT. PLEASE KEEP THIS INFORMATION IN A SAFE PLACE FOR REFERENCE. IF SERVICE SHOULD EVER BE NEEDED, CALL 1-800-USA-POLY.

Transfer of Ownership Form

Serial Number: _____

Original Owner: _____

Address: _____

City/Town: _____ State: _____ Zip: _____

Complete and fax or mail to UPF to transfer warranty

Date of transfer: _____

New Owner: _____

Address: _____

City/Town: _____ State: _____ Zip: _____

** All transfers subject to approval by UPF. **

EXHIBIT B – Compensation

GREENWOOD EMERGENCY VEHICLES, LLC.

530 John Dietsch Boulevard
North Attleboro, Massachusetts 02763
(508) 695-7138

FIRE APPARATUS PROPOSAL – RFP #5882

March 22, 2019

THIS PROPOSAL HAS BEEN PREPARED FOR:

CITY OF HARTFORD
550 MAIN STREET
HARTFORD, CT 06103

WE HEREBY PROPOSE TO FURNISH TO YOU, SUBJECT TO PROPER EXECUTION OF THE ATTACHED AGREEMENT BY YOU AND BY AN OFFICER OF THIS COMPANY, THE FOLLOWING VEHICLE AND EQUIPMENT TO BE BUILT IN ACCORDANCE WITH THE ATTACHED SPECIFICATIONS:

QUANTITY:	**ONE (1)**
MODEL:	**E-ONE 1500 GPM CUSTOM PUMPER**
PRICE:	**$546,049.00**

DELIVERY WILL BE **F.O.B. CITY OF HARTFORD, CT** AND WILL BE MADE APPROXIMATELY **365 DAYS** AFTER RECEIPT AND PROPER EXECUTION OF THE ATTACHED AGREEMENT BY BOTH PARTIES

THIS PROPOSAL SHALL EXPIRE UNLESS ACCEPTED WITHIN **THIRTY (30)** DAYS AND MAY BE EXTENDED, IN WRITING, AT THE DISCRETION OF THE COMPANY.

THE UNDERSIGNED CERTIFIES UNDER PENALTIES OF PERJURY THAT THIS BID OR PROPOSAL HAS BEEN MADE AND SUBMITTED IN GOOD FAITH AND WITHOUT COLLUSION OR FRAUD WITH ANY OTHER PERSON. AS USED IN THIS CERTIFICATION, THE WORD "PERSON" SHALL MEAN ANY NATURAL PERSON, BUSINESS, PARTNERSHIP, CORPORATION, UNION, COMMITTEE, CLUB OR OTHER ORGANIZATION, ENTITY OR GROUP OF INDIVIDUALS.

GREENWOOD EMERGENCY VEHICLES, LLC.

MARK MACDONALD
PRESIDENT

EXHIBIT C – Insurance

CERTIFICATE OF LIABILITY INSURANCE

7/1/2020

DATE (MM/DD/YYYY) 8/6/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Lockton Companies Three City Place Drive, Suite 900 St. Louis MO 63141-7081 (314) 432-0500	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS:
INSURED 1373880 E ONE, Inc. 1601 SW 37th Avenue Ocala FL 34474	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : Great American E & S Insurance Company — 37532 INSURER B : Travelers Property Casualty Co of America — 25674 INSURER C : AXIS Surplus Insurance Company — 26620 INSURER D : INSURER E : INSURER F :

COVERAGES AIPHO60 **CERTIFICATE NUMBER:** 16238427 **REVISION NUMBER:** XXXXXXX

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY PRO-JECT LOC OTHER:	N	N	PL1744639-02	7/1/2019	7/1/2020	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 300,000 $ XXXXXXX $ 1,000,000 $ 4,000,000 $ 4,000,000 $
B	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY	N	N	TC2J-CAP-8E082581-TIL-19	7/1/2019	7/1/2020	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ 1,000,000 $ XXXXXXX $ XXXXXXX $ XXXXXXX $ XXXXXXX
C A	UMBRELLA LIAB X OCCUR X EXCESS LIAB CLAIMS-MADE DED RETENTION $	N	N	P-001-000123735-01 XS1744640-02	7/1/2019 7/1/2019	7/1/2020 7/1/2020	EACH OCCURRENCE AGGREGATE $	$ 10,000,000 $ 10,000,000 $ XXXXXXX
B B B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	N	TC2JUB-118D4882-19 (AOS) TRJUB118D490119 (AZ,MA,WI) TWXJ-UB-8E082206-19 (OH)	7/1/2019 7/1/2019 7/1/2019	7/1/2020 7/1/2020 7/1/2020	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
B	Garage Keepers Liability	N	N	TC2J-CAP-8E082581-TIL19	7/1/2019	7/1/2020	Blanket $5,000,000 by location	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
THIS CERTIFICATE SUPERSEDES ALL PREVIOUSLY ISSUED CERTIFICATES FOR THIS HOLDER, APPLICABLE TO THE CARRIERS LISTED AND THE POLICY TERM(S) REFERENCED.
RE: ONE (1) CUSTOM PUMPER.

CERTIFICATE HOLDER

16238427
CITY OF HARTFORD
550 Main Street
Hartford CT 06103

CANCELLATION See Attachment

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

CITY OF HARTFORD
550 Main Street
Hartford CT 06103

To whom it may concern:

In our continuing effort to provide timely certificate delivery, Lockton Companies is transitioning to paperless delivery of Certificates of Insurance.

To ensure electronic delivery for future renewals of this certificate, we need your email address. Please contact us via one of the methods below, referencing Certificate ID **16238427.**

Email: STL-edelivery@lockton.com
Phone: (866) 728-5657 (toll-free)

If you received this certificate through an internet link where the current certificate is viewable, we have your email and no further action is needed.

In the event your mailing address has changed, will change in the future, or you no longer require this certificate, please let us know using one of the methods above.

The above inbox is for automating electronic delivery of certificates only. Please do NOT send future certificate requests to this inbox.

Thank you for your cooperation and willingness in reducing our environmental footprint.

Lockton Companies

EXHIBIT D – Payment Bond

Bond No. 1077035

Document A312™ – 2010

Conforms with The American Institute of Architects AIA Document 312

Payment Bond

CONTRACTOR:
(Name, legal status and address)

Greenwood Emergency Vehicles, LLC
530 John Dietsch Boulevard
North Attleboro, MA 02763

SURETY:
(Name, legal status and principal place of business)

The Hanover Insurance Company
440 Lincoln Street
Worcester, MA 01653
Mailing Address for Notices

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

City of Hartford
550 Main Street
Hartford, CT 064103

CONSTRUCTION CONTRACT
Date: June 25, 2019

Amount: $546,049.00 Five Hundred Forty Six Thousand Forty Nine Dollars and 00/100

Description:
(Name and location)
Supply One (1) 1500 GPM Pumper per Letter of Intent

BOND
Date: June 26, 2019
(Not earlier than Construction Contract Date)

Amount: $546,049.00 Five Hundred Forty Six Thousand Forty Nine Dollars and 00/100

Modifications to this Bond: [X] None [ ] See Section 18

CONTRACTOR AS PRINCIPAL
Company: *(Corporate Seal)*

Greenwood Emergency Vehicles, LLC

Signature: MARK MACDONALD

Name and Title: MARK MACDONALD PRESIDENT

SURETY
Company: *(Corporate Seal)*

The Hanover Insurance Company

Signature: Stephanie L. Klearman

Name and Title: Stephanie L. Klearman Attorney-in-Fact

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:
Lockton Companies, LLC
Three City Place Drive, Suite 900
St. Louis, MO 63141-7021
314-432-0500

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

.2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

.1 the name of the Claimant;
.2 the name of the person for whom the labor was done, or materials or equipment furnished;
.3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
.4 a brief description of the labor, materials or equipment furnished;
.5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
.6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
.7 the total amount of previous payments received by the Claimant; and
.8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature: _____		Signature: _____	
Name and Title:		Name and Title:	
Address		Address	

THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA

POWER OF ATTORNEY

THIS Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

KNOW ALL PERSONS BY THESE PRESENTS:

That THE HANOVER INSURANCE COMPANY and MASSACHUSETTS BAY INSURANCE COMPANY, both being corporations organized and existing under the laws of the State of New Hampshire, and CITIZENS INSURANCE COMPANY OF AMERICA, a corporation organized and existing under the laws of the State of Michigan, (hereinafter individually and collectively the "Company") does hereby constitute and appoint,

Lisa A. McAleenan, Anne M. Gliedt, Stephanie L. Klearman, DeAnna M. Maurer, Kayla A. Woodward, Mark R. Duggan and/or Kevin McDaniel

Of **Lockton Companies of St. Louis, MO** each individually, if there be more than one named, as its true and lawful attorney(s)-in-fact to sign, execute, seal, acknowledge and deliver for, and on its behalf, and as its act and deed any place within the United States, any and all surety bonds, recognizances, undertakings, or other surety obligations. The execution of such surety bonds, recognizances, undertakings or surety obligations, in pursuance of these presents, shall be as binding upon the Company as if they had been duly signed by the president and attested by the secretary of the Company, in their own proper persons. Provided however, that this power of attorney limits the acts of those named herein; and they have no authority to bind the Company except in the manner stated and to the extent of any limitation stated below:

Any such obligations in the United States, not to exceed Thirty Million and No/100 ($30,000,000) in any single instance

That this power is made and executed pursuant to the authority of the following Resolutions passed by the Board of Directors of said Company, and said Resolutions remain in full force and effect:

RESOLVED: That the President or any Vice President, in conjunction with any Vice President, be and they hereby are authorized and empowered to appoint Attorneys-in-fact of the Company, in its name and as it acts, to execute and acknowledge for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, waivers of citation and all other writings obligatory in the nature thereof, with power to attach thereto the seal of the Company. Any such writings so executed by such Attorneys-in-fact shall be binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company in their own proper persons.

RESOLVED: That any and all Powers of Attorney and Certified Copies of such Powers of Attorney and certification in respect thereto, granted and executed by the President or Vice President in conjunction with any Vice President of the Company, shall be binding on the Company to the same extent as if all signatures therein were manually affixed, even though one or more of any such signatures thereon may be facsimile. (Adopted October 7, 1981 – The Hanover Insurance Company; Adopted April 14, 1982 – Massachusetts Bay Insurance Company; Adopted September 7, 2001 – Citizens Insurance Company of America)

IN WITNESS WHEREOF, THE HANOVER INSURANCE COMPANY, MASSACHUSETTS BAY INSURANCE COMPANY and CITIZENS INSURANCE COMPANY OF AMERICA have caused these presents to be sealed with their respective corporate seals, duly attested by two Vice Presidents, this **28th** day of **December, 2016.**

THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA

Robert Thomas, Vice President

THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA

J. Michael Pete, Vice President

THE COMMONWEALTH OF MASSACHUSETTS)
COUNTY OF WORCESTER) ss.

On this **28th** day of **December 2016** before me came the above named Vice Presidents of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, to me personally known to be the individuals and officers described herein, and acknowledged that the seals affixed to the preceding instrument are the corporate seals of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, respectively, and that the said corporate seals and their signatures as officers were duly affixed and subscribed to said instrument by the authority and direction of said Corporations.

DIANE J. MARINO
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
March 4, 2022

Diane J. Marino, Notary Public
My Commission Expires March 4, 2022

I, the undersigned Vice President of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, hereby certify that the above and foregoing is a full, true and correct copy of the Original Power of Attorney issued by said Companies, and do hereby further certify that the said Powers of Attorney are still in force and effect.

GIVEN under my hand and the seals of said Companies, at Worcester, Massachusetts, this 26 day of June, 2019

CERTIFIED COPY

Theodore G. Martinez, Vice President

EXHIBIT E – Performance Bond

EXHIBIT E -- Performance Bond

Bond No. 1077034

Document A312™ – 2010

Conforms with The American Institute of Architects AIA Document 312

Performance Bond

CONTRACTOR:
(Name, legal status and address)

Greenwood Emergency Vehicles, LLC
530 John Dietsch Boulevard
North Attleboro, MA 02763

SURETY:
(Name, legal status and principal place of business)

The Hanover Insurance Company
440 Lincoln Street
Worcester, MA 01653
Mailing Address for Notices

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

City of Hartford
550 Main Street
Hartford, CT 064103

CONSTRUCTION CONTRACT
Date: June 25, 2019

Amount: $ 546,049.00 Five Hundred Forty Six Thousand Forty Nine Dollars and 00/100

Description:
(Name and location)

Supply One (1) 1500 GPM Pumper per Letter of Intent

BOND
Date: June 26, 2019
(Not earlier than Construction Contract Date)

Amount: $ 546,049.00 Five Hundred Forty Six Thousand Forty Nine Dollars and 00/100

Modifications to this Bond: [X] None [ ] See Section 16

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*
Greenwood Emergency Vehicles, LLC

Signature:
Name and Title: MARK MACDONALD PRESIDENT

SURETY

Company: *(Corporate Seal)*
The Hanover Insurance Company

Signature:
Name and Title: Stephanie L. Klearman Attorney-in-Fact

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:
Lockton Companies, LLC
Three City Place Drive, Suite 900
St. Louis, MO 63141-7021
314-432-0500

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		SURETY	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature: _____		Signature: _____	
Name and Title:		Name and Title:	
Address		Address	