



**Invitation For Bid – 16-802  
Ladder Apparatus  
Fire Dept.  
Issued: October 27, 2016**

**City of Tulsa,  
Oklahoma**  
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01-12-2017

### Addendum #3

Please note the following changes which have been made for clarification to this Invitation for Sealed Bid. **This addendum must be listed as Addendum #3 on Form #6** of the bid package as verification that you have received and are aware of the information contained herein.

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#### QUESTIONS/CLARIFICATION/CHANGES:

**CHANGE:**

At 17.02 / 1.01 "The LifePak 15 will be purchased through Physio Control regional representative Todd Shire"  
The new contact information is cellular number 405-919-5493 or Todd.shire@physio-control.com

12-16-2016

### Addendum #2

Please note the following changes which have been made for clarification to this Invitation for Sealed Bid. **This addendum must be listed as Addendum #2 on Form #6** of the bid package as verification that you have received and are aware of the information contained herein.

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#### QUESTIONS/CLARIFICATION/CHANGES:

1. **CHANGE: BID DUE DATE HAS BEEN EXTENDED TO JANUARY 25, 2017.**
2. **Question:** Do you require the suppliers Product Liability Insurance coverage to match the values shown as a requirement if the Special Requirements section?  
**Answer:** No change is necessary as long as the Product Liability furnished meets or exceeds the values shown.
3. **Question:** Will you allow changes in the Irrevocable Offer Period?  
**Answer:** No.
4. **Question:** Will you accept changes in the language that addresses Product Liability insurance cancellations or lapses?  
**Answer:** No. Item "12 BID REJECTION OR WITHDRAWAL" under "INSTRUCTIONS, TERMS AND CONDITIONS FOR BIDDERS" addresses bids that contain additional terms, conditions, or agreements that modify the requirements of this Invitation.
5. **Question:** Where is the requirement for specification 17.04 "ONE (1) INCH DOUBLE JACKET NYLON WITH EPDM RUBBER LINER FIRE HOSE"  
**Answer:** The specifications do NOT include a required inventory of the hose described in 17.04.
6. **CHANGE:** Chapter 15 line 15.68, ".2-inch double jacket fire hose coupled in 50-ft sections with 1-1/2" NST couplings. See Annex 17.09 for the technical specifications for the hose."
7. **CHANGE:** The following change has been added to the specification

10-22-15



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17.09

**TULSA FIRE DEPARTMENT  
SPECIFICATION FOR  
TWO (2) INCH DOUBLE JACKET KINK RESISTANT FIRE HOSE  
07-31-2016**

**1.00 GENERAL**

- 1.01 This specification applies to TWO (2) inch diameter attack hose constructed of polyester with through the weave nitrile/PVC tube liner and finished with 1-1/2" NST couplings. The primary purpose of the specified hose will be for the attack of fires within a municipal fire department.
- 1.02 The fire hose is to be fully compliant with the current edition of NFPA 1961 standard on *Fire Hose* and the current edition of NFPA 1962 standard for the *Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*.
- 1.03 The bid will include information describing performance and response to each paragraph of the specifications provided herein. The absence of data or information may be considered as non-responsive or non-compliant to the specifications and may serve as cause for rejection of the bid.
- 1.04 All exceptions to the specifications herein should be fully disclosed and thoroughly described as an equivalent or minor deviation to the specifications.
- 1.05 The Tulsa Fire Department retains the sole right in determining compliance to the specifications where exceptions or alternative options have been offered as an equivalent to the specifications.
- 1.06 The City of Tulsa Fire Department reserves the right to request a sample of the specified garment for examination before the award of the bid. The sample will be provided at no charge to the City within ten-days after request and will be returned at the bidder's expense.
- 1.07 All materials used in the manufacture of the specified hose and couplings should be made and assembled in the USA.

**2.00 CONSTRUCTION**

- 2.01 All materials used in the fabrication of the fire hose will be new, unused materials of the best quality normally used for the purpose of manufacturing fire hose.
- 2.02 The manufactured hose will produce an internal diameter of TWO (2) inches.
- 2.03 The outer jacket will be constructed from ring spun staple polyester yarns over an inner liner consisting of a one-piece extruded through the weave nitrile/PVC tube with double dip color or clear coat for abrasion resistance.
- 2.04 The outer jacket will be manufactured with a tight weave and high pick "count" that is free of visible defects such as pits, lumps, exposed loops, porosity in the cross section of the hose or other similar imperfections.
- 2.05 The outer jacket of the fire hose will be impregnated with a high-performance to protect the yarn from damage produced by abrasion, chemical exposure, heat, ultra-violet light, dirt, reduced pick-up of water and other potential hazards.
- 2.06 The coating for the outer jacket will be BLUE in color with one or more colored stripes of red, yellow and/or green impregnated into the outer jacket. NO EXCEPTION
- 2.10 The finished and coupled fire hose will have a service pressure of no less than 500 psi.
- 2.11 The finished and coupled fire hose will have an acceptance test pressure of no less than 1,000 psi.
- 2.12 The outer jacket of the hose will be provided with markings one (1) inch indelible digits that identify the manufacturer and model of hose, country of origin, month and year of manufacture, service test pressure, and statement of compliance with NFPA 1962.
- 2.13 The manufacturer will stencil the hose for the benefit of the fire department. The specific series of numbers, such as 16-2-0001, will be coordinated with the Tulsa Fire Department.



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- 2.14 The hose will be equipped with extruded aluminum couplings that are attached directly to the hose through the use of an expansion ring inside the collar of the threaded coupling that allows multiple lengths of hose to be attached to one another.
- 2.15 The couplings will be hard coat anodized.
- 2.16 The female couplings will be manufactured with ball bearing swivels.
- 2.17 All couplings will be provided with standard rocker lugs.
- 2.18 All couplings will be typical 1-1/2" diameter with National Standard Threads (NST).
- 2.19 The weight of a 50-ft length of the specified hose without couplings will not exceed 24 pounds nor be less than 20 pounds.
- 3.00 TESTING AND GUARANTEE**
- 3.01 The workmanship will be of the highest quality and will include a written ten year warranty that will include a 1 year warranty for tear and wear.
- 3.02 Each finished and coupled length of fire hose will be hydrostatically tested by the manufacturer.
- 3.03 The manufacturer guarantees that each length of hose to be free against faulty materials and workmanship.

12-02-2016

**Addendum #1**

Please note the following changes which have been made for clarification to this Invitation For Sealed Bid. **This addendum must be listed as Addendum #1 on Form #6** of the bid package as verification that you have received and are aware of the information contained herein.

**QUESTIONS/CLARIFICATION/CHANGES:**

1. **CHANGE: BID DUE DATE HAS BEEN EXTENDED TO JANUARY 11, 2017.**
2. **CHANGE: TERRY THOMAS IS THE NEW BUYER ASSIGNED TO THIS PROJECT. PLEASE CONTACT TERRY WITH ANY ADDITIONAL BID QUESTIONS. TTHOMAS@CITYOFTULSA.ORG**
3. **CHANGE:** The following price escalation language has been added to the end of Exhibit A.  
**“Annual Price Adjustment for Pricing on Exhibit A.** The prices bid for any Goods and/or Services shall not increase during the initial term of the contract. However, if you anticipate that you will not be able to maintain firm prices for any renewal period, a change in price **will be considered** if the following conditions are met:
  - a) You must limit any increase to **one** of the following(indicate your choice\*):
    - i. the change in the Consumer Price Index from BLS Table 1(web link below) from the prior year, as measured by the change in the CPI-U between the most recent month available and that same month in the prior year \_\_\_\_\_ (place an “X” here if this is your choice)
    - ii. a fixed percentage you specify \_\_\_\_\_%
  - b) You must notify City, in writing, no later than 90 days before the initial contract period ends, or any renewal period ends, of your intent to exercise the price choice in your bid. **Failure to so notify City will result in City denying any price**



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**increases.** In no event can the proposed price change exceed that possible under the choice in your bid. Your notice can be sent by certified mail, fax or email.

- c) **You must certify at renewal that the prices you are requesting from the City, including any increase requested, are as favorable as the prices you are charging your other customers which purchase similar quantities, and types, of goods and services.\*\* Any increase requested at renewal will be considered in the City's decision whether to renew, or re-bid, the contract.**

Notes: \* - Any price increase you choose will be considered in the evaluation of your bid. If you choose the CPI-U, the annual increase used for evaluation will be assumed to equal the change in the CPI-U for the prior year, as described above.

\*\* - The Affidavit of Compliance for Price Adjustment, which will need to be provided **at renewal** if an increase is requested, you may contact the Buyer listed on this Invitation for Bid to request one.

CPI Web Link: <http://www.bls.gov/news.release/cpi.t01.htm>

4. **Change:** On form #2 (Page 1 of 4) of the Purchase Agreement, number 4, Term, one annual renewal option has been added to the agreement.
5. **Change:** The following changes have been made to the technical specifications:

Line	Description	Possible Points	
1.01	It is the intent of these specifications for the Tulsa Fire Department to purchase four (4) or more nominal 100-ft long aerial device with tank water, fire pump, fire hose and related equipment.  It is also the intent of the Fire Department to purchase additional apparatus from the awarded Seller. Purchase(s) of additional apparatus will conform to terms as established by "The Purchase Agreement", and by reference therein.	0	
2.15(v)	Hale fire pump, parts and labor                      Five years	Pro-rated	
2.23	Warranty work performed by the City of Tulsa will be billed at the same labor rate of unscheduled overtime charged to the Tulsa Fire Department by the City of Tulsa Fire Garage at the time of the needed repair. The rate for unscheduled overtime is 1.5 times the base labor rate. The current labor rate for fiscal year 2016/2017 is \$55.00 per hour. Consequently, the unscheduled overtime rate that will be billed for warranty repair will be 1.5 x 55 for a sum of \$82.50 per hour.  The labor rate for warranty repair will change as the billing rate for normal service billed to the Tulsa Fire Department changes during the warranty period.	5	





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Line	Description	Possible Points	
2.25	<p>In addition to the expense of the actual repair, the City of Tulsa will solicit reimbursement for the inability to use the apparatus or systems that render the apparatus out-of-service due to one or more warranty issues.</p> <p>The out of service criteria will be defined by the current edition of NFPA 1911 <i>standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus</i>.</p> <p>Reimbursement will be billed at a rate based upon the FEMA reimbursement rate for the applicable resource divided by 24 hours. For example, in 2015 FEMA code 8684 Fire Truck with 100 ft. ladder had a reimbursement rate of \$140.81 per hour. With the established FEMA rate, the City Tulsa rate of reimbursement for out-of-service time will be \$140.81 divided by 24 hours for a sum of \$5.87 per hour of out-of-service time.</p> <p>The out-of-service billing will be charged upon the number of continuous hours that the vehicle is out-of-service including evenings, weekends and holidays. Billing will be rounded to the nearest half hour. The reimbursement billing time will begin 96 hours following the original documented time of notification to the Seller of the warranty issue.</p>	5	
2.26 (a)(c)	<p>Number of lineal inches of lower compartment unobstructed door opening in the fire body that has a floor located no greater than 32 inches from grade. This is intended to measure the total amount of door openings of the lower compartments that are at running board or tailboard height.</p> <p>As it relates to this specification, the total lineal inches would be the actual door openings for no less than L1 + L2 + L4 +R1 + R2 + R4 etc. as applicable to the actual body offered in response to these specifications. Referencing these specifications, L3, R3 and Rear compartments are not included in the calculation due to their floor heights being greater than 32 inches above grade.</p>	Pro-rated	
3.65	<p>The apparatus will be provided with an extended front bumper that will be as small as possible to accommodate the equipment specified herein with expected projection of approximately 26 inches, but is not to exceed 29 inches.</p>	3	
3.122	<p>The transmission will be programmed for five (5) forward speeds and reverse. The driveline will be designed to provide a vehicle top speed of sixty (60) miles per hour as described in NFPA 1901.</p> <p>NOTE: At the pre-construction meeting, the Fire Department will discuss the ability to increase the top speed to 68 miles per hour following receipt and acceptance of the delivered apparatus.</p>	5	
3.129	<p>The transmission gear selector will be controlled in the cab within easy reach of the driver. The gear selector will be of a lever style.</p>	4	



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Line	Description	Possible Points	
4.08	The skin of the cab forming the front, sides, cab doors, roof and rear of the cab is to be no less than 1/8 (0.125) inch 5000 series or 3/16 (0.1875) inch 3000 series aluminum.	10	
4.11	The cab floor will be constructed of aluminum. The floor will be flat without an upward projection into the passenger compartment of the cab.	5	
5.60	Two forward facing brow lights, Whelen model PFS2, 12 volt LED combination spot/flood lights will be mounted on the front of the roof, one above the driver's visor and one above the front passenger's visor.	2	
6.09	All hand rails attached to the fire body will be Hansen International 4000 series grab rails with 3 rubber inserts.	5	
6.49	L-1 will be a compartment constructed of aluminum tread plate with a single panel aluminum tread plate hinged door secured with butterfly or similar latches located immediately ahead of the pump house and outboard of the aerial storage cradle. The intent of this storage compartment is to secure a tripod scene light. The compartment floor will not be required to support a load of 750 pounds.	5	
6.50	L-2 located immediately rearward of the pump panel will be approximately 40" wide x 63" high. The lower 25" of the compartment height will be no less than 24" deep and the remaining upper portion will be no less than 12" deep.  The compartment will be provided with one lower level adjustable height shelf and two upper level adjustable height shelves.	5	
6.61	R-1 will be a compartment constructed of aluminum tread plate with a single panel aluminum tread plate hinged door secured with butterfly or similar latches located immediately ahead of the pump house and outboard of the aerial storage cradle. The intent of this storage compartment is to secure a tripod scene light. The compartment floor will not be required to support a load of 750 pounds.	5	
6.62	R-2 located immediately rearward of the pump panel will be approximately 40" wide x 63" high. The lower 25" of the compartment height will be no less than 24" deep and the remaining upper portion will be no less than 12" deep.  The upper portion of the compartment will be provided with two adjustable height shelves.	5	
6.63	Intentionally blank (Points retained to avoid skewed result)	5	
6.64	Intentionally blank (Points retained to avoid skewed result)	5	



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Line	Description	Possible Points	
6.65	<p>The lower portion of compartment R-2 will be provided with a full sized custom constructed insulated and climate controlled cabinet insert provided by OTE International. The apparatus manufacturer will confirm the size and design of the inserted cabinet that will be approximately 40” wide by 24” deep by 25” high. The inserted cabinet will be designed to allow full removal from the apparatus for maintenance or needed replacement.</p> <p>The cabinet insert will include a secured locking internal compartment to support the safe storage of controlled drugs. The balance of the cabinet insert will be used to store the EMS trauma bag and possibly the defibrillator. The cabinet insert will include an insulated hinged door to manage the internal climate and to prevent the admittance of dirt and water.</p> <p>The interior space within the cabinet insert will be provided with LED lights to illuminate the storage space.</p> <p>Final details concerning specific design and function will be addressed at the pre-construction meeting.</p> <p>OTE International may be contacted at 6695 CR 4625, Anthens, TX 75752 or (888) 666-9361 or <a href="http://www.oteinternational.com">www.oteinternational.com</a></p>	10	
6.66	Intentionally blank	0	
8.01	<p>The fire pump will be provided with a Hale® SmartFOAM control system for the production of class “A” foam solution. The system will utilize a Hale FoamLogix 6.5 foam injection pump to provide foam for each of the following discharges individually or in unison:</p> <ul style="list-style-type: none"> <li>• both 1-3/4” pre-connected crosslays</li> <li>• 2-1/2” pre-connected blitz line located in the main hose bed</li> <li>• Both booster reels</li> </ul> <p>5” discharge located on the right pump panel</p>	10	
8.03	An actual or “one to one” scale (full sized), image of the actual fire pump and related controls will be provided for operational training.	6	
8.71	<p>The backup system will include a Class 1 Twister Vernier style throttle control that will be located behind the aforementioned panel door.</p> <p>As with other Tulsa apparatus, the normal pressure governor is located on the left pump panel and then a backup throttle and mechanical pressure relief valves are located behind a panel located on or about the left pump panel. The normal pressure governor is operating the primary ECM for the motor and a switch behind the a panel disables that control and engages the backup throttle control that operates the cruise control side of the motor.</p>	5	



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Line	Description	Possible Points	
8.73	<p>The fire pump will be provided with a Hale® SmartFOAM system for the production of class “A” foam solution. The system will provide foam for each of the following discharges individually or in unison:</p> <ul style="list-style-type: none"> <li>• both 1-3/4” pre-connected crosslays</li> <li>• 2-1/2” pre-connected blitz line located in the main hose bed</li> <li>• Both booster reels</li> <li>• 4” discharge located on the right pump panel finished with a 5” locking storz</li> </ul>	10	
9.02	<p>The water tank, with integral foam cell, will be manufactured by Pro Poly or UPF.</p>	6	
10.01	<p>The apparatus will be provided with a Harrison Integrated Hydraulic Technologies featuring Hydra-Qube (IHT-HQ) system to simultaneously support power for a hydraulic generator and a hydraulic rescue tool system.</p>	8	
10.02	<p>The hydraulic system will utilize a transmission mounted PTO coupled with an axial piston pump to supply all required flows and pressures of both the generator and rescue tool systems.</p>	3	
10.03	<p>Actuation of the master hydraulic switch will operate the transmission mounted PTO that will operate the hydraulic pump, and engage the hydraulic fluid heat exchanger fan. A panel mounted indicator light that is labeled “Hydraulic Power Ready” will illuminate when the system is active.</p>	3	
10.04	<p>The hydraulic system will include a hydraulic fluid reservoir with oil level site glass and a thermometer. The system will also include filters and a drain line fitted with a stainless steel ball valve and drain line that extends to an open area beneath the apparatus to facilitate drainage without contamination to other apparatus systems or components. Each of the components and systems will be designed and positioned to provide access during inspection and maintenance.</p>	3	
10.05	<p>Engagement and selection of the desired hydraulic system will consist of three switches that will be operated in the cab. Operational use of the generator or rescue tool system will be begin with the engagement of the master hydraulic PTO switch followed by the selection of the generator switch and/or the rescue tool system switch as desired.</p>	4	
10.06	<p>An Amkus model HH2S hydraulic power supply will be provided. Driven by the PTO hydraulic system, the Amkus power supply will provide the hydraulic fluid and power actually used by the Amkus rescue tools.</p>	4	
10.07	<p>The Amkus power supply will be located in a position where it will be accessible for operation of the control valves as well as for the inspection and maintenance of the hydraulic fluid reservoir.</p>	3	





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Line	Description	Possible Points	
10.08	Each of the hose reels are to include 12-volt electric rewind and include 100 feet of dual hydraulic hose fitted with 100 feet of continuous uncoupled lengths that are free of unions and rated for no less than 10,500 psi.	3	
10.09	One hose reel will include hose that is blue in color and the other hose reel will be red in color.	2	
11.01	The apparatus will be provided with a conventional rear mounted aerial ladder specifically designed for use in the fire service without exception to the design, construction and operational requirements identified in chapters 8, 9 and 19 of the 2016 edition of NFPA 1901. The aerial ladder may be constructed of steel or of aluminum.	5	
11.58	<p>The upper portion of the railing at the rear of the turntable or fire body will be as short as possible while remaining compliant with NFPA 1901.</p> <p>Depending upon the geometry of the specific apparatus, the handrail may need to be designed to be hinged, telescoping or otherwise adjustable in height to minimize the risk of interface with station overhead door headers during departure from the station. Specifics and details will be addressed at the pre-construction meeting.</p>	4	
11.61	The boom panel located on the left side will we be designed to store a full sized stokes basket within a fully enclosed aluminum storage box. The boom panel located on the right side will be designed to store an 18 ft. Duo Safety roof ladder.	3	
11.63	Each rung of the aerial ladder will be inherently designed or provided with attached covers that meet the requirements of NFPA 1901.	4	
11.68	The top fly section will be provided with PAC mounting brackets for a pick head axe and 6 ft Duo Safety pike pole. Each item will be provided and installed at the manufacturing facility.	3	
11.89	The aerial ladder waterway will have ability to flow 1,000 GPM at 100 psi with the aerial at full elevation, full extension and in all 360 degrees of rotation while pumping from a static water supply.	5	
11.90	The waterway will have the ability to maintain a tip load of no less than 500 PSI while flowing 1,250 GPM in all aerial positions that are not at risk of collision with the apparatus with the nozzle in all possible positions of elevation and horizontal relationship to the aerial ladder.	5	



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Line	Description	Possible Points	
11.105	<p>The aerial will be managed by a microprocessor or other engineered system or process that will automatically engage or disengage aerial operations resulting from distracted or inexperienced operators. The desired controls and safety systems will include the following features:</p> <ul style="list-style-type: none"> <li>• Collision avoidance with the cab and fire body.</li> <li>• Automatic deceleration while lowering into the cradle.</li> <li>• Automatic deceleration nearing the end of a cylinder's stroke during both extension and retraction.</li> <li>• Automatic deceleration nearing the limits of travel of the device.</li> <li>• Automatic ramping of the hydraulic system operation at both the initial call for hydraulic power as well as termination to minimize hydraulic surges that result in jerky movements.</li> <li>• Prevention of the aerial from rotating into an unstable position such as being short jacked.</li> </ul>	6	
12.14	<p>Two, one on each side on the top of the body at the rear of the fire body, Whelen model B6LED Super-LED® Beacon with Polished Base. The rotating light will be red with clear lens and the rear facing light will be amber with clear lens.</p>	2	
13.29	<p>The fire apparatus will be provide and install a Motorola APX6500 7/8000 MHZ mid power mobile radio.</p>	5	
13.30	<p>The fire apparatus manufacturer will install two multi-function antennas at the manufacturing factory, one mounted on each side of the roof outboard of the nested aerial device. The cable will be installed into the space between the roof and the headliner. The antennas will support the radio, GPS, Rocket, computers, etc. The radio antennas will be by ROK Brothers Inc. item number SH-TUL-006 Tulsa Sharkee Kit with 25 ft. cables. <a href="http://www.rokbrothers.com/antennas.php">http://www.rokbrothers.com/antennas.php</a> NO EXCEPTION.</p> <p>Note: Each of the two antennas will have five cables that should be installed and run to the front center position of the cab dash.</p>	5	
13.34	<p>NOTE: The selection of the radio will probably not be known until a time just before delivery of the completed apparatus. If a new radio is to be used it will be a Motorola APX 6500 7/800 MHz mobile radio.</p>	n/a	
14.24	<p>The gold leaf will be Extra-Large "Smartgold" vinyl, or equal, with 3M clear removable graphic film.</p>		
15.53	<p>One Hilti 18-volt lithium ion cordless drill/driver, model SFC 18-A, with two batteries, 110-volt AC charger and soft storage bag. Contact Rick Fike, Account Manager I &amp; G, Greater Tulsa Area, P.O. Box 21148 I, Tulsa, OK 74121-1148 800-879-7000 <a href="mailto:rick.fike@hilti.com">rick.fike@hilti.com</a> for details and quotes.</p>	1	
15.74	<p>Three (3) Bullard NXT thermal image cameras with TI basic plus, electronic thermal throttle, digital zoom, scene catcher, retract strap, orange color housing, Resolution of 320 x 240, wireless desktop charging system and wireless truck mount charger.</p>	5	



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NOTICE is hereby given that the CITY OF TULSA, OKLAHOMA will receive sealed Bids for the following:

**BID #16-802**

**DESCRIPTION: Ladder Apparatus**

**(Commodity Code(s): 072-30)**

You are invited to submit a Bid to supply the Goods and/or Services specified above. Invitations for Bid (IFB) will be posted on the City's website at [www.cityoftulsapurchasing.org](http://www.cityoftulsapurchasing.org) or a hardcopy may be obtained at:

City of Tulsa-Purchasing Division  
175 East 2<sup>nd</sup> Street, Suite 865  
Tulsa Oklahoma 74103

**Bids must be received no later than 5:00 PM (CST) on Wednesday, January 11, 2017, and delivered to:  
City Clerk's Office  
175 East 2<sup>nd</sup> Street, Suite 260  
Tulsa Oklahoma 74103**

Bids must be sealed and either mailed or delivered. No faxed or emailed Bids will be considered. Bids received after the stated date and time **will not be accepted and will be returned to the Bidder unopened.**

The Bid Packet consists of (1) this Notice of Invitation for Bid, (2) the Summary Sheet, (3) Form #1, (4) Form #2, (5) Form #3, (6) Form #4, (7) Form #5, (8) Form #6, (9) the Instructions, Terms and Conditions for Bidders, (10) Special Requirements, (11) Technical Specifications and (12) Exhibit A.

Use this checklist to ensure you have properly read and completed all Forms.

- Notice of Invitation for Bid
- Summary Sheet
- Form #1: Bidder Information Sheet. Must be completed.
- Form #2: Purchase Agreement. **Complete legal name in first paragraph and Notice provision in Section 17.i. Original signature required.**
- Form #3: Interest Affidavit. Original signature and notarization required.
- Form #4: Non-Collusion Affidavit. Original signature and notarization required.
- Form #5: Affidavit of Claimant. Original signature and notarization required.
- Form #6: Acknowledgment of Receipt of Addenda/Amendments. Must be completed and signed.
- Instructions, Terms and Conditions for Bidders
- Special Requirements (Offer Period; Insurance and Bonding; References)
- Technical Specifications
- Exhibit A: Bid Form including Delivery and Pricing. This is your Bid. It must be completed or your Bid will be rejected.

**IMPORTANT NOTE: Write the Bid Number, Bid Description (as listed above), and Bid Opening Date on the lower left corner of the outside of your Bid envelope. You must return the entire completed Bid Packet.**



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**SUMMARY SHEET**

**Project Buyer**

If you have any questions or need additional information, contact the assigned Project Buyer:

Terry Thomas, Buyer  
[tthomas@cityoftulsa.org](mailto:tthomas@cityoftulsa.org)

Include **IFB 16-802 Ladder Apparatus** on the subject line

**Bidder's Notice of Intent to Submit a Bid**

Email the Project Buyer indicating your intent to Bid. Include IFB 16-802 Ladder Apparatus on the subject line of the email. You will receive an email response verifying your notice of intent to bid was received. This same procedure should be followed to request clarification, in writing, of any point in the IFB.

Bidders are encouraged to contact the Project Buyer by email if there is anything in these specifications that prevents you from submitting a Bid, or completing the Bid Packet. Questions and concerns must be received no later than seven (7) days prior to the Bid Packet due date.

**Issuing of Addenda**

If you received the notice of this IFB from the City as a result of being registered to sell the commodity code(s) on this Bid, you should also receive notice of any addenda issued. If you are not registered with the City to sell the commodities listed herein, you must register as a supplier on the City of Tulsa Purchasing website ([www.cityoftulsapurchasing.org](http://www.cityoftulsapurchasing.org)) to receive notice of any addenda, or to receive notice of any future IFBs.

**Pre-Bid Conference**

If a pre-Bid conference will be held for this IFB, information on that conference will be inserted below:

Date November 18, 2016 Time 10:00 a.m.

Location: One Technology Center – 3<sup>rd</sup> floor #03-317 North Conference Room.

Attendance at the Pre-Bid Conference is required to submit a Bid; however Bidders may make arrangements to attend via teleconference in some cases (contact the Project Buyer for details).

Attendance is not required to submit a Bid.

**Bid Packet Submission**

The City requires two completed Bid packets: 1 Original and 1 Copy. Each must be clearly labeled on the front sheet indicating "Original" or "Copy". If a copy on electronic media is also required, the line below will be checked.

Electronic Copy also required.

Responses to this Invitation for Bid must be made on the forms listed on page 1. The entire completed Bid Packet must be returned or your Bid may be rejected. Do not take exception to any portion of this Bid Packet. Do not make any entries except where required. Do not insert any other documents into the Bid Packet.

**Bid Opening**

All Bid openings are public and take place at 8:30 a.m. Thursday, the day after Bids are due. The Bid openings are held in the City of Tulsa Council Meeting Room, 175 East 2<sup>nd</sup> Street, 2<sup>nd</sup> Floor, Tulsa, Oklahoma.





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**FORM #1  
BIDDER INFORMATION SHEET**

**Bidder's Exact Legal Name:** \_\_\_\_\_  
(Must be Bidder's company name as reflected on its organizational documents, filed with the state in which bidder is organized; not simply a DBA)

**State of Organization:** \_\_\_\_\_

**Bidder's Type of Legal Entity: (check one)**

- Sole Proprietorship
- Partnership
- Corporation
- Limited Partnership
- Limited Liability Company
- Limited Liability Partnership
- Other: \_\_\_\_\_

**Bidder's Address:** \_\_\_\_\_  
Street City State Zip Code

**Bidder's Website Address:** \_\_\_\_\_ **Email Address:** \_\_\_\_\_

**Sales Contact:**

Name: \_\_\_\_\_

Street: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

**Legal or Alternate Sales Contact:**

Name: \_\_\_\_\_

Street: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_



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**FORM #2 (Page 1 of 4)  
PURCHASE AGREEMENT**

**INSTRUCTIONS:** This document **must** be properly signed and returned or your Bid will be **rejected**. This form constitutes your offer and if accepted by the City of Tulsa will constitute the Purchase Agreement under which you are obligated to perform. Your signature on this document indicates you have read and understand these terms and agree to be bound by them.

**THIS PURCHASE AGREEMENT** is between the CITY OF TULSA, OKLAHOMA, a municipal corporation, 175 East 2<sup>nd</sup> Street, Tulsa, Oklahoma, 74103-3827 (the "City") and:

(Bidder's company name as reflected on its organizational documents, filed with the state in which bidder is organized; not simply a DBA) (the "Seller").

**WITNESSETH:**

WHEREAS, the City has approved certain specifications and advertised for or solicited Bids on the following goods or services:

**16-802 – Ladder Apparatus**

(the "Goods and/or Services"); and

WHEREAS, Seller desires to provide such Goods and/or Services to City, acknowledges that this document constitutes Seller's offer to provide the Goods and/or Services specified below, and further acknowledges that if executed by the City's Mayor, this document will become the Purchase Agreement for such Goods and/or Services.

NOW, THEREFORE, for and in consideration of the terms, covenants and conditions hereinafter set forth, the parties hereto agree as follows:

- Documents Comprising the Agreement.** The Bid Packet includes the Notice of Invitation to Bid, the Summary Sheet, Form #1, Form #2, Form #3, Form #4, Form #5, Form #6, the Instructions, Terms and Conditions for Bidders, the Special Requirements, the Technical Specifications, Exhibit A and any addenda or amendments to the Bid Packet. The Bid Packet is incorporated herein by this reference. In the event of conflicting or ambiguous language between this Purchase Agreement and any of the other Bid Packet documents, the parties shall be governed first according to this Purchase Agreement and second according to the remainder of the documents included in the Bid Packet. Seller may submit as part of its Bid additional materials or information to support the Bid. Additional materials or information submitted by Seller which are not ambiguous and which do not conflict with this Purchase Agreement or the other Bid Packet documents are incorporated herein by this reference.
- Purchase and Sale.** Seller agrees to sell City the Goods and/or Services for the price and upon the delivery terms set forth in Exhibit A hereto. City agrees to pay Seller the price as set forth in Exhibit A based on (a) the quantity actually purchased in the case of goods or services priced by unit, or (b) the total price for a stated quantity of goods or services, upon (i) delivery of the Goods and/or Services to the City, (ii) the City's Acceptance thereof, and (iii) Seller's submission and City's approval of a verified claim for the amount due. City shall not pay any late charges or fees.
- Irrevocable Offer.** Seller understands and acknowledges that its signature on this Agreement constitutes an irrevocable offer to provide the Goods and/or Services. There is no contract unless and until City's Mayor/Mayor Pro Tem executes this Agreement accepting Seller's Bid. No City officer, employee or agent except the Mayor (or Mayor Pro Tem) has the authority to award contracts or legally obligate the City to any contract. Seller shall not provide any Goods and/or Services to City pursuant to this Agreement before this Agreement is executed by City. If Seller provides any Goods and/or Services to City pursuant to this Agreement before this Agreement is executed by City, such Goods and/or Services are provided at Seller's risk and City shall have no obligation to pay for any such Goods and/or Services.
- Term.** The term of this Agreement shall be effective commencing on the date of execution of this Agreement by the Mayor/Mayor Pro Tem of the City of Tulsa and terminating one year from that date. **City in its sole discretion may offer Seller an opportunity to renew this Agreement for an additional one (1) one (1) year term(s).** Seller understands and acknowledges that any future contracts or renewals are neither automatic nor implied by this Agreement. The continuing purchase by City of the Goods and/or Services set forth in this Agreement is subject to City's needs and to City's annual appropriation of sufficient funds in City's fiscal year (July 1<sup>st</sup> to June 30<sup>th</sup>) in which such Goods and/or Services are purchased. In the event City does not appropriate or budget sufficient funds to perform this Agreement, this Agreement shall be null and void without further action by City.
- Warranties.** Seller shall assure that the Goods and/or Services purchased hereunder are covered by all available and applicable manufacturers' warranties for such Goods and/or Services. Seller expressly agrees that it will be responsible for performing all warranty obligations set forth in the Technical Specifications for the Goods and/or Services covered in this Agreement. Seller also warrants that the Goods and/or Services will conform to the Technical Specifications and Special Requirements, and further warrants that the Goods and/or Services shall be of good materials and workmanship and free from defects for either a minimum of one (1) year from the date of Acceptance or installation by City, whichever is later, or as **specified in the Technical Specifications**, whichever is later. In no event shall Seller be allowed to disclaim or otherwise limit the express warranties set forth herein.
- Warranty Remedies.** City shall notify Seller if any of the Goods and/or Services fails to meet the warranties set forth above, and Seller shall promptly correct, repair or replace such Goods and/or Services at Seller's sole expense. Notwithstanding the foregoing, if such Goods and/or Services shall be determined by City to be defective or non-conforming within the first thirty (30) days after the date of Acceptance by City, then City at its option shall be entitled to a complete refund of the purchase price and, in the case of Goods, shall promptly return such Goods to Seller. Seller shall pay all expenses related to the return of such Goods to Seller.



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- 7. **Seller Bears Risk.** The risk of loss or damage shall be borne by Seller at all times until the Acceptance of the Goods or Services by City.
- 8. **No Indemnification by City.** Seller understands and acknowledges that City is a municipal corporation that is funded by its taxpayers to operate for the benefit of its citizens. Accordingly, and pursuant to Oklahoma law, City shall not indemnify nor hold Seller harmless for loss, damage, expense or liability arising from or related to this Agreement, including any attorneys' fees and costs. In addition, Seller shall not limit its liability to City for actual loss or direct damages for any claim based on a material breach of this Agreement and the documents incorporated herein. City reserves the right to pursue all legal and equitable remedies to which it may be entitled.
- 9. **Indemnification by Seller.** Seller agrees to indemnify, defend, and save harmless City and its officers, employees and agents from all suits and actions of any nature brought against them due to the use of patented appliances, products or processes provided by Seller hereunder. Seller shall pay all royalties and charges incident to such patents.
- 10. **No Insurance by City.** If City is leasing Goods herein, City shall not be required to obtain insurance for Seller's property. Seller shall be solely responsible for any insurance it deems necessary. City is self-insured for its own negligence, subject to the limits of the Governmental Tort Claims Act (51 O.S. § 151 et seq.).
- 11. **No Confidentiality.** Seller understands and acknowledges that City is subject to the Oklahoma Open Records Act (51 O.S. §24A.1 et seq.) and therefore cannot assure the confidentiality of contract terms or other information provided by Seller pursuant to this Agreement that would be inconsistent with City's compliance with its statutory requirements thereunder.
- 12. **Non-Responsive Bids.** Seller understands and acknowledges that if it adds terms and conditions to its Bid that are different from the terms set forth herein that its Bid may be rejected as non-responsive. Furthermore, if City accepts Seller's Bid and awards a contract to Seller based on such Bid, City shall not be bound to any exceptions, changes or additions made by Seller, and any terms and conditions added by Seller which are not expressly agreed to by City in writing will be void and of no force and effect and the parties will be governed according to the document precedence set forth in Section 1 above.
- 13. **Compliance with Laws.** Seller shall be responsible for complying with all applicable federal, state and local laws, regulations and standards. Seller is responsible for any costs of such compliance. Seller certifies that it and all of its subcontractors to be used in the performance of this Purchase Agreement are in compliance with 25 O.S. Sec. 1313 and participate in the Status Verification System. The Status Verification System is defined in 25 O.S. Sec. 1312 and includes but is not limited to the free Employee Verification Program (E-Verify) available at [www.dhs.gov/E-Verify](http://www.dhs.gov/E-Verify).
- 14. **Termination.** City, by written notice, may terminate this Agreement, in whole or in part, when such action is in the best interest of City. If this Agreement is so terminated, City shall be liable only for payment for Goods accepted and Services rendered prior to the effective date of termination. City's right to terminate this Agreement is cumulative to any other rights and remedies provided by law or by this Agreement.
- 15. **Price Changes.** The parties understand and agree that the variables in Seller's cost of performance may fluctuate, but any change in Seller's cost of performance will not alter its obligations under this Agreement, nor excuse performance or delay on Seller's part. If the IFB provides that Seller may include a price escalation provision in its Bid, Seller's price escalation provision will be evaluated by City as part of Seller's Bid price when awarding the Bid.
- 16. **Right to Audit.** The parties agree that Seller's books, records, documents, accounting procedures, practices, price lists or any other items related to the Goods and/or Services provided hereunder are subject to inspection, examination, and copying by City or its designees. Seller is required to retain all records related to this Agreement for the duration of the term of this Agreement and a period of three years following completion and/or termination of the Agreement. If an audit, litigation or other action involving such records begins before the end of the three year period, the records shall be maintained for three years after the date that all issues arising out of the action are resolved or until the end of the three year retention period, whichever is later.
- 17. **Notice.** Any notice, demand, or request required by or made pursuant to this Agreement shall be deemed properly made if personally delivered in writing or deposited in the United States mail, postage prepaid, to the addresses specified below.

i. To Seller: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

To CITY: City Clerk  
 CITY OF TULSA, OKLAHOMA  
 175 E. 2<sup>nd</sup> Street, Suite 260  
 Tulsa, Oklahoma 74103

With a copy to: Terry Thomas, Buyer  
 City of Tulsa, 175 E 2<sup>nd</sup> Street, Suite 575, Tulsa, OK 74103.

- 18. **Relationship of Parties.** The Seller is, and shall remain at all times, an independent contractor with respect to activities and conduct while engaged in the performance of services for the City under this Agreement. No employees, subcontractors or agents of the Seller shall be deemed to be employees of the City for any purpose whatsoever, and none shall be eligible to participate in any benefit program provided by the City for its employees. The Seller shall be solely responsible for the payment of all employee wages and salaries, taxes, withholding



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payments, fringe benefits, insurance premiums, continuing education courses, materials or related expenses on behalf of its employees, subcontractors, and agents. Nothing in this Agreement shall be construed to create a partnership, joint venture, or agency relationship among the parties. No party shall have any right, power or authority to act as a legal representative of another party, and no party shall have any power to obligate or bind another party, or to make any representations, express or implied, on behalf of or in the name of the other in any manner or for any purpose whatsoever.

19. **Third Parties.** This Agreement is between City and Seller and creates no right unto or duties to any other person. No person is or shall be deemed a third party beneficiary of this Agreement.
20. **Time of Essence.** City and Seller agree that time is deemed to be of the essence with respect to this Agreement.
21. **Binding Effect.** This Agreement shall be binding upon City and Seller and their respective successors, heirs, legal representatives and permitted assigns.
22. **Headings.** The headings used herein are for convenience only and shall not be used in interpreting this Agreement
23. **Severability Provision.** If any term or provision herein is determined to be illegal or unenforceable, the remainder of this Agreement will not be affected thereby. It is the intention of the parties that if any provision is held to be illegal, invalid or unenforceable, there will be added in lieu thereof a provision as similar in terms to such provision as is possible to be legal, valid and enforceable.
24. **Governing Law And Venue.** This Agreement is executed in and shall be governed by and construed in accordance with the laws of the State of Oklahoma without regard to its choice of law principles, which shall be the forum for any lawsuits arising under this Agreement or incident thereto. The parties stipulate that venue is proper in a court of competent jurisdiction in Tulsa County, Oklahoma and each party waives any objection to such venue. City does not and will not agree to binding arbitration of any disputes.
25. **No Waiver.** A waiver of any breach of any provision of this Agreement shall not constitute or operate as a waiver of any other provision, nor shall any failure to enforce any provision hereof operate as a waiver of the enforcement of such provision or any other provision.
26. **Entire Agreement/No Assignment.** This Agreement and any documents incorporated herein constitute the entire agreement of the parties and supersede any and all prior agreements, oral or otherwise. This Agreement may only be modified or amended in a writing signed by both parties. Notwithstanding anything to the contrary stated herein or in the attachments to this Agreement, no future agreements, revisions or modifications that may be required under this Agreement are effective or enforceable unless such terms, revisions or modifications have been reduced to writing and signed by City and Seller. Seller may not assign this Agreement or use subcontractors to provide the Goods and/or Services without City's prior written consent. Seller shall not be entitled to any claim for extras of any kind or nature.
27. **Multiple Counterparts.** This Agreement may be executed in several counterparts, each of which shall be deemed an original, but which together shall constitute one and the same instrument.
28. **Interpretive Matters and Definitions.** The following interpretive matters shall be applicable to this Agreement:
  - 28.1 Unless the context otherwise requires: (a) all references to Sections are to Sections of or to this Agreement; (b) each term defined in this Agreement has the meaning assigned to it; (c) "or" is disjunctive but not necessarily exclusive; (d) words in a singular include the plural and vice versa. All references to "\$" or to dollar amounts shall be in lawful currency of the United States of America;
  - 28.2 No provision of this Agreement will be interpreted in favor of, or against, any of the parties hereto by reason of the extent to which such party or its counsel participated in the drafting thereof or by reason of the extent to which any such provision is inconsistent with any prior draft hereof or thereof;
  - 28.3 Any reference to any applicable laws shall be deemed to refer to all rules and regulations promulgated thereunder and judicial interpretations thereof, unless the context requires otherwise;
  - 28.4 The word "including" means "including, without limitation" and does not limit the preceding words or terms; and
  - 28.5 All words used in this Agreement shall be construed to be of such gender, number or tense as circumstances require.
29. **Equal Employment Opportunity.** Each bidder agrees to comply with all applicable laws regarding equal employment opportunity and nondiscrimination.
30. **Authority to Bind.** The undersigned individual states that s/he has authority to bind Seller to this Agreement, that s/he has read and understands the terms of this Agreement, and that Seller agrees to be bound by this Agreement and its incorporated documents.





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**IMPORTANT NOTE: This document must be signed by the proper person as set forth in Instructions, Terms and Conditions for Bidders, paragraph 4. FAILURE TO SUBMIT PROPERLY AUTHORIZED SIGNATURE MAY RESULT IN YOUR BID BEING REJECTED AS NONRESPONSIVE.**

IN WITNESS WHEREOF, this Agreement has been executed in multiple copies on the dates set forth below to be effective during the period recited above.

Seller Company Name: \_\_\_\_\_

**Sign Here ▶** \_\_\_\_\_

ATTEST:

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_  
Corporate Secretary

Date: \_\_\_\_\_

Company Name/Address [Please Print] \_\_\_\_\_ Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

( ) - ( ) - \_\_\_\_\_  
Telephone Number Fax Number Email Address

**CITY OF TULSA, OKLAHOMA,  
a municipal corporation,**

ATTEST:

By: \_\_\_\_\_  
Mayor

Date: \_\_\_\_\_

\_\_\_\_\_  
City Clerk

APPROVED:

\_\_\_\_\_  
Assistant City Attorney



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**FORM #3**

**INTEREST AFFIDAVIT**

STATE OF \_\_\_\_\_ )

)ss.

COUNTY OF \_\_\_\_\_ )

I, \_\_\_\_\_, of lawful age, being first duly sworn, state that I am the agent authorized by Seller to submit the attached Bid. Affiant further states that no officer or employee of the City of Tulsa either directly or indirectly owns a five percent (5%) interest or more in the Bidder's business or such a percentage that constitutes a controlling interest. Affiant further states that the following officers and/or employees of the City of Tulsa own an interest in the Bidder's business which is less than a controlling interest, either direct or indirect.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

By: \_\_\_\_\_  
Signature

Title: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

Notary Commission Number: \_\_\_\_\_

County & State Where Notarized: \_\_\_\_\_

**The Affidavit must be signed by an authorized agent and notarized**



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FORM #4

NON-COLLUSION AFFIDAVIT

(Required by Oklahoma law, 74 O.S. §85.22-85.25)

STATE OF \_\_\_\_\_ )

)ss.

COUNTY OF \_\_\_\_\_ )

I, \_\_\_\_\_, of lawful age, being first duly sworn, state that:  
(Seller's Authorized Agent)

1. I am the authorized agent of Seller herein for the purposes of certifying facts pertaining to the existence of collusion between and among Bidders and municipal officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the Bid to which this statement is attached.
2. I am fully aware of the facts and circumstances surrounding the making of Seller's Bid to which this statement is attached, and I have been personally and directly involved in the proceedings leading to the submission of such Bid; and
3. Neither the Seller nor anyone subject to the Seller's direction or control has been a party:
  - a. to any collusion among Bidders in restraint of freedom of competition by agreement to Bid at a fixed price or to refrain from Bidding,
  - b. to any collusion with any municipal official or employee as to quantity, quality, or price in the prospective contract, or as to any other terms of such prospective contract, nor
  - c. in any discussions between Bidders and any municipal official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

By: \_\_\_\_\_  
Signature

Title: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

Notary Commission Number: \_\_\_\_\_

County & State Where Notarized: \_\_\_\_\_

**The Affidavit must be signed by an authorized agent and notarized**



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**FORM #5**

**AFFIDAVIT OF CLAIMANT**

STATE OF \_\_\_\_\_ )

)ss.

COUNTY OF \_\_\_\_\_ )

The undersigned person, of lawful age, being first duly sworn on oath, says that all invoices to be submitted pursuant to this agreement with the City of Tulsa will be true and correct. Affiant further states that the work, services or material furnished will be completed or supplied in accordance with the plans, specifications, orders, requests and/or contract furnished or executed by the affiant. Affiant further states that (s)he has made no payment directly or indirectly to any elected official, officer or employee of the City of Tulsa or of any public trust where the City of Tulsa is a beneficiary, of money or any other thing of value to obtain payment of the invoice or procure the contract or purchase order pursuant to which an invoice is submitted. Affiant further certifies that (s)he has complied with all applicable laws regarding equal employment opportunity.

Company: \_\_\_\_\_

Remit to  
Address: \_\_\_\_\_

City, State  
Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

Name (print): \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_

My commission number: \_\_\_\_\_

County and State where notarized: \_\_\_\_\_

**The Affidavit must be signed by an authorized agent and notarized**





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**FORM #6**

**ACKNOWLEDGMENT OF RECEIPT OF ADDENDA/AMENDMENTS**

I hereby acknowledge receipt of the following addenda or amendments, and understand that such addenda or amendments are incorporated into the Bid Packet and will become a part of any resulting contract.

List Date and Title/Number of all addenda or amendments: (Write "None" if applicable).

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**Sign Here ▶**

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_



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**INSTRUCTIONS, TERMS AND CONDITIONS FOR BIDDERS**

1. **PURCHASING AUTHORITY.** City issues this Invitation For Bid pursuant to Tulsa City Charter, Art. XII, §14 and Tulsa Revised Ordinances, Title 6, Ch. 4, the provisions of which are incorporated herein.
2. **DEFINITIONS.** The following terms have the following meanings when used in the documents comprising this Bid Packet.
  - A. **“Acceptance”** with respect to a Bid shall mean the City’s selection of a Bid, and award of a contract to the Bidder/Seller.
  - B. **“Acceptance”** with respect to delivery of Goods and/or Services provided under a Purchase Agreement shall mean City’s written acknowledgement that Seller has satisfactorily provided such Goods and/or Services as required.
  - C. **“Addenda” “Addendum” or “Amendment(s)”** shall mean a clarification, revision, addition, or deletion to this Invitation For Bid by City which shall become a part of the agreement between the parties.
  - D. **“Authorized Agent”** means an agent who is legally authorized to bind the Seller under the law of the State in which the Seller is legally organized. An Authorized Agent must sign all documents in the Bid Packet on behalf of the Seller. Under Oklahoma law, the Authorized Agent for each of the following types of entities is as stated below:
    - **Corporations** – the president, vice president, board chair or board vice chair can sign; others can sign if they have and provide the City with (i) a corporate resolution giving them authority to bind the Seller, and (ii) a recent corporate secretary’s certificate indicating the authority is still valid.
    - **General Partnerships** – any partner can sign to bind all partners.
    - **Limited Partnerships** – the general partner must sign.
    - **Individuals** – no additional authorization is required, but signatures must be witnessed and notarized.
    - **Sole Proprietorship** – the owner can sign. Any other person can sign if s/he provides a recent Power of Attorney, signed by the owner, authorizing him/her to bind the sole proprietorship.
    - **Limited Liability Company (LLC)** – The manager as named in the Operating Agreement can sign. Any person authorized by the Operating Agreement or a member can sign providing the person submits a copy of the authorization with a certificate of the members indicating the authorization is still valid.Entities organized in States other than Oklahoma must follow the law of the State in which they are organized.
  - E. **“Bid”** means the Seller’s offer to provide the requested Goods and/or Services set forth in Exhibit A and any additional materials or information the Seller chooses to submit to support the Bid.
  - F. **“Bidder”** means the legal entity which submits a Bid for consideration by City in accordance with the Invitation For Bid.
  - G. **“Bid Packet”** consists of the following documents (1) the Notice of Invitation for Bid, (2) the Summary Sheet, (3) Form #1, (4) Form #2, (5) Form #3, (6) Form #4, (7) Form #5, (8) Form #6, (9) the Instructions, Terms and Conditions for Bidders, (10) Special Requirements, (11) Technical Specifications, and (12) Exhibit A.
  - H. **“Bid Submission Date”** shall mean the last date by which the City will accept Bids for an Invitation For Bid.
  - I. **“City”** shall mean the City of Tulsa, Oklahoma.
  - J. **“Days”** shall mean calendar days unless specified otherwise.
  - K. **“Primary Seller”** shall mean the Seller whose Bid City selected as the principal supplier of the Goods and/or Services required under this Agreement.
  - L. **“Project Buyer”** shall mean the City’s employee assigned to serve as the contact person for Bidders/Sellers responding to Invitations For Bid or completing contracts herein.
  - M. **“Purchasing Division or Office”** shall mean the City of Tulsa’s Purchasing Division, located at 175 East 2<sup>nd</sup> Street, Suite 865, Tulsa, Oklahoma 74103
  - N. **“Secondary Seller”** shall mean the Seller whose Bid City selected as a back-up supplier in the event the Primary Seller is unable to provide all the Goods and/or Services required.



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- O. “**Seller**” shall mean the Bidder whose Bid City selected and awarded a contract.
- P. “**You**” or “**Your**” shall mean the Bidder responding to this Invitation For Bid or the Seller whose Bid the City selected and awarded a contract.
- Q. “**Website**” shall mean the City of Tulsa’s website for the Purchasing Division: [www.cityoftulsapurchasing.org](http://www.cityoftulsapurchasing.org).
3. **QUESTIONS REGARDING INVITATION FOR BID.** Questions regarding any portion of this Invitation For Bid must be submitted in writing (sent by mail, fax or email) to the Project Buyer indicated on the Summary Sheet herein. You should submit questions as early as possible and preferably before the pre-Bid conference. Questions and concerns must be received no later than seven (7) days prior to the Bid Packet due date. Any oral responses to questions before the contract is awarded are not binding on City. At City’s discretion, any information or clarification made to you may be communicated to other Bidders that notified City of their intent to Bid if appropriate to ensure fairness in the process for all Bidders. You must not discuss questions regarding the Invitation For Bid with anyone other than the Project Buyer or other Purchasing Division staff or your Bid may be disqualified, any contract recommendation or Acceptance may be rescinded, or any contract may be terminated and delivered Goods returned at your expense and City refunded any payments made.
4. **ORAL STATEMENTS.** No oral statements by any person shall modify or otherwise affect the provisions of this Invitation For Bid and/or any contract resulting therefrom. All modifications, addenda or amendments must be made in writing by City’s Purchasing Division.
5. **EXAMINATION BY BIDDERS.** You must examine the specifications, drawings, schedules, special instructions and the documents in this Bid Packet prior to submitting any Bid. Failure to examine such documents and any errors made in the preparation of such Bid are at your own risk.
6. **ADDENDA OR AMENDMENTS TO INVITATIONS FOR BID.** City may addend or amend its Invitation For Bid at any time before the Bid Submission Date, and any such addenda or amendments shall become a part of this Agreement. City will attempt to send a notification (by fax or email) of any addenda or amendments to those Bidders who have responded to the City’s Project Buyer of their intent to respond to the Invitation For Bid. However, it is your responsibility to inquire about any addenda or amendments, which will be available from the City’s Purchasing Division and its website. You must acknowledge receipt of any addenda or amendments by signing and returning the Acknowledgment of Receipt of Addenda/Amendments form and attaching it to this Invitation For Bid with your Bid. City may reject any Bid that fails to acknowledge any addenda or amendments.
7. **SPECIFICATIONS/DESCRIPTIVE TERMS/SUBSTITUTIONS.** Unless the term “no substitute” is used, the City’s references to a brand name, manufacturer, make, or catalogue designation in describing an item in this Bid Packet does not restrict you to that brand or model, etc. The City may make such references to indicate the type, character, quality and/or performance equivalent of the item desired. However, you are required to furnish the exact item described in your Bid unless a proposed substitution is clearly noted and described in the Bid.
- The parties recognize that technology may change during the period Bids are solicited and subsequent contracts are performed. Therefore, City may at its option accept changes or substitutions to the specifications for Goods of equal or better capabilities at no additional cost to City. In the case of existing contracts, you shall give City 30 days advance notice in writing of any such proposed changes or substitutions. City shall determine whether such items are acceptable as well as any proposed substitute.
- All Goods shall be new unless otherwise so stated in the Bid. Any unsolicited alternate Bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of this Bid, may be considered non-responsive and the Bid rejected.
8. **PRICES/DISCOUNTS.** Prices shall be stated in the units and quantity specified in the Bid Packet documents. In case of discrepancy in computing the Bid amount, you guarantee unit prices to be correct and such unit prices will govern. Prices shall include transportation, delivery, packing and container charges, prepaid by you to the destination specified in the Specifications. Discounts for prompt payment will not be considered in Bid evaluations, unless otherwise specified. However, offered discounts for prompt payment will be taken if payment is made within the discount period.
9. **DELIVERY.** All prices quoted shall be based on delivery F.O.B. Tulsa, Oklahoma or to any other points as may be designated in the Technical Specifications, with all charges prepaid by Seller to the actual point of delivery. Bids must state the number of days required for delivery under normal conditions.



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10. **TAXES.** City is exempt from federal excise and state sales taxes and such taxes shall not be included in the Bid prices.
11. **BID SUBMISSION.** The Bid Packet forms must be prepared in the name of Bidder and properly executed by an Authorized Agent with full knowledge and acceptance of all provisions, in ink and notarized. Bids may not be changed or withdrawn after the deadline for submitting Bids (the "Bid Submission Date"). A Bid is an irrevocable offer and when accepted by City (as evidenced by City's execution of the Purchase Agreement) shall constitute a firm contract.
- A. BIDS MUST BE SUBMITTED ONLY ON THE BID PACKET FORMS AND SIGNED BY AN AUTHORIZED AGENT. THE ENTIRE BID PACKET MUST BE RETURNED AS RECEIVED WITH ALL FORMS COMPLETED. YOU MAY ATTACH, AFTER EXHIBIT A, ANY DOCUMENTS NECESSARY TO COMPLETELY AND ACCURATELY RESPOND TO THE REQUEST. BIDS MUST BE IN STRICT CONFORMANCE WITH ALL INSTRUCTIONS, FORMS, AND SPECIFICATIONS CONTAINED IN THIS BID PACKET.**
- B.** Sealed Bids may be either mailed or delivered, but must be received at:  
City of Tulsa – Office of City Clerk  
175 East 2<sup>nd</sup> Street, Suite 260  
Tulsa, Oklahoma 74103
- C.** Bids will be accepted at the above address from 8:00 a.m. to 5:00 p.m., Monday thru Friday except for City holidays. City is not responsible for the failure of Bids to be received by the City Clerk's Office prior to the due date and time.
- D.** Late Bids will be **rejected**. The Purchasing Agent, in his sole discretion, may make exceptions only for the following reasons:
1. City Hall closed for business for part or all of the day on the date the response was due;
  2. If the City deems it appropriate due to large-scale disruptions in the transportation industry that may have prevented delivery as required.
  3. If documented weather conditions caused the late delivery. You must provide documentation of such weather to the satisfaction of the Purchasing Agent.
- E.** **City will not accept faxed Bids**, nor will City accept Bids faxed to the City Clerk, Purchasing Division or Office, or any other City office or employee.
- F.** City is not responsible for any of your costs in preparing the Bid response, attending a pre-Bid conference, or any other costs you incur, regardless of whether the Bid is submitted, accepted or rejected.
- G.** All Bids must be securely sealed and plainly marked with the Bid Number, Bid Title, and Bid Opening Date on the lower left corner of the outside of the Bid envelope. Your name and address must also be clearly indicated on the envelope.
- H.** If submitting multiple options ("Option(s)") to the Invitation for Bid, each will be considered separately requiring each response to be complete and accurate. Each Option must be clearly marked as Option 1 of 3, Option 2 of 3, etc.
- I.** The number of copies you must submit is listed on the Summary Sheet in the front of the Bid Packet. However, at a minimum, there will be (1) an original, clearly labeled as such in 1" red letters on the Bid Packet cover page, and (2) a copy for City's Purchasing Division, clearly labeled as such in 1" red letters on the Bid Packet cover page. If binders are used, they must also be labeled.
- J.** Multiple boxes or envelopes are permissible, but must not weigh more than 50 pounds. Each box must be labeled as instructed herein and numbered (i.e., Box 1 of 3; Box 2 of 3). **The original must be in Box #1.**
- K.** The original and all copies (either paper or electronic) must be identical in all respects. Bids must be completed and submitted in ink or typewritten. Bids written in pencil will be rejected. Any corrections to the Bids must be initialed in ink.
12. **BID REJECTION OR WITHDRAWAL.**
- A.** City may reject any or all Bids, in whole or in part.
- B. A Bid may be rejected if it contains additional terms, conditions, or agreements that modify the requirements of this Invitation For Bid or attempts to limit Bidder's liability to the City.**
- C.** A Bid may be rejected if Bidder is currently in default to City on any other contract or has an outstanding indebtedness of any kind to City.
- D.** City reserves the right to waive any formalities or minor irregularities, defects, or errors in Bids.
- E.** Bid withdrawal may only be accomplished by an Authorized Agent requesting the withdrawal in person at the Clerk's office before the City's close of business on the Bid Submission Date.
13. **BID RESULTS.** A tabulation of Bids received will be made available on the City's Purchasing Division website generally within 5 working days after the Bid Opening Date. After a contract award is recommended to the Mayor, a copy of the Bid summary will be available in the City Clerk's Office. Bid results are not provided in response to telephone or email inquiries.
14. **PURCHASE ORDER.** In the event that the successful Bid is for an amount less than One Hundred Thousand Dollars (\$100,000), and it is determined by the City to be in the best interests of the City, the City, in its sole discretion, may issue a Purchase Order rather than execute the Purchase Agreement to purchase the Goods. If a Purchase Order is issued, however, the terms of the Bid





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Packet documents, including the Purchase Agreement, will govern the transaction and be enforceable by the City and Bidder/Seller.

- 15. **CONTRACT AWARD.** If a contract is awarded, it will be awarded to the Bidder that City determines is the lowest secure Bidder meeting specifications. Such Bid analysis will consider price and other factors, such as Bidder qualifications and financial ability to perform the contract, as well as operating costs, delivery time, maintenance requirements, performance data, history of contract relations with City, and guarantees of materials and equipment, as applicable. A complete list of the factors that are considered is set forth in Tulsa Revised Ordinances, Title 6, Ch. 4, §406E. Unless otherwise noted, City reserves the right to award a contract by item, one or more groups of items, or all the items in the Bid, whichever is in City's best interest.
- 16. **IRS FORM W-9.** If City selects your Bid and awards a contract to you, you will have ten (10) days from notification of the award to provide City with your complete IRS Form W-9.
- 17. **NOTICE TO PROCEED.** If City accepts your Bid and executes the Purchase Agreement, you shall not commence work until authorized to do so by the Purchasing Agent or his representative. Receipt of a Purchase Order from the City is notice to proceed.
- 18. **PAYMENTS.** Invoices should be e-mailed to City of Tulsa – Accounts Payable at:

[apinvoices@cityoftulsa.org](mailto:apinvoices@cityoftulsa.org)

Payment will be made Net 30 days after receipt of a properly submitted invoice or the City's Acceptance of the Goods and/or Services, whichever is later, unless City decides to take advantage of any prompt payment discount included in the Bid.

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**SPECIAL REQUIREMENTS**

**1. Irrevocable Offer Period.** You understand and acknowledge that the offer submitted as your Bid is firm and irrevocable from the City's close of business on the Bid Submission Date until 365 days after the Bid Opening Date.

**2. General Liability/Indemnification.** You shall hold City harmless for any loss, damage or claims arising from or related to your performance of the Purchase Agreement. You must exercise all reasonable and customary precautions to prevent any harm or loss to all persons and property related to the Purchase Agreement. You agree to indemnify and hold the City harmless from all claims, demands, causes of action or suits of whatever nature arising out of the Goods, Services, labor, or materials furnished by you or your subcontractors under the provisions of the Bid Packet documents.

**3. Liens.** Pursuant to City's Charter (Art. XII, §5), no lien of any kind shall exist against any property of City. Bidder shall deliver all goods to City free and clear of liens. Delivery by Seller to City of goods which are subject to liens under the Purchase Agreement shall be a material breach of the Purchase Agreement and all damages and costs incurred by City as a result of the existence of such liens shall be paid to City by Seller. At City's option, City may return such goods to Seller and Seller shall pay the cost of returning such goods and reimburse City for any payments made for such goods.

**4. Insurance.** If checked "Yes," the following insurance is required: **Yes: X No:      Also, see**  
**Technical Specifications for Product Liability Insurance.**

Seller and its subcontractors must obtain at Seller's expense and keep in effect during the term of the Purchase Agreement, including any renewal periods, policies of General Liability insurance in the minimum amounts set forth below and Workers' Compensation insurance in the statutory limits required by law.

Personal injury, each person	\$ 175,000.00
Property damage, each person	\$ 25,000.00
Auto Liability, each occurrence	\$ 1,000,000.00
Personal injury and property damage, each occurrence	\$ 1,000,000.00
Workers' Compensation	(Statutory limits)

**SELLER'S INSURER MUST BE AUTHORIZED TO TRANSACT BUSINESS IN THE STATE OF OKLAHOMA.**

You will have 10 days after notification that your Bid was selected for contract award by City to provide proof of such coverage by providing the assigned Project Buyer shown on the Summary Sheet of this Bid Packet with a Certificate of Insurance. The Certificate of Insurance must be completed with the following information:

- A. Your name
- B. Insurer's name and address
- C. Policy number
- D. Liability coverage and amounts
- E. Commencement and expiration dates
- F. Signature of authorized agent of insurer
- G. Invitation for Bid number

The Seller shall not cause any required insurance policy to be cancelled or to permit it to lapse. It is the responsibility of Seller to notify City of any change in coverage or insurer by providing City with an updated Certificate of Liability Insurance. Failure of Seller to comply with the insurance requirements herein may be deemed a breach of the Purchase Agreement. Further, a Seller who fails to keep required insurance policies in effect may be deemed to be ineligible to bid on future projects, ineligible to respond to invitations for bid, and/or ineligible to engage in any new purchase agreements.

**5. Bonding.**

**A. Bid Bond.** If the box is checked "Yes," the Bid Bond is required:

Yes:      No: X

**B. Performance Bond.** If the box is checked "Yes," the Performance Bond is required: The Performance Bond shall be in



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the amount of 100% of the bid price.

Yes: X

No: \_\_\_\_\_

6. **References.** If the box is checked "Yes," References are required: **Upon Request.**

Yes: \_\_\_\_\_

No: \_\_\_\_\_

For each reference, the following information must be included: Company Name, Contact Name, Address, Phone Number, E-Mail Address, and the nature of their relationship with the Bidder.

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**TECHNICAL SPECIFICATIONS**

**1.00 GENERAL**

1.01 It is the intent of these specifications for the Tulsa Fire Department to purchase four (4) or more nominal 100-ft long aerial device with tank water, fire pump, fire hose and related equipment.

It is also the intent of the Fire Department to purchase additional apparatus from the awarded Seller. Purchase(s) of additional apparatus will conform to terms as established by "The Purchase Agreement", and by reference therein.

1.02 Assembly of the major components, and apparatus itself, will be assembled in the United States.

1.03 Parts and assemblies used in the construction of the apparatus should be SAE. Items known to be metric will be identified by the Bidder.

1.04 Each bid response will be evaluated for compliance to the specifications. The lowest bid meeting specification will be recommended for award.

1.05 The lowest bid meeting specifications will be determined upon a point evaluation process whereby each paragraph is assigned a pre-determined number of points.

1.06 The lowest bid meeting specifications will be determined upon a point evaluation process whereby each paragraph is awarded points for compliance. The bid amount is then divided by the total number of awarded points to determine the cost per point. The cost per point is then multiplied by the total possible points to determine a bid evaluation number. The lowest bid evaluation number will be considered the lowest bid meeting specification.

- Bid Price / Total awarded points = Cost per point
- Cost per point X Total possible points = Bid evaluation number
- The lowest bid evaluation number will be considered the lowest bid meeting specification

1.07 The response to the bid needs to be provided separately from the specifications and should address each paragraph of the specifications. The response should include as much information and detail as possible.

1.08 Items or issues that are not specifically described in the Bidder's response may be considered absent, non-responsive or non-compliant to these specifications and will receive no points for the applicable paragraph.

1.09 The sole use of the term(s), phrase or similar non-descriptive response of "meets" without additional information or detail will be considered non-responsive.

1.10 Exceptions, deviations, or variances, regardless of the real or perceived variance, will be provided on a separate document with disclosure and description of the exception, deviation or variance.

1.11 The Tulsa Fire Department retains the sole right in determining compliance to the specifications where the bid response includes Bidder provided exceptions, alternative options or is otherwise subjective as compliant to these specifications.



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- 1.12 The bid will include all applicable literature, details, and references to describe and demonstrate compliance to the specifications. The Fire Department will not use or consider information obtained through web based references, searches or links to various web pages. The absence of provided information or the use of links and references from the web will result in the applicable item or issue considered as non-responsive or non-compliant and will not be awarded any credit or points.
- 1.13 The bid includes fire hose and loose equipment that may be shipped directly to the Tulsa Fire Department prior to delivery of the apparatus.
- 1.14 The apparatus and all loose items and products will be delivered to Tulsa Fire Department, 1790 Newblock Park Drive, Tulsa, OK 74127. The facility has a fork truck and is able to unload delivery vehicles.
- 1.15 Prior to issuance of a purchase order or contract, the Successful Bidder will provide a performance bond in the amount of 100% of the bid price. The performance bond will remain in effect until acceptance of the delivered apparatus.
- 1.16 Payment for the apparatus and loose equipment may be provided with receipt of invoices at various stages of the construction of the apparatus or delivery of hose, tools and other loose equipment.
- 1.17 Invoicing and payment for the apparatus and related equipment may be accommodated at established benchmarks. The combined invoices must not exceed 90% of the bid price prior to final acceptance of the delivered apparatus and goods. The established benchmarks and limitations will consist of the following table:

<u>Benchmark</u>	<u>Criteria</u>	<u>Maximum % of bid price</u>
<u>Delivery of loose equipment</u>	<u>Delivery of the loose equipment identified in Chapter 15 of the specifications to the Tulsa Fire Department.</u>	<u>The invoice is to be no greater than 15% of the bid price.</u>
<u>Delivery or completion of the cab and chassis to the manufacturer of the fire apparatus</u>	<u>With physical confirmation by a Tulsa Fire Department representative, the cab and chassis is physically able to maneuver under its own power.</u>	<u>The invoice is to be no greater than 15% of the bid price.</u>
<u>Delivery or completion of the aerial device to the manufacturer of the fire apparatus</u>	<u>With physical confirmation by a Tulsa Fire Department representative, the aerial device is being prepared for attachment to the chassis.</u>	<u>The invoice is to be no greater than 15% of the bid price.</u>
<u>Mid-construction inspection of the fire apparatus.</u>	<u>Following the mid-construction inspection of the fire apparatus where the cab, chassis, aerial device, fire pump, water tank, generator and fire body are all being interfaced with one another.</u>	<u>The invoice is to be no greater than 25% of the bid price.</u>
<u>Final factory inspection of the fire apparatus.</u>	<u>Following the final factory inspection of the fire apparatus that is demonstrated to perform as specified and intended with only minor details needing to be addressed.</u>	<u>The invoice is to be no greater than 20% of the bid price.</u>
<u>Delivery and acceptance of the fire apparatus to</u>	<u>Final inspection and acceptance of the fire apparatus at the Tulsa Fire Department, 1790 Newblock Park Drive,</u>	<u>Final payment of no less than</u>





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the Tulsa Fire  
Department.

Tulsa, OK 74127.

10% of the bid  
price.

- 1.18 For the purpose of efficiency, the Manufacturer is encouraged to provide weekly photographs of the apparatus as it is being constructed.
- 1.19 Following any final changes or modifications at the manufacturing facility, the completed apparatus will be driven to the Tulsa Fire Department, 1790 Newblock Park Drive, Tulsa, OK 74127 under its own power. The Seller will be responsible for drivers, fuel, permits, repair of any damage or other related expenses incurred in transport during the delivery process.
- 1.20 With the exception of final programming of the radio and the Utility Rocket, the fire apparatus will be delivered to the Tulsa Fire Department as a complete and finished vehicle. This is to include the installation of mounted equipment brackets that will be specifically detailed and described at the preconstruction meeting.
- 1.21 The Tulsa Fire Department will recognize the apparatus as being delivered when apparatus has no additional work to be conducted and is offered to the Fire Department as complete, finished, and ready for an acceptance inspection. The vehicle will be presented to the Tulsa Fire Department with:
- All fluid levels will be full and within operating ranges for fuel, motor oil, coolant, power steering, windshield washer fluid, transmission fluid, rear axle, transfer case for the pump, hydraulics for the aerial device, and hydraulics for the generator.
  - Properly operating air conditioning system.
  - Proper front end alignment.
  - Properly adjusted and operating suspension system.
  - Properly inflated tires.
  - Properly operating electrical system including the load management, lighting, and audible-visual warning devices.
  - Presentation of applicable literature, manuals, and documents.
- 1.22 With the delivery of the apparatus, the Tulsa Fire Department will conduct an acceptance inspection of the apparatus as described in NFPA 1911 *Standard for the Inspection, Maintenance, Testing and Retirement of In-Service Automotive Fire Apparatus* and section 4.18 of NFPA 1901 *Standard for Automotive Fire Apparatus*. The acceptance inspection will also serve as a review for compliance to the specifications, actual performance of the apparatus while driving, operation of the aerial device, fire pump and generator.
- 1.23 The Fire Department will not accept the apparatus until all known deficiencies identified during the acceptance inspection have been resolved. This will include the secured mounting of equipment brackets as detailed and described at the pre-construction meeting.
- 1.24 The Seller will deliver the Manufacturer's Statement of Origin with the delivery of the apparatus.
- 1.25 The Fire Department will document and inform the Seller of the date that the apparatus is placed into service.
- 1.26 The Seller will identify the expected date of delivery of each of the apparatus but will not exceed 425 calendar days from the date of the issued purchase order or contract to construct.



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- 1.27 Should a performance failure occur, it will be the responsibility of the Seller to immediately notify the City of Tulsa in writing and submit proof of the circumstances for the delay or inability to deliver the specified apparatus. The Seller will then negotiate a new delivery schedule that will not exceed 90 days. Failure to negotiate a new delivery date or failure to successfully deliver with the additional period of time will result in the City of Tulsa exercising the performance bond.
- 1.28 The City of Tulsa will schedule two dates for pre-bid meetings. Each Bidder wishing to participate in the bidding process will be required to have a representative attend one of the two meetings. It is the intent of this meeting to review the bidding requirements and technical specifications. Any changes/additions/deletions to specifications as determined by the pre-bid meeting(s) will go out in addendum for to all known Bidders.
- 1.29 The specifications herein have been divided into the following sections:
- Chapter 1 GENERAL
  - Chapter 2 ADMINISTRATIVE
  - Chapter 3 CHASSIS
  - Chapter 4 CAB
  - Chapter 5 ELECTRICAL FOR CAB AND CHASSIS
  - Chapter 6 FIRE BODY
  - Chapter 7 ELECTRICAL FOR FIRE BODY
  - Chapter 8 PUMP, PLUMBING
  - Chapter 9 WATER AND FOAM TANK
  - Chapter 10 GENERATOR, HYDRAULIC POWER, A/C POWER AND LIGHTING
  - Chapter 11 AERIAL DEVICE
  - Chapter 12 AUDIBLE AND VISUAL WARNING DEVICES
  - Chapter 13 ELECTRONICS AND COMMUNICATIONS
  - Chapter 14 PAINT AND FINISH
  - Chapter 15 LOOSE EQUIPMENT
  - Chapter 16 OPTIONS
  - Chapter 17 ANNEX
  - Chapter 18 ADDENDA
- 1.30 A table will be provided in the annex that describes the type and quantity of items anticipated to be carried by the apparatus to provide additional information on what is expected to be carried on the apparatus by the Tulsa Fire Department. The table, or NFPA 1901 equipment list, whichever is greater, should be used for determining the applicable loads. The table predicts the complement of equipment that is expected to be carried on the apparatus to be approximately 4,344.95 pounds.
- 1.31 The actual weight of the fire apparatus with a firefighter assigned to each seat, full water tank, full foam tank, booster reels filled with water, wet fire pump, full complement of hose and equipment as described in the section 17.01 of the annex shall not exceed the weight ratings of the front axle and suspension or rear axle(s) and suspension. NO EXCEPTION

Line	Description	Possible Points	Awarded Points To be filled out by Fire Dept.



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<b>2.00</b>	<b>ADMINISTRATIVE</b>	<b>0</b>	
2.01	The completed apparatus will be designed and construction in compliance to the current edition of NFPA 1901 Standard for Automotive Fire Apparatus.	10	
2.02	The bidder will disclose any known deficiencies or variances between NFPA 1901 and the specifications herein or the bid response.	10	
2.03	The apparatus will be designed to meet all State of Oklahoma and Federal laws and regulations governing the design and operation of motorized vehicles.	10	
2.04	The Bidder will provide a copy of their license to sell motorized vehicles within the State of Oklahoma.	10	
2.05	The bid will confirm that all components used in the manufacturing and assembly of the apparatus will be new, unused, first line quality and representative of the manufacturer's latest methods and techniques.	10	
2.06	With the exception of the frame rails, cab, fire body, trim and aerial device, the bid will identify systems and components that are proprietary to the bidder and not available to other fire apparatus manufacturers.	6	
2.07	The bid will confirm that the manufacturer will design and construct the apparatus so as to provide access to all parts and components that require periodic inspection, lubrication, adjustment or repair. This may include, but will not be limited to, the creation of removable inspection panels.	3	
2.08	The bidder will disclose in the bid the existence of any special or unique tools that are required to inspect or service the completed apparatus.	4	
2.09	<p>The awarded Bidder will schedule with the Tulsa Fire Department the following meetings and inspections at the manufacturing facility. The Bidder will provide the travel and lodging for each of these meetings for each of the apparatus and/or their major components. Where possible, the meetings and inspections may be combined.</p> <ul style="list-style-type: none"> <li>a) Preconstruction meeting to review and make any needed changes to the specifications and/or construction documents for the apparatus prior to its actual manufacture or assembly. This one meeting will address all three apparatus and will include three (3) Tulsa Fire Department representatives for no less than two full days to address all three apparatus.</li> <li>b) Inspection of the aerial device when it is delivered to the manufacturing facility in preparation of being mounted onto the chassis. This meeting will include one (1) Tulsa Fire Department representative for no less than four hours per apparatus.</li> <li>c) Inspection of the chassis when it is delivered to the manufacturing facility. This meeting will include one (1) Tulsa Fire Department representative for no less than four hours per apparatus.</li> <li>d) Mid-construction inspection of the apparatus when the fire pump, water tank, generator, aerial device and fire body have been mounted onto the chassis. The inspection is intended to illustrate the interface of all of the related components on the chassis and to allow changes before the truck has been completed with paint, trim and other finishing items. This inspection will include three (3) Tulsa Fire Department representatives for no less than one day per apparatus.</li> <li>e) Final inspection of the apparatus when assembly has been finished and operational testing of the various components and systems are imminent, underway or completed. The apparatus is nearly ready to leave the manufacturing facility. This inspection will include three (3)</li> </ul>	15	



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	Tulsa Fire Department representatives for no less than one full day for each apparatus.																										
2.10	The Bidder will provide photographs of the apparatus throughout the construction process. The photos will be acquired and made available at a frequency no less than weekly.	3																									
2.11	<p>The Bidder will provide documentation of all applicable certifications conducted by an independent third-party described and required by NFPA 1901. These documents will be presented at the final inspection and will include, but may not be limited to;</p> <ul style="list-style-type: none"> <li>a) Aerial device inspection and test</li> <li>b) Fire pump hydrostatic test, suction capacity, inspection and test</li> <li>c) Foam proportioning system inspection and test</li> <li>d) Water and foam tank capacity</li> <li>e) Generator and line voltage system inspection and test</li> <li>f) Low voltage electrical systems and warning devices with actual the measurement technique</li> <li>g) Visual warning system</li> <li>h) Audible warning system</li> <li>i) Slip resistance of walking surfaces</li> <li>j) Motor certification for use in the selected cab and chassis</li> </ul>	15																									
2.12	<p>The Seller will provide at the time of delivery, the following:</p> <table border="1" style="width: 100%;"> <tr> <td>a)</td> <td>Two hard copies illustrating the structural design of the fire body</td> </tr> <tr> <td>b)</td> <td>Two hard copies and two CDs operation or training manual describing the apparatus and its related systems.</td> </tr> <tr> <td>c)</td> <td>Two hard copies, or CD, of listed parts including their description. This should include a cross reference for aftermarket parts.</td> </tr> <tr> <td>d)</td> <td>Two hard copies, or CD, of repair or service manual describing lubrication charts, engineering drawings and information needed for the maintenance and repair of the apparatus and related systems.</td> </tr> <tr> <td>e)</td> <td>Two hard copies, or CD, of electrical diagrams illustrating the connectivity and routing of electrical and data systems.</td> </tr> <tr> <td>f)</td> <td>Service and operation manuals for all ancillary components or systems.</td> </tr> <tr> <td>g)</td> <td>Two pump manuals.</td> </tr> <tr> <td>h)</td> <td>Two aerial manuals.</td> </tr> <tr> <td>i)</td> <td>One CD of the Vehicle Technician training program curriculum.</td> </tr> <tr> <td>j)</td> <td>The Seller will provide operational training to Tulsa Fire</td> </tr> <tr> <td>j)</td> <td>Department representatives for three consecutive days in Tulsa, Oklahoma. This will include Training Officers and Company personnel.</td> </tr> <tr> <td>k)</td> <td>The Seller will provide additional technical maintenance training for Emergency Vehicle Technicians, either in Tulsa or at the manufacturing facility. All costs of the training, including any travel/lodging costs for instructors or City of Tulsa Technicians, will be paid by the Seller. The training will be specifically address the maintenance needs of the finished apparatus and related systems. Two offerings will be provided to allow all Tulsa Technicians to attend the training in Tulsa, Ok or at a remote location at the expense of the Seller.</td> </tr> </table>	a)	Two hard copies illustrating the structural design of the fire body	b)	Two hard copies and two CDs operation or training manual describing the apparatus and its related systems.	c)	Two hard copies, or CD, of listed parts including their description. This should include a cross reference for aftermarket parts.	d)	Two hard copies, or CD, of repair or service manual describing lubrication charts, engineering drawings and information needed for the maintenance and repair of the apparatus and related systems.	e)	Two hard copies, or CD, of electrical diagrams illustrating the connectivity and routing of electrical and data systems.	f)	Service and operation manuals for all ancillary components or systems.	g)	Two pump manuals.	h)	Two aerial manuals.	i)	One CD of the Vehicle Technician training program curriculum.	j)	The Seller will provide operational training to Tulsa Fire	j)	Department representatives for three consecutive days in Tulsa, Oklahoma. This will include Training Officers and Company personnel.	k)	The Seller will provide additional technical maintenance training for Emergency Vehicle Technicians, either in Tulsa or at the manufacturing facility. All costs of the training, including any travel/lodging costs for instructors or City of Tulsa Technicians, will be paid by the Seller. The training will be specifically address the maintenance needs of the finished apparatus and related systems. Two offerings will be provided to allow all Tulsa Technicians to attend the training in Tulsa, Ok or at a remote location at the expense of the Seller.	15	
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2.13	The Successful Bidder will provide a performance bond for each apparatus in the amount of 100 percent of the bid price for each apparatus including provided equipment. The performance bond will remain in effect until the date of acceptance for the apparatus and related equipment.	10																																																																																																				
2.14	The Fire Department will inform the Seller when the apparatus is placed into service. This date, no greater than 60 days from date of acceptance, will represent the date that warranty periods will begin.	5																																																																																																				
2.15	<p>The Seller will provide the following warranties for the major components of the apparatus. Warranty information will be provided at the time of the pre-bid conference. Warranty documents will be completed at the time of apparatus acceptance which will represent the beginning of the warranty periods.</p> <table border="1" data-bbox="224 640 1226 1959"> <thead> <tr> <th data-bbox="224 640 305 682"></th> <th data-bbox="305 640 950 682">Description</th> <th data-bbox="950 640 1226 682">Minimum Term</th> </tr> </thead> <tbody> <tr><td>a)</td><td>Entire apparatus, bumper to bumper</td><td>Two years</td></tr> <tr><td>b)</td><td>Paint and striping</td><td>Five years</td></tr> <tr><td>c)</td><td>Chassis cab corrosion and metal cracking</td><td>Ten years</td></tr> <tr><td>d)</td><td>Fire body corrosion and metal cracking</td><td>Ten years</td></tr> <tr><td>e)</td><td>Front axle</td><td>Three years</td></tr> <tr><td>f)</td><td>Front suspension</td><td>Three years</td></tr> <tr><td>g)</td><td>Rear axle</td><td>Two years</td></tr> <tr><td>h)</td><td>Rear Suspension</td><td>Four years</td></tr> <tr><td>i)</td><td>Chassis frame rails and frame rail liners for cracking, warping, or other structural damage</td><td>Life of the apparatus</td></tr> <tr><td>j)</td><td>Chassis frame cross-members and fasteners for cracking, warping or other structural damage</td><td>Life of the apparatus</td></tr> <tr><td>k)</td><td>Torque box, stabilizer system, fasteners and fastener components between the aerial device and the chassis frame for cracking, warping, or other structural damage</td><td>Twenty years</td></tr> <tr><td>l)</td><td>Aerial device structural integrity</td><td>Twenty years</td></tr> <tr><td>m)</td><td>Aerial device hydraulic system</td><td>Five years</td></tr> <tr><td>n)</td><td>Aerial device electrical and hydraulic controls</td><td>Five years</td></tr> <tr><td>o)</td><td>Aerial waterway</td><td>Ten years</td></tr> <tr><td>p)</td><td>Engine</td><td>Five years</td></tr> <tr><td>q)</td><td>Transmission</td><td>Five years</td></tr> <tr><td>r)</td><td>Transmission Cooler</td><td>Five years</td></tr> <tr><td>s)</td><td>Alternator</td><td>Three years</td></tr> <tr><td>t)</td><td>Starter</td><td>Three years</td></tr> <tr><td>u)</td><td>WABCO ABS, ATC and Stability Control</td><td>Three years</td></tr> <tr><td>v)</td><td>Hale fire pump, parts and labor</td><td>Five years</td></tr> <tr><td>x)</td><td>Stainless steel manifold and plumbing</td><td>Ten years</td></tr> <tr><td>y)</td><td>Liquid filled pressure gauges</td><td>Three years</td></tr> <tr><td>z)</td><td>Foam proportioning system</td><td>Two years</td></tr> <tr><td>aa)</td><td>Electronics for fire pump and foam system</td><td>Two years</td></tr> <tr><td>ab)</td><td>Hydraulic pump and generator</td><td>Two years</td></tr> <tr><td>ac)</td><td>Multiplex electrical system components</td><td>Five years</td></tr> <tr><td>ad)</td><td>Whelen warning lights</td><td>Five years</td></tr> <tr><td>ae)</td><td>Headset intercommunication system</td><td>Two years</td></tr> <tr><td>af)</td><td>Amdor roll up door</td><td>Life of apparatus</td></tr> <tr><td>ag)</td><td>Compartment lighting</td><td>Ten years</td></tr> </tbody> </table>		Description	Minimum Term	a)	Entire apparatus, bumper to bumper	Two years	b)	Paint and striping	Five years	c)	Chassis cab corrosion and metal cracking	Ten years	d)	Fire body corrosion and metal cracking	Ten years	e)	Front axle	Three years	f)	Front suspension	Three years	g)	Rear axle	Two years	h)	Rear Suspension	Four years	i)	Chassis frame rails and frame rail liners for cracking, warping, or other structural damage	Life of the apparatus	j)	Chassis frame cross-members and fasteners for cracking, warping or other structural damage	Life of the apparatus	k)	Torque box, stabilizer system, fasteners and fastener components between the aerial device and the chassis frame for cracking, warping, or other structural damage	Twenty years	l)	Aerial device structural integrity	Twenty years	m)	Aerial device hydraulic system	Five years	n)	Aerial device electrical and hydraulic controls	Five years	o)	Aerial waterway	Ten years	p)	Engine	Five years	q)	Transmission	Five years	r)	Transmission Cooler	Five years	s)	Alternator	Three years	t)	Starter	Three years	u)	WABCO ABS, ATC and Stability Control	Three years	v)	Hale fire pump, parts and labor	Five years	x)	Stainless steel manifold and plumbing	Ten years	y)	Liquid filled pressure gauges	Three years	z)	Foam proportioning system	Two years	aa)	Electronics for fire pump and foam system	Two years	ab)	Hydraulic pump and generator	Two years	ac)	Multiplex electrical system components	Five years	ad)	Whelen warning lights	Five years	ae)	Headset intercommunication system	Two years	af)	Amdor roll up door	Life of apparatus	ag)	Compartment lighting	Ten years	20	
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2.16	The Manufacturer of the completed apparatus will provide documentation demonstrating the existence of no less than \$15 million dollars of product liability insurance.	10	
2.17	The Tulsa Fire Department expects the Seller to have access to an adequate stock of replacement parts available to service the apparatus and to make delivery of the parts within two business days from the time of notification.	4	
2.18	Should the apparatus require warranty service outside the City limits of Tulsa, the Seller will arrange for the transportation, including required permits, insurance, and all affiliated expenses, at no cost to the City.	6	
2.19	The City of Tulsa will provide routine maintenance of the apparatus and will retain appropriate maintenance records. In the event of a minor warranty issue, the City of Tulsa may repair the item and then give notice to the Seller of the issue and the completed repair in anticipation of reimbursement. Examples may include, but are not limited to, exchange of LED warning light fixtures, pressure gauges, etc.	3	
2.20	The City of Tulsa will inform the Seller in a timely manner of all significant warranty related issues. Communication will include telephone followed by an email to document the date and time of the notification	5	
2.21	The Seller will respond within business 48 hours of notification by the City of Tulsa, on when, where and how a warranty issue will be resolved.	5	
2.22	The City of Tulsa has the right to first refusal for performing warranty repair. The City will also retain the right to perform, or arrange for, the needed repair if there is no response from the Seller within 48 hours or if the Seller's response is not acceptable to the City of Tulsa. At the completion of the repairs, the Seller will reimburse the City of Tulsa for all costs incurred.	5	
2.23	Warranty work performed by the City of Tulsa will be billed at the same labor rate of unscheduled overtime charged to the Tulsa Fire Department by the City of Tulsa Fire Garage at the time of the needed repair. The rate for unscheduled overtime is 1.5 times the base labor rate. The current labor rate for fiscal year 2016/2017 is \$55.00 per hour. Consequently, the unscheduled overtime rate that will be billed for warranty repair will be 1.5 x 55 for a sum of \$82.50 per hour.  The labor rate for warranty repair will change as the billing rate for normal service billed to the Tulsa Fire Department changes during the warranty period.	5	
2.24	Warranty repairs that are managed by the City of Tulsa will be reimbursed at the actual value plus 5%. Parts that are not provided or acquired through the Seller will be reimbursed at the actual value plus 25%.	5	
2.25	In addition to the expense of the actual repair, the City of Tulsa will solicit reimbursement for the inability to use the apparatus or systems that render the apparatus out-of-service due to one or more warranty issues.  The out of service criteria will be defined by the current edition of NFPA 1911 <i>standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus</i> .  Reimbursement will be billed at a rate based upon the FEMA reimbursement rate for the applicable resource divided by 24 hours. For example, in 2015 FEMA code 8684 Fire Truck with 100 ft. ladder had a reimbursement rate of	5	



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\$140.81 per hour. With the established FEMA rate, the City Tulsa rate of reimbursement for out-of-service time will be \$140.81 divided by 24 hours for a sum of \$5.87 per hour of out-of-service time.

The out-of-service billing will be charged upon the number of continuous hours that the vehicle is out-of-service including evenings, weekends and holidays. Billing will be rounded to the nearest half hour. The reimbursement billing time will begin 96 hours following the original documented time of notification to the Seller of the warranty issue.

The following details will be provided with the Bid:

16.5

2.26

	Description	Bidder's Response
a)	Overall length of the apparatus	
b)	Overall travel height	
c)	Weight without personnel, water, foam, hose or equipment	
d)	Overall weight with personnel, water, foam, hose and equipment	
e)	Wheelbase	
f)	Maximum cramp angle of the steer axle turned to the left with 445 sized wheels	
g)	Maximum cramp angle of the steer axle turned to the right with 445 sized wheels	
h)	Curb to curb turn radius left	
i)	Curb to curb turn radius right	
j)	Wall to wall turn radius left	
k)	Wall to wall turn radius right	
l)	Front axle and suspension weight rating	
m)	Estimated weight on the front axle with personnel, water, foam, hose and equipment	
n)	Rear axle design, single axle or tandem axle	
o)	Rear suspension type, spring or air	
p)	Manufacturer of the rear suspension	
q)	Rear axle and suspension weight rating	
r)	Estimated weight on the rear axle with personnel, water, foam, hose and equipment	
s)	Angle of approach	
t)	Angle of departure	
u)	Inclusion of a preliminary drawing of the proposed	



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	apparatus	
v)	Vertical height of the aerial device as defined by NFPA 1901	
w)	Horizontal reach of the aerial device as defined by NFPA 1901	
x)	The rated capacity of the aerial device without water in the waterway that can be achieved with the aerial positioned in all positions without operational restrictions	
y)	The rated capacity of the aerial device with water in the waterway and flowing 1,500 gpm that can be achieved with the aerial positioned in all positions without operational restrictions	
z)	Maximum wind speed of the aerial device without alteration of the load capacity	
aa)	Number of electrical rings in the rotational swivel	
ab)	Size of the waterway through the rotational swivel	
ac)	Number of lineal inches of lower compartment <u>unobstructed door opening</u> in the fire body that has a floor located no greater than 32 inches from grade.* This is intended to measure the total amount of door openings of the lower compartments that are at running board or tailboard height.	
<p><i>* As it relates to this specification, the total lineal inches would be the actual door openings for no less than L1 + L2 + L4 +R1 + R2 + R4 etc. as applicable to the actual body offered in response to these specifications. Referencing these specifications, L3, R3 and Rear compartments are not included in the calculation due to their floor heights being greater than 32 inches above grade</i></p>		
ad)	Total volume in cubic inches of the fire body storage compartments	
ae)	Manufacturer and model of the cab and chassis	
af)	Manufacturer of the fire body	
ag)	Manufacturer of the aerial device	





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<b>3.00</b>	<b>CHASSIS</b>	<b>0</b>	
3.01	The chassis will be a custom to the fire service medium length four door cab with side opening doors mounted onto a truck chassis with a total of five seated positions, four with SCBA storage brackets.	6	
3.02	The cab will be designed to tilt forward for greater access to the engine compartment for periodic inspection and maintenance.	6	
3.03	The chassis will be designed and constructed to accommodate routine maintenance. Examples include but are not limited to: <ul style="list-style-type: none"> <li>• Wiring harnesses positioned near the engine will be placed where they will not interfere with, or be exposed to, the maintenance and periodic replacement of the oil or fuel filters.</li> <li>• Cab hinge pins that have grease zerks and are accessible for periodic maintenance.</li> </ul>	4	
3.04	The frame will be engineered by the manufacturer and designed to adequately support the total Gross Vehicle Weight Rating (GVWR) in a safe and serviceable manner. Sufficient cross-members and frame liners will be provided to properly support the cab, body and related components without being damaged.	10	
3.05	The main chassis frame will be one straight continuous length without splices, welded extension or other weldments.	10	
3.06	A continuous full-length, same as the chassis frame, mainframe liner will be one continuous length without splices, welded extensions or other weldments.	10	
3.07	Both the frame and frame liner will be treated for corrosion. The Bidder will provide a description of the corrosion protection with the bid.	5	
3.08	Following the attachment and assembly of the cross members, the ensemble will be painted the job color.	5	
3.09	The apparatus axles and suspension systems will be designed to safely carry the apparatus with personnel and equipment without exceeding the weight rating for the axle or suspension.	10	
3.10	The apparatus will carry no less than 25% or more than 45% of its total loaded weight on the front axle.	6	
3.11	The apparatus will not have more than 7% side-to-side tire load variation.	6	
3.12	A hub piloted front axle with a load rating sufficient enough to carry the anticipated combined load of the apparatus, water, equipment and personnel will be provided. The bid will describe the design and rating of the front axle.	10	
3.13	The front axle will be provided with Stemco oil seals with viewing window.	4	
3.14	An independent front suspension will be provided, designed and assembled to safely manage the load placed upon the front axle. The bid will describe the design and rating of the front suspension.	6	
3.15	The front axle will be provided with heavy duty telescoping shock absorbers.	3	
3.16	The front axle will be provided with dual Sheppard model M110, or equal, steering gears with integral heavy-duty power steering.	3	
3.17	The power steering will be provided with a cooler.	3	
3.18	The power steering lines will use wire braded lines with crimped fittings.	3	
3.19	The apparatus may use a single rear axle or a tandem rear axle, providing that the axle(s) can safely support the load. A vehicle less than 58,000 GVWR with a single rear axle is desired.	10	
3.20	Regardless if it is a single rear axle or tandem axle, the axle will be designed to accommodate the total load provided by the apparatus, water, hose, personnel	10	



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	and equipment.		
3.21	The rear axle(s) is to be a single reduction differential with a top speed of 68 miles per hour.	6	
3.22	The rear axle(s) will be provided with oil seals.	3	
3.23	The vehicle will have a conventional leaf spring suspension for a single rear axle or a Hendrickson FIREMAAX® EX air ride suspension for a tandem rear axle. No exceptions	10	
3.24	Regardless of the type or design, the rear suspension will be designed and installed to safely manage the anticipated load.	10	
3.25	The entire braking system will meet or exceed FMVSS 121 and the current edition of NFPA 1901.	10	
3.26	The front brakes will be Meritor model EX225 DiscPlus™ air disc brakes, or equal, with no smaller than 17 inch diameter rotors.	6	
3.27	The desired brake pads are Meritor kit 2252 H2DA.	5	
3.28	The front brakes will be provided with integrated adjustment mechanisms.	5	
3.29	The rear brakes will be TSE brand severe-duty long stroke type S-cam drum brakes with no smaller than 16-1/2" x 7" cast shoes.	5	
3.30	The desired brake shoes used on the rear axle are Meritor "P" series cast XSR4034515PC	5	
3.31	The rear brakes will be provided with automatic slack adjusters.	5	
3.32	The parking brake will consist of a spring brake actuated on the rear axle.	5	
3.33	A Tru-Flo 750, 18.7 CFM or larger air compressor will be provided.	5	
3.34	The air system will have a storage capacity of no less than 5,800 cubic inches.	5	
3.35	The air tanks will be provided with both manually operated drains and automatic drains.	3	
3.36	The air system will include a WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100 watt heater.	3	
3.37	The air drier will include a Meritor WABCO heated automatic moisture ejector.	3	
3.38	The driver's dash will include two air pressure gauges, or a dual needle gauge, to identify air pressure in both the front and rear air systems. A red warning light with audible alarm will be provided on the driver's dash to warn of low air pressure.	3	
3.39	A warning light marked with "Parking Brake" will be positioned on the driver's dash to indicate that the engagement/application of the parking brake.	3	
3.40	The brake lines are to be nylon, color coded lines that are wrapped in a loom for the entire length of the hose.	3	
3.41	High pressure, wire-braid reinforced, flexible rubber air lines will be provided at each brake drum.	3	
3.42	All air lines are to be provided with DOT compression fittings.	3	
3.43	An air inlet system will allow an external air source to feed into the air brake system through a shoreline or other source. The inlet is to be equipped with a male coupling and located near the driver's door. A check valve must be provided to prevent reverse flow of air. The inlet will discharge into the "wet" tank of the brake system.	2	
3.44	An air outlet will allow air to be discharged from the apparatus. The outlet will be located near the driver's door and provided with a female coupling. The air outlet will be connected to a non-strategic air tank.	2	
3.45	The couplings used for the air intake and discharge outlet will be compatible with industrial type "D" air fittings.	1	
3.46	Using the chassis air supply, the fire apparatus manufacturer will install a	5	



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	Trident air primer onto the fire pump. Specific details describing the primer are located in Chapter 8 of the specifications.		
3.47	The apparatus shall be provided with Meritor WABCO 4S4M Anti-lock Braking System (ABS). The 4 channel anti-lock braking control will be provided on both the front and rear wheels.	5	
3.48	The apparatus shall be provided with WABCO Automatic Traction Control used for traction in poor road or weather conditions. A mud/snow switch will be provided on the instrument panel whereby activation of the switch will divert power to the non-slipping wheel to let the truck climb out and get on top of deep snow or mud.	6	
3.49	The apparatus shall be provided with WABCO Electronic Stability Control as an integral part of the ABS system. The system will automatically reduce engine RPM and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.	6	
3.50	Both the front and rear wheels are to be hub pilot aluminum wheels manufactured by Alcoa®.	3	
3.51	The front rims will be Alcoa® 22.5" x 13.00" polished aluminum disc type wheels with a ten (10) stud, 11.25" bolt circle and load rating no less than 12,800 pounds.	4	
3.52	The front wheels will be provided with stainless steel hub covers with an opening to allow the viewing of the Stemco oil seals.	1	
3.53	The wheels will also be provided with stainless steel lug nut covers.	1	
3.54	The front tires will be 445/65R22.5, or appropriate, to carry the anticipated load placed upon the front axle. In addition to the load rating, the tires will have a speed rating of no less than 68 miles per hour.  Similar tires currently used within the Tulsa Fire Department are Goodyear 445/65R22.5 G296 MSA.	6	
3.55	The rear rims will be Alcoa® 22.5" x 9.00" polished aluminum disc wheels with ten(10) stud 11.25" bolt circle and load rating no less than 10,000 pounds.	4	
3.56	The rear tires will be 315/80R22.5 tires with a load rating sized to carry the anticipated load placed upon the rear axles. In addition to the load rating, the tires will have a speed rating of no less than 68 miles per hour.  Similar tires currently used within the Tulsa Fire Department are Goodyear 315/80R22.5 G751 MSA	6	
3.57	The rear axles will be provided with stainless steel high hats to cover the rear hubs.	1	
3.58	The wheels will also be provided with stainless steel lug nut covers.	1	
3.59	Each of the wheels will be provided with high visibility red lug nut indicators.	1	
3.60	The inner rear wheels will be provided with extended valve stems to improve access, inspection of air pressure and inflation.	1	
3.61	All tires will be balanced before mounting onto the apparatus.	1	
3.62	All wheels will be provided with valve stems with caps that display the individual tire's air pressure as acceptable or unacceptable.	1	
3.63	The apparatus will be provided with a Tire Pressure Monitoring System (TPMS) with a gauge installed inside the cab to show the pressure contained within each wheel. A wireless sensor will be mounted into each wheel for a total of six sensors. The system will have three alert levels; <ul style="list-style-type: none"> <li>• Critical low pressure alert</li> </ul>	2	





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	<ul style="list-style-type: none"> <li>• Pressure deviation alert</li> <li>• High temperature alert</li> </ul> <p>Each alert will trigger an audible alarm and an indicator light within the gauge to signal the driver of the problem.</p>		
3.64	One spare front wheel with mounted tire and one rear wheel with spare tire, each of the same make, model and design as those mounted onto the chassis, will be provided with each apparatus.	2	
3.65	The apparatus will be provided with an extended front bumper that will be as small as possible to accommodate the equipment specified herein with expected projection of approximately 26 inches, but is not to exceed 29 inches.	3	
3.66	The front bumper will be constructed of heavy duty 0.25" formed steel no less than 10" in height with top and bottom flanges of no less than 1.5". The bumper will be full width of the apparatus, approximately 102" and will be finished and painted the job color.	4	
3.67	The bumper will be directly fastened to the frame extensions of the apparatus.	4	
3.68	The bumper will be provided with a gravel pan constructed of bright aluminum tread plate that is formed and positioned between the front bumper and the front face of the chassis cab. The gravel pan will be supported to prevent unwanted flexing and vibration.	3	
3.69	The front bumper extension will be used to store an Amkus AMK-22 cutter and an Amkus AMK 24 cutter that are secured in place by PAC, or equal, brackets.	2	
3.70	The front bumper will be provided with a hinged bright aluminum tread plate cover that is intended to protect the hydraulic rescue tools that are stored below.	2	
3.71	An aluminum tread plate deck will be provided to establish the height of the front extended bumper. The tread plate will include a downward flange that will cover the top and upper face of the bumper.	2	
3.72	The top exposed face of the front bumper's top flange will be treated with a black textured material with aluminum oxide, or similar material, to produce a chip resistant anti-slip finish.	1	
3.73	The front bumper cover will be designed and installed to allow installation of a bumper mounted mechanical siren on one side and a bell on the other.	3	
3.74	The area that will be used to support the mechanical siren will be reinforced with steel that is secured and attached to structural elements of the extended front bumper.	3	
3.75	The front bumper cover will use a full length stainless steel hinge and two gas shocks to hold the cover open.	2	
3.76	The bumper cover will be maintained in the closed position with two latches.	2	
3.77	Two illuminated sight rods, one each side, will be provided to assist the driver in locating the front corners of the bumper. The sight rods will use an LED lamp for illumination.	2	
3.78	Two chrome plated steel tow hooks will be installed beneath the front bumper and attached to the frame members.	2	
3.79	Two 2-3/4" steel tow eyes will be mounted to the frame at the rear of the vehicle and attached to each inner frame rail web. If there is only to be one eye to be provided, it will be centered between the frame rails.	3	
3.80	Full circular inner fender liners manufactured of aluminum will be provided on the cab.	2	
3.81	Flexible rubber fender crowns will be installed at the cab wheel openings.	2	
3.82	Heavy-duty mud flaps will be provided behind each of the front wheels.	2	





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3.83	The motor, transmission and drive line will be one of the two specified based upon the expected Gross Vehicle Weight Rating of the apparatus being offered by the Bidder.	2	
3.84	<p>The motor for vehicles with GVWR equal or less than 58,000 pounds Cummins ISL9</p> <ul style="list-style-type: none"> <li>• POWER: 450 Hp @ 2100 rpm</li> <li>• TORQUE: 1250 lb-ft @ 1400 rpm</li> <li>• GOVERNED SPEED: 2200 rpm</li> <li>• DISPLACEMENT: 543 in<sup>3</sup></li> <li>• FUEL FILTER: Spin-on primary filter with water separator and water-in-fuel sensor. Secondary spin-on style filter. Provided with dual check valves</li> <li>• WATER SEPARATOR: In-Line Racor, or equal, with indicator light and audible alarm</li> <li>• FUEL PUMP: Electric</li> <li>• STARTER: Delco model 39MT™</li> <li>• COOLANT FILTER: Spin-on style with shut off valves on the supply and return line</li> <li>• AIR CLEANER: Farr or equal, dry-type, dual replaceable element with air restriction indicator.</li> <li>• AIR COMPRESSOR: Tru-Flow 750, 18.7 CFM</li> <li>• LUBE OIL COOLER</li> <li>• LUBE OIL FILTER: Full flow, spin on type.</li> <li>• ELECTRONIC CONTROLS</li> </ul> <p>The motor for vehicles with GVWR greater than 58,000 pounds Cummins ISX-12</p> <ul style="list-style-type: none"> <li>• POWER: 500 Hp @ 2100 rpm</li> <li>• TORQUE: 1645 lb-ft @ 1100 rpm</li> <li>• GOVERNED SPEED: 2100 rpm</li> <li>• DISPLACEMENT: 726 in<sup>3</sup></li> <li>• FUEL FILTER: Spin-on primary filter with water separator and water-in-fuel sensor. Secondary spin-on style filter. Provided with dual check valves</li> <li>• WATER SEPARATOR: In-Line Racor, or equal, with indicator light and audible alarm</li> <li>• FUEL PUMP: Electric</li> <li>• STARTER: Delco model 39MT™</li> <li>• COOLANT FILTER: Spin-on style with shut off valves on the supply and return line</li> <li>• AIR CLEANER: Farr or equal, dry-type, dual replaceable element with air restriction indicator.</li> <li>• AIR COMPRESSOR: Tru-Flow 750, 18.7 CFM</li> <li>• LUBE OIL COOLER</li> <li>• LUBE OIL FILTER: Full flow, spin on type.</li> <li>• ELECTRONIC CONTROLS</li> </ul>	20	
3.85	The selected motor will have the ability to interact with the vehicle multiplex system through J1939.	10	
3.86	The Bidder will provide with the bid the certification for use of the selected motor in the proposed cab & chassis.	10	
3.87	The engine air intake will be provided with an ember separator. The separator will be mounted in a position easily accessible for inspection and maintenance.	5	
3.88	The fuel lines will be braided and provided with shut off valves located at the	3	



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	fuel tank and at each side of the fuel filter, lift pump and water separator to minimize drainage during serving.		
3.89	The fuel tank will contain a minimum of 65 gallons. The tank is to be located between the frame rails with a ground clearance that will not jeopardize the departure angle of the apparatus.	4	
3.90	The apparatus will be designed whereby the fuel tank will be designed and located where it will be protected against water being discharged from the water tank or aerial device.	3	
3.91	The fuel tank will be provided with a drain, swash partitions and a vent. The fill inlet will be located on the driver's side of the fire body covered with a marked "Diesel Fuel Only" sign.	2	
3.92	The fuel tank will include a drain opening positioned on the side of the tank near the bottom and fitted with a quick style drain plug. Specific description will be provided at the pre-construction meeting.	2	
3.93	A ½" vent is to be provided from the top of the fuel tank to just below the fuel fill inlet. The fuel tank will meet or exceed all applicable requirements.	2	
3.94	The fuel tank fill inlet is to be located behind a compartment door similar to that used by the SCBA spare cylinder compartments.	2	
3.95	Servicing of the fuel pick up tubes and fuel gauge sending units will be accomplished without draining the fuel or dropping the tank from its mounting. If necessary, side access panels capable of being removed without the use of special tools, are provided in compartments adjoining the fuel tank.	3	
3.96	The fuel system, in or near the fuel tank, will be provided with an electric fuel lift pump.	2	
3.97	The exhaust system will include a manually operated regeneration system that may be initiated by a switch in the cab.	3	
3.98	A Diesel Exhaust Fluid (DEF) tank will be as large as possible but of no less than 4.5 gallons.	3	
3.99	The DEF tank will include a drain plug located in the low point of the tank for drainage.	3	
3.100	The DEF tank will be located in a convenient location for inspection and filling but will not be located inside a compartment used to store equipment. Ideally, the tank will be positioned where excess filling or spillage will be open to the ground.	3	
3.101	The exhaust system will be stainless steel from the turbo to the inlet of the Selective Catalytic Reduction (SCR) device.	3	
3.102	The exhaust system will include a Diesel Particulate Filter (DPF) and Selective Catalytic Reduction (SCR).	3	
3.103	The exhaust piping system will be provided an insulated wrap extending from the turbo and DPF to minimize the transfer of heat from the exhaust to the cab.	3	
3.104	An appropriate sized muffler will be provided to reduce the sound production of the motor.	3	
3.105	The exhaust piping will be located as to not expose any portion of the apparatus, equipment or operator to excessive heat. Suitable heat shields and/or insulation wraps will be provided where heat may damage various systems including storage compartments.	3	
3.106	The exhaust will terminate ahead of the right rear wheels with a connection to a Plymovent vehicle exhaust system that is directed approximately 10° rearward to direct emissions away from the compartment located directly ahead of the rear wheels. The Plymovent flange will be with the magnetic system.	4	



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3.107	The apparatus manufacturer will provide sufficient cooling of the engine to eliminate the need for Engine Over-Temperature Protection (EOP). The apparatus engine will be capable of providing 100% horsepower at all times.	5	
3.108	The radiator will be of sufficient size with the cooling capacity recommended by the engine manufacturer.	6	
3.109	The radiator will be a three section type for intercooler, radiator and transmission cooler. A drain cock will be provided at the lowest point of the radiator.	3	
3.110	The radiator will include a built-in sight glass for visual inspection of coolant levels.	3	
3.111	The fan for the engine and cooling system will use an electrically controlled clutch to allow intermittent operation only when needed.	3	
3.112	The fan will continuously operate while the fire pump is engaged.	3	
3.113	Air to the radiator will enter through a chrome plated or polished stainless steel grille located on the front of the cab face.	2	
3.114	High temperature silicone hose will be used for all engine coolant lines.	3	
3.115	The hose clamps will be manufactured of stainless steel and of a design commonly called "constant torque type" to prevent coolant leakage.	3	
3.116	The drive shaft will be a heavy-duty metal tube and equipped with appropriately sized Dana (Spicer) half round series universal joints.	4	
3.117	All drive shafts are to be dynamically balanced before installation.	4	
3.118	A spline slip joint is to be provided for each driveshaft and each will be coated with Glidecoat® or equivalent.	3	
3.119	A drive shaft safety loop will be provided for the portions of drive shaft that are in excess of 36-inches in length. The safety loop will be positioned where it will keep the shaft from striking the ground should there be a failure of the shaft or joint.	4	
3.120	<u>Based upon the GVWR and the engine selected, the transmission will be either an Allison EVS 3000 series automatic if a Cummins ISL9 is selected or an Allison EVS 4000 series if a Cummins ISX-12 is selected.</u> The transmission will have two PTO ports, one located on the side and one located on top.	20	
3.121	The selection of the reverse gear will automatically operate the backup lights, backup alarm and the under fire body ground lights.	5	
3.122	The transmission will be programmed for five (5) forward speeds and reverse. The driveline will be designed to provide a vehicle top speed of sixty (60) miles per hour as described in NFPA 1901.  NOTE: At the pre-construction meeting, the Fire Department will discuss the ability to increase the top speed to 68 miles per hour following receipt and acceptance of the delivered apparatus.	5	
3.123	When the transmission is selected for reverse gear, the backup lights and under fire body lights will illuminate and the backup alarm will sound.	5	
3.124	The transmission will be provided with a retarder system to serve as a secondary braking system for the apparatus. The system will be programmed at 1/3 at 4-psi brake pressure, an additional 1/3 at 7-psi brake pressure and full operation at 10-psi brake pressure.	6	
3.125	An on/off switch will be provided within reach of the driver for the transmission retarder.	5	
3.126	Operational engagement of the retarder will result in the illumination of brake lights.	5	



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3.127	Operational engagement of the ABS will disengage the retarder as needed.	5	
3.128	In addition to the transmission retarder feature, the transmission will be programmed to aggressively downshift, seeking second gear, with the release of the accelerator pedal.	6	
3.129	The transmission gear selector will be controlled in the cab within easy reach of the driver. The gear selector will be of a lever style.	4	
3.130	A transmission temperature gauge with red light and audible alarm will be located on the driver's dash.	4	
3.131	An external transmission oil cooler will be provided.	5	
3.132	The transmission will be provided with high quality synthetic transmission fluid.	5	
<b>4.00</b>	<b>CAB</b>	0	
4.01	The cab is to be constructed of aluminum specifically designed and selected for use within the fire service.	5	
4.02	The cab will be designed to safely accommodate five seated firefighters.	5	
4.03	The cab will have four side opening doors to allow access in and out of the cab.	5	
4.04	The cab will have a 10 to 14 inch raised roof to accommodate the personnel seated in the rear of the cab. The center part of the raised roof will be notched for the aerial device while it is stowed.	4	
4.05	The cab is to be constructed by a combination of cast aluminum, extruded aluminum and formed aluminum to create a strong, durable and aesthetically pleasing cab that exceeds the requirements of NFPA 1901.	5	
4.06	All extrusions that are welded to other extrusions to produce a structural frame will be welded on all sides of the created joint or abutment.	5	
4.07	Gussets used to support and/or align extrusions or other structural element will be welded on both sides along the entire length of each adjoining surface.	5	
4.08	The skin of the cab forming the front, sides, cab doors, roof and rear of the cab is to be no less than 1/8 (0.125) inch 5000 series or 3/16 (0.1875) inch 3000 series aluminum.	10	
4.09	Aluminum tread plate used as an overlay may be constructed of 1/8 (0.125) inch 3000 series material.	6	
4.10	The cab will be provided with insulation between the outer wall skin and the interior wall finish.	5	
4.11	The cab floor will be constructed of aluminum. The floor will be flat without an upward projection into the passenger compartment of the cab.	5	
4.12	The entire underside of the cab floor will be insulated to isolate noise and heat from the motor and drive line from entering the interior space of the cab.	5	
4.13	The cab roof will be constructed of flat sheet aluminum.	3	
4.14	The roof will be provided with an overlay of bright aluminum tread plate suitable for use as a walking surface.	3	
4.15	The underside of the roof will be fully insulated for heat and noise transfer.	5	
4.16	The rear wall of the cab will be constructed of flat sheet aluminum.	3	
4.17	The rear wall of the cab is to be provided with an exterior overlay of bright aluminum tread plate.	3	
4.18	The cab is to be capable of being tilted forward to allow access to the engine.	5	
4.19	The cab will be provided with heavy duty hinges that are accessible for periodic maintenance and cab locks.	6	
4.20	The mechanism for tilting the cab will consist of an electric over hydraulic pump that will support two hydraulic cylinders used to raise the cab. The cylinders will be provided with check valves positioned on the cylinders to prevent unwanted lowering of the cab.	6	





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4.21	The cab is to be provided with a positive latch to secure the cab once it has been fully raised.	6	
4.22	The cab lift controls will be positioned onto an attached cord with a remote switch. The attached cord will be long enough to allow the operator to stand slightly ahead and to the side of the cab to observe the cab in relation to overhead obstructions. The Vendor will describe the attachment, cord, cord length, and switch.	4	
4.23	A manually operated, emergency cab lift pump will be provided in a convenient location to allow the cab to be tilted upward should the normal system fail or otherwise become inoperable.	4	
4.24	The cab is to be locked down by an automatic lock or latch mechanism that actuates after the cab has been lowered.	6	
4.25	The cab will be designed with an access panel to allow inspection of the motor and to facilitate fluid checks and maintenance without the need of tilting the cab.	4	
4.26	The windshield is to be tinted safety glass.	3	
4.27	The windshield will have two or more, no less than one each side, two-speed electric windshield wipers. The wipers are to have "return to park" provisions and will meet all current FMVSS requirements. Wipers are to have intermediate, slow and fast wiper speed controls. Wipers are to also include a washer actuated by the wiper control.	4	
4.28	The front doors serving the driver and officer will be electrically operated tinted glass.	4	
4.29	The side windows between the front doors and rear doors are to be fixed and provided with the darkest shade tint, "limo tint," possible.	3	
4.30	The rear cab doors will have electrically operated windows with the darkest shade tint, "limo tint."	4	
4.31	Two tinted sun visors, one for each windshield, will be provided.	1	
4.32	The front cab doors will be provided with Retractable model 613423 electrically operated, heated, dual vision west coast style mirror with chrome finish. Both the flat and convex glass will be heated and adjustable with remote control of the driver.	3	
4.33	All four cab access doors are to be provided with exterior door handles on the outside with stainless steel scuff plates located behind and adjacent to the handle to help protect the paint. The preferred door handle will project away from the door forming a vertical or horizontal look that is large enough for an extra-large structural fire gloved hand can reach around to open the latch.	3	
4.34	The four cab doors will be provided with electric locks and the Driver's door will be provided with a keypad for door entry.	5	
4.35	Two battery operated remote controls will be provided for locking and unlocking the doors.	5	
4.36	The interior cab door handles will be metal paddle types which are nearly flush with the interior wall of the door.	4	
4.37	All four cab access doors are to be provided with stainless steel interior panels.	3	
4.38	The front two doors will be provided with map pockets.	2	
4.39	The bottom interior face of the cab doors will be provided with a reflective chevron style image with reflective red and lime yellow material.	3	
4.40	The lower portion of the cab doors will be provided with two LED lights that will operate while the door is opened. A clear or white LED light will illuminate the door opening and area and a red flashing light will operate while the door is open.	3	



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4.41	The cab doors will be operated with stainless steel piano hinges that use no less than a ¼ inch pin. The hinges will not be welded to the cab or to the door.	3	
4.42	The access steps into the cab are to be no less than 8 inches deep or greater than 18 inches in height between steps. The distance between the ground and the first step is to be no greater than 24 inches.	4	
4.43	Externally mounted, assist steps will be provided beneath each of the cab doors to provide a lower step height into the cab.	2	
4.44	Hand rails of no less than 18 inches will be provided in a vertical position on the exterior of the cab near the latch side of the door. The hand rails are to be provided with a slip resistant finish or covering.	2	
4.45	The front right or officer's door will be provided with a vertically mounted molded handle that is mounted onto the "A" or corner post to assist entrance into the cab.	2	
4.46	The interior rear cab door handles will be paddle types which are nearly flush with the interior wall of the door.	4	
4.47	Horizontally mounted hand rails will be attached to the interior face of the rear doors and positioned near the bottom of the glass.	3	
4.48	With the exception of the stainless steel trim, the metal surfaces within the interior of the cab will be painted a protective composite material, similar to a polymer bed liner, gray color.	4	
4.49	The seats and upholstery will be gray in color.	1	
4.50	The aluminum floor will be covered by an abrasion resistant composite material type mat to provide insulation, sound dampening, and slip resistance. The floor covering will be fully replaceable should it become worn or damaged.	2	
4.51	In addition to the composite material, the engine cover will be insulated and covered with vinyl to provide the greatest heat and sound reduction. The sides of the cover will be tapered at the top to provide the greatest elbow room for the driver and front right passenger.	3	
4.52	The void space between the interior and exterior walls and roof will be insulated.	3	
4.53	The headliner will be constructed of rigid material covered with a sound dampening material that is pleated and secured to the underside of the roof with removable fasteners.	2	
4.54	The seating in the cab will be manufactured by Seats Inc. using Turnout TUFF™ fabric, gray in color.	2	
4.55	All cab seats will be provided with Ready Reach Seatbelts, or equivalent, extended length seatbelts equipped with dual retractor and integrated seat belt sensors.	3	
4.56	All seat belts will be provided with height adjustment to optimize effectiveness and comfort.	2	
4.57	All cab seats will be electronically monitored as described in Section 12 of these specifications.	5	
4.58	The seatbelts will be orange in color.	5	
4.59	The driver's seat will be a Seats, Inc. Series 911 electrically operated driver's seat. The seat will have a high profile back rest, complete ride suspension adjustments, back angle and adjustment forward and backwards.	4	
4.60	The front right or officer's seat will be Seats Inc. 911 Battalion Series Officer's SCBA seat with an installed SmartDock SCBA bracket.	4	
4.61	The seating arrangement in the rear of the cab will consists of one rear facing seat located directly behind the officer and two forward facing SCBA seats located inboard and positioned near the center width of the can and directly	3	



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	against the rear wall of the cab.		
4.62	The rear facing seat will be Seats Inc. 911 Battalion Series SCBA seat with an installed SmartDock SCBA bracket.	4	
4.63	The forward facing flip down seats will be Seats Inc. 911 Battalion Series SCBA seat with an installed SmartDock SCBA bracket.	3	
4.64	Each of the rear seats will be placed upon pedestals that are supported to the floor and are designed to provide storage beneath the seat area. The seats will be positioned with approximately 8 inches located between each other so as to provide additional space for each seated person.	3	
4.65	Five Zico model UHH-1-C universal helmet holders will be provided and installed into the cab. The specific location of installation will be identified during the final inspection.	1	
4.66	An in cab storage cabinet will be located inside the cab directly behind the driver. The cabinet will be painted and trimmed in the same materials as used elsewhere within the cab.	3	
4.67	The in cab storage cabinet will be as large as possible and will reach a height near the underside of the roof. The interior of the cabinet will be provided with two adjustable shelves.	3	
4.68	The in cab storage cabinet will be provided with black web cargo netting to secure items inside the cabinet.	2	
4.69	The in cab storage cabinet will be provided with a 120 volt AC duplex receptacle.	1	
4.70	A frame assembly specifically to safely store and dispense three boxes of medical gloves will be located in the cab within reach of all occupants. The assembly will be constructed of aluminum finished in a manner that matches the balance of the cab interior. Exact positioning of the dispenser bracket will be identified at the final inspection.	1	
4.71	A map box specifically designed and constructed to safely store three 4-inch loose leaf notebooks will be provided. The map box should not include dividers and will be located in the cab at the time of the final inspection.	2	
4.72	The steering wheel is to be a six or seven-position tilt and telescopic type steering column. The design of the steering column will use a manually operated locking lever to allow adjustment of tilt and telescopic position.	3	
4.73	The telescopic function will not be managed by a rotational tension of the center steering hub of the steering wheel.	4	
4.74	The steering wheel is to be no less than 18 inches in diameter.	2	
4.75	The cab will be provided with the largest conventionally available air conditioning system used by the chassis manufacturer. The system will consist of one or more air compressors and condensing units. It will have the ability to cool the cab from 100 degrees F to 70 degrees F within 30-minutes.	4	
4.76	The air conditioning condenser will be painted the job color.	1	
4.77	The cab will be provided with no less than 75,000 BTU of heat within the cab for the purpose of heating the cab and defrosting windows. The heating system will include the ability to heat the floor areas in both the front and rear portions of the cab.	3	
4.78	The heating system will be designed to provide heat to feet for the front seat area of the cab.	3	
<b>5.00</b>	<b>CAB &amp; CHASSIS ELECTRICAL</b>	<b>0</b>	
5.01	The bid will include an amp draw report of the proposed apparatus and electrical system.	5	





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5.02	All wiring will be color coded and provided with number and function coded or labeled every four inches in length.	5	
5.03	Wiring looms containing multiple individual wires or circuits will be color coded and or provided with identification as to which electrical system(s) it contains.	4	
5.04	The Bidder will provide a diagram and index to identify the loom and wire by color, number and function.	4	
5.05	The cab and chassis will be fully multiplexed. Additional description of the multiplex system will be provided in chapter 12 of the specifications herein. Class 1 is the desired manufacturer of the multiplex system.	4	
5.06	All wire terminations will be coated or sealed with dielectric type grease or sealer to prevent corrosion, including battery posts.	2	
5.07	Unless otherwise specified, all circuits are to be protected with automatic resetting type circuit breakers. Fusible links are not to be used.	3	
5.08	Individual loads are not to exceed the electrical switch manufacturer's component amperage ratings. Relays will be used for heavy loads.	5	
5.09	All electrical components and systems will be installed by the apparatus manufacturer and operated during the performance test of the electrical system.	4	
5.10	<p>The interior cab lights will include the following:</p> <p>5.10.01 Courtesy lights will be placed in the step area of each cab door opening.</p> <p>5.10.02 The lights will be LED type and will automatically operate with the opening of the door.</p> <p>5.10.03 Combination white and red LED type lights will be located on the ceiling above each door opening.</p> <p>5.10.04 The white light will automatically operate when the cab doors are opened.</p> <p>5.10.05 The light fixtures will have integral switches for each of the two lights for individual usage.</p> <p>5.10.06 A dual head directional reading light will be located on the underside of the upper instrument console between the driver and officer.</p> <p>5.10.07 The underside of the cab over the engine will be provided with four Whelen strip LED lights, two on each side of the motor and positioned where they will automatically illuminate the engine and transmission when the cab is lifted and the master battery switch is turned on.</p>	5	
5.11	<p>The driver's instruments and controls are to be conveniently located within view and reach of the driver. The gauges, instruments and switches will be installed onto removable panels for ease of service. The following will be provided:</p> <ul style="list-style-type: none"> <li>• Electric tachometer with an integral engine hour meter</li> <li>• Speedometer with integral odometer</li> <li>• Engine oil pressure gauge with red warning light and audible alarm</li> <li>• Air pressure gauge(s) to show the air pressure for the front and rear air systems. This may be obtained with one gauge having two indicator needles or two gauges. A red warning light with audible alarm will be included for "low air pressure".</li> <li>• Fuel gauge</li> <li>• Diesel Exhaust Fluid (DEF) low fluid</li> <li>• Diesel Particulate Filter Regeneration Indication and manually operated Regeneration switch</li> </ul>	5	





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	<ul style="list-style-type: none"> <li>• Parking brake control with indicator light</li> <li>• Master battery switch</li> <li>• Ignition switch with indicator light</li> <li>• Starter switch or control</li> <li>• Heater/defroster control</li> <li>• Headlight switch</li> <li>• Self-canceling turn signal switch (arm) with visual and audio indicators. Headlight dimmer switch is to be incorporated into the turn signal arm.</li> <li>• Warning light switch panel</li> <li>• Horn button on the center hub of the steering wheel</li> <li>• Selector switch for dual electric horn and air horns</li> <li>• Air restriction indicator, electronic with indicator warning light</li> <li>• Automatic transmission oil temperature gauge with warning light and audible alarm</li> <li>• Engine coolant temperature with an indicator light and audible alarm for low coolant or excessive heat</li> <li>• Voltmeter with warning light and audible alarm indicating high or low voltage</li> <li>• Ammeter</li> <li>• Windshield wiper controls with selection of intermittent, slow and fast speed</li> <li>• Windshield washer controls</li> <li>• Compartment and cab door open warning light</li> <li>• Manually thrown, electronically operated, high engine idle switch</li> <li>• Operating switch for the transmission retarder</li> <li>• Switches to control the rear axle differential</li> <li>• Switch to override the Automatic Traction Control (ATC)</li> <li>• Indicator light for disabled or problems related to the Anti-lock Braking System (ABS)</li> <li>• A switch to test the operation of the dash indicator lights</li> <li>• Engine hour meter if not included with the tachometer</li> <li>• Switch to engage the Power Take Off (PTO) for the generator</li> <li>• Switch to engage the aerial device hydraulic system</li> <li>• Switches to operate the fire pump</li> <li>• Selector switch to control each of the two mirrors with controls for heating the mirrors</li> <li>• Switches for the left and the right alley lights located in the front light bars. The multiplex display will be within reach and view of the driver.</li> <li>• Vehicle camera screens for the right side and rear facing will be within easy view and reach of the driver.</li> <li>• Kussmaul shore power alarm.</li> </ul>		
5.12	<p>The following instruments and controls will be placed in front of the front right passenger/ officer in a common electronic screen or separately in a switch panel:</p> <ul style="list-style-type: none"> <li>• Officer speedometer</li> <li>• Digital clock</li> <li>• Class 1 seat belt monitor</li> <li>• Two 12-volt power outlets</li> </ul>	5	



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	<ul style="list-style-type: none"> <li>• Kussmal 09-219 USB dual port, or equal, power supply</li> <li>• Kussmal temperature monitor of compartment R-1</li> <li>• Kussmal temperature monitor of the ambient atmosphere</li> </ul>		
5.13	The vehicle will be provided with a “door ajar” warning system that produces a visual warning if a cab door, compartment door, slide out step, ladder, stabilizer or other system is opened or not otherwise properly stowed when the parking brake is released. The system will use an LED warning light that is within view of both the driver and officer as well as produce a visual identification of the specific location of the compartment, step or item that is not properly stowed.	5	
5.14	The instrument panel controls and switches are to be identified as to function by imprinted word(s) located adjacent to the switch or instrument.	4	
5.15	The chassis will be provided with dual electric automotive horns. The horns are to be operated the steering wheel center ring.	1	
5.16	Two 6-inch auxiliary fans with individual switches are to be provided at the upper outboard corners of the cab near the windshield beneath the overhead instrument panel.	1	
5.17	An LED gooseneck map light will be provided on the dash ahead and to the left of the front right passenger.	1	
5.18	The apparatus manufacturer will provide a 12-volt power stud and a grounding stud in the electrical compartment for a two-way Fire Department radio. The power provided to the radio will be disengaged when the Master battery switch is turned to the “off” position.	2	
5.19	An additional power stud will be provided for the radio. The stud will be a 12-volt Positive and will be connected directly to the battery with over-current protection to provide a continuous power supply for the two-way Fire Department radio memory.	2	
5.20	A noise suppression filter will be provided with the chassis electrical system to eliminate unwanted noise produced over the radio and headset intercom system.	2	
5.21	A positive and ground power stud will be located near the front right corner of the cab for future support of a computer or MDT.	2	
5.22	Emergency lighting and warning devices will be operated by switches describe in the chapter for warning devices. The switches and controls will be mounted on removable panels to allow easy access and maintenance.	3	
5.23	Instrument panel gauges, vehicle lights, and other electrical accessories will have proper sized wiring to accommodate expected current loads. Wiring will meet SAE J-1128 specifications for high temperature (250° F minimum) conditions.	3	
5.24	All wiring methods will be in conformance with applicable Society of Automotive Engineers (SAE) standards. The acquisition of data from various electronic systems will be made through approved connection points. The tapping or splicing of data linkage wires or cables between electronic components such as the engine, transmission, WABCO, Pump, and other similar components is strictly prohibited.	5	
5.25	A compartment will be provided to house the electrical control center of the vehicle. The control center will contain electrical wiring junctions, terminal strips, flashers, and other necessary components. The compartment is to be readily accessible for ease of maintenance.	3	
5.26	A diagram of the power distribution and circuit protection system will be provided and attached to the electrical control center of the vehicle. This	3	



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	diagram may be installed in, on, or near the control center.		
5.27	The solenoid(s) controlled by the Master Battery Switch will be enclosed in an approved weather-proof plastic enclosure.	3	
5.28	The battery system will consist of two banks of three (3) Group 31, high cycle, Excide®, model 31S950X3W, batteries each providing 950 CCA, Cold Cranking Amps, 190 amp reserve capacity, rated at 3800 CCA at 0 degrees Fahrenheit, 760 minutes of reserve capacity and treaded stainless steel studs.	3	
5.29	The batteries will be wired in a cross-charging method whereby the alternator positive lead will be connected to the first battery on the driver's side of the apparatus and the alternator negative will be connected to the first battery on the passenger's side. This battery connection method is intended to obtain even charging and discharging of all six batteries.	3	
5.30			
5.31	The batteries will be arranged as 12/12 system with a negative (-) ground.	2	
5.32	The batteries will be installed in a protected and well-ventilated location that is outside of the passenger compartment. The top of the batteries will be positioned where they will be easily accessed for periodic inspection and maintenance.	2	
5.33	The batteries will be mounted onto a non-corrosive mat.	2	
5.34	The top of the batteries will be protected from physical hazards and metallic items that could produce an electrical short.	2	
5.35	Heavy-duty multi-strand battery cables, or solid copper buss bars, are to be used to provide maximum power to the electrical system. Cables will be color-coded, red for positive and black for negative. Battery terminal connections are to be coated with an anti-corrosive compound.	3	
5.36	Jumper studs will be provided in an easily accessed are, preferably in the step well of the left rear door, front bumper, or beneath the cab near the left rear corner. The studs will be directly wired to the batteries.	2	
5.37	Intentionally blank	0	
5.38	An electronic display bar graph indicating the state of charge for the vehicle batteries will be provided on the left side of the apparatus cab near the driver's door, step well, or seat.	2	



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5.39	A Kussmaul 40 series charger model #445-5262-0 will be provided.	3																									
5.40	The battery charger will be provided with a remote bar graph display located adjacent to the Auto Eject.	2																									
5.41	All 12-volt chargers, such as flashlights will be powered by the axillary 15 amp output circuit on the charger.	2																									
5.42	The Kussmaul Super Auto Eject will be mounted onto a polished stainless steel cover plate that is fully removable from the outside of the cab. It is the intent of this plate to allow the Super Auto Eject device to be serviced or replaced from the outside instead of removing interior components of the cab.	2																									
5.43	A stainless steel bracket that will project outward from the exterior surface of the cab and designed to position the Auto-Eject connection 45 degrees to the rear will be mounted slightly behind the driver's door. The bracket is intended to position the cord connection towards the rear to allow it to be pulled out should the connection fail to eject.	5																									
5.44	A Kussmaul shore power alarm will be located in the cab within view and audible range of the driver to identify when the shore line does not automatically eject from the apparatus.	2																									
5.45	A 110-volt duplex receptacle will be provided within the in cab storage compartment. The source of power for the receptacles will be provided by the vehicle's shoreline.	2																									
5.46	A 110-volt duplex receptacle will be provided within compartment R-1, curb side compartment. The specific location will be provided at the time of the pre-construction meeting. The source of power for the receptacles will be provided by the vehicle's shoreline.	2																									
5.47	The vehicle's alternator will be protected by wiring it directly to the batteries or battery isolator. The alternator will not be wired through the master load disconnect switch.	2																									
5.48	The vehicle alternator will be a Delco Remy model 55SI 430 amp alternator. An alternate is strongly discouraged.	6																									
5.49	The multiplexing system will manage the electrical loads in a manner similar to a load manager. The system will provide load sequencing and shedding, monitor both batteries, provide fast idle activation for improved alternator output, over-voltage indication, automatic or manually reset circuits, and a flashing warning light for low voltage and battery discharge.	5																									
5.50	The multiplexing system will shed the loads in the following manner:	3																									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">LOAD LEVEL</th> <th style="text-align: center;">VOLTAGE</th> <th style="text-align: center;">SYSTEM(S) TO SHED</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">12.20</td> <td>Air conditioning (rear) condenser and cab blower fan</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">11.95</td> <td>Air conditioning (front) condenser and cab blower fan</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">11.70</td> <td>Flashing headlights</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">11.45</td> <td>Under body lights</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">11.25</td> <td>Spot and scene lights</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">11.10</td> <td>Compartment lights</td> </tr> <tr> <td style="text-align: center;">7</td> <td style="text-align: center;">10.95</td> <td>Lower level warning lights</td> </tr> </tbody> </table>	LOAD LEVEL	VOLTAGE	SYSTEM(S) TO SHED	1	12.20	Air conditioning (rear) condenser and cab blower fan	2	11.95	Air conditioning (front) condenser and cab blower fan	3	11.70	Flashing headlights	4	11.45	Under body lights	5	11.25	Spot and scene lights	6	11.10	Compartment lights	7	10.95	Lower level warning lights		
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5.51	All multi-plex nodes will be suitably protected from excess exposure to water, dirt and physical abuse.	3																									
5.52	A master battery switch will be installed in a convenient location for the driver. An indicator light is to be provided on the instrument panel to notify the driver of the battery system status as either "on" or "off."	2																									





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5.53	Exterior lighting, including marker and clearance lighting, will be provided and will meet or exceed the federal, state and NFPA requirements. All marker and clearance lighting will be LED type.	3	
5.54	The headlights will be LED type. If there are to be four fixtures, the lamps will use a single LED per fixture.	3	
5.55	The headlight system will be equipped with a day time running light feature that automatically turns the headlights on during the daylight hours.	2	
5.56	The chassis will be provided with fixtures for headlights and turn/forward facing lower level warning lights on the front face of the cab. The headlights will be positioned in the lower tier of lights and the upper tier of lights will be used for the turn signal and warning lights.	2	
5.57	The front turn signals are to be Whelen model 60A00TAR or equal, LED lamp, amber in color, populated in the shape of an arrow with a black outline located in the outboard position of the light fixture.	2	
5.58	Underbody lights will be provided under each cab access door. The LED lights will automatically operate upon opening of any cab door or engagement of the parking brake.	2	
5.59	Two, one each side, remote control operated, Go-Light Radioray model 2000, remote control spot lights will be mounted on the roof behind the light bars and mounted on brackets to elevate the lamp above the light bars. The controls for the lights will be within reach of the officer.	2	
5.60	Two forward facing brow lights, Whelen model PFS2, 12 volt LED combination spot/flood lights will be mounted on the front of the roof, one above the driver's visor and one above the front passenger's visor..	2	
5.61	Two, one each side, Whelen model PCP2, 12 volt LED combination spot/flood lights will be semi-recessed mounted into the upper portion of the cab above the fixed window,	2	
5.62	Two, one each side of the cab, located near the upper rear corner of the cab, will include a water tank level gauge. The preferred multi-colored light fixture will be an Innovations Control or Whelen vertically mounted multicolored LED light.	2	
5.63	Three Streamlight Fire Vulcan LED rechargeable lanterns with vehicle mount system w/ quick release shoulder strap. The location of the mounted flashlights will be identified at the final inspection.	1	
5.64	Three Streamlight Survivor® C4® LED rechargeable right angle flashlights with charger will be provided. The location of the mounted flashlights will be identified at the final inspection.	1	
5.65	The Seller will install a momentary button onto the left pump panel that will allow the operator to manually sound the chassis air horns.	1	
5.66	The Seller will install auxiliary water tank level lights on the upper portion of the cab, side facing, directly aft each of the rear doors. The needed electronic equipment and driver will be installed and available in the fire pump module. The water level lights will consist of four Whelen 400 V-Series lights with black flanges. The color Green will be at the highest position representing full followed by blue, yellow and finally red for near empty and empty.	2	
<b>6.00</b>	<b>FIRE BODY</b>	<b>0</b>	
6.01	The fire body will be constructed of aluminum skin that is supported by a combination of aluminum cast, aluminum extrusions and formed aluminum.	5	
6.02	The fire body will be attached to the chassis frame in a design and fashion that will allow the body to remain secure but capable of slightly flexing, twisting and	10	



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	bending. The intended design will minimize the risk of creating excessive stress upon the fire body resulting in cracks to the structure and/or fire body skin. The Bidder will describe how the body will be attached to the chassis frame.		
6.03	All equipment storage compartments that extend 24 inches or more from the side or rear of the chassis frame shall be provided with structural steel supports that are attached to the frame .	10	
6.04	The equipment storage compartment will be attached to the structural steel supports that allow the body to remain securely attached to the chassis while the chassis frame moves under stress. The design will minimize the risk of stress upon the fire body.	10	
6.05	The skin of the fire body is to be no less than 1/8 (0.125) inch 5000 series or 3/16 (0.1875) inch 3000 series aluminum.	10	
6.06	All extrusions that are welded to other extrusions to produce a structural frame will be welded on all sides of the created joint or abutment.	6	
6.07	Gussets used to support and/or align extrusions or other structural element will be welded on both sides along the entire length of each adjoining surface.	6	
6.08	An isolation barrier will be provided to separate direct contact between dissimilar metals to prevent electrolysis. The Bidder will describe the material used to separate the fire body from the chassis frame and supports.	10	
6.09	All hand rails attached to the fire body will be Hansen International 4000 series grab rails with 3 rubber inserts.	5	
6.10	The rear wheel wells will be provided with full and replaceable circular inner fender liners manufactured of aluminum. The design will include a slip joint type concept whereby the liner will slide into a notch for expedient replacement.	5	
6.11	Round bar stock will be provided behind the rear wheel and will protect the leading edge of the circular inner fender from debris and damaged cable chains.	4	
6.12	The rear wheel wells will be provided with flexible rubber fender crowns that extend outward from the body approximately two or three inches to provide protection to the body.	5	
6.13	The body skin around the rear wheels will be constructed of, or provided with an overlay, of aluminum tread plate.	5	
6.14	Heavy-duty mud flaps will be provided directly behind the rear wheels. The mud flaps will installed in a manner that will not damage the inner wheel well liner if they are torn off when pinched by an obstruction such as a concrete bumper stop and the tire while the apparatus is backing.	4	
6.15	The fire body will be provided with aluminum solid bar stock of no less than 1 inch thick spaced outward from the fire body approximately 0.5 to 0.75 inches. The bar stock should be no less than 2 inches, or greater than 3.5 inches in vertical height. The ends of the rub rail will be cut at an angle and de-burred to provide a finished appearance. This is highly preferred over traditional "C" channel type rub rail.	6	
6.16	Isolating tape, gaskets or other similar materials will be used to separate dissimilar metals from contact with each other in an effort to reduce the risk of electrolysis. Paint will not be considered as a suitable barrier.	5	
6.17	All compartments are to be ventilated and provided with drain holes. Vents are not to be made into the compartment door.	5	
6.18	All vent opening and access panels will be de-burred to prevent sharp edges from causing injury to personnel or equipment.	5	
6.19	Self-tapping screws will not be used in the construction of the fire apparatus or installation of any related brackets. Items will be through the material with nut	10	



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	and bolt or nut insert and bolt.		
6.20	All compartments are to have compartment floors that are flat or sweep out type that are free of obstruction at the door opening.	5	
6.21	All screws and bolts that protrude into the compartment will have acorn nuts at the ends to prevent injury to equipment and personnel.	5	
6.22	Each compartment floor is to be designed and constructed to manage a continuous storage load of no less than 750 pounds.	5	
6.23	Unless otherwise specified, all adjustable shelves and trays will be constructed of flat plate aluminum with an upward flange of no less than 1-inch or more than 2-inches turned upward on all four sides.	5	
6.24	Each upward flange of a tray or shelf facing the outside of the compartment will be provided with lime yellow reflective trim across its entire surface.	5	
6.25	Each adjustable shelf will be secured into place through the use of adjustable slide tracks located at each corner. The shelf is to be capable of safely supporting a load of 250 pounds without damage to the shelf or the associated tracks. ZICO model QDD-72 adjustable base channel is not acceptable and will not be used.	5	
6.26	All stiffeners attached to the shelves for added strength will be welded. The use of tape or other adhesives is not acceptable.	5	
6.27	All slide out trays will be capable of being extended outside the compartment by 100% of its original stowed position. The assembled slide out tray and slide rails will have a load capacity of no less than 500 pounds while fully extended outside the compartment. The edges of the slide out trays are to be no less than 1-1/2 inches or more than 3 inches in height.	5	
6.28	Swing out tool boards will be Performance Advantage Company (PAC) with Double Face Dual Trac.	5	
6.29	The rear wall of the compartment provided with the swing out tool board will be constructed of PAC Dual Trac.	5	
6.30	Hinged compartment doors will be provided with latches that are operated with polished stainless steel D-ring style twist lock devices with a slight bend outward from the door for improved access during use. The latch handle hardware will be recessed in the door.	5	
6.31	Each compartment shelf, tray or compartment floor will be provided with black Turtle Tile, <u>or equal</u> , to provide an air space between the stored equipment and the surface of the tray, shelf or floor.	4	
6.32	For reference purposes, the compartments described within these specifications will be referenced numerically from the front of the apparatus rearward with #1 located nearest the cab. The alpha character preceding the number identifies the slide of the apparatus as either left or right. The left side represents the driver's side and the right represents the curb or officer's side.	2	
6.33	The fire body will provide no less than 140 cubic feet of equipment storage excluding compartments specifically designed or intended for SCBA or oxygen cylinder storage.	6	
6.34	With the apparatus parked on a flat level surface, the fire body provided no less than 168 lineal inches of lower compartment space for heavy equipment where the compartment is no greater than 28 inches from the ground to the bottom of the compartment and the height of the compartment is no less than 25 inches in height nor less than 24 inches in depth.	6	
6.35	Unless otherwise specified, the lower compartments will be no less than 24 inches deep.	5	





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6.36	Unless otherwise specified, the upper compartments will be no less than 12 inches deep.	5	
6.37	The specific configuration and size of compartments may be different but should provide the near equivalency in space and concept.	2	
6.38	Unless otherwise specified, all compartments will be provided with roll-up doors manufactured by Amdor, or equal.	3	
6.39	Unless otherwise specified, all compartment doors are to be painted <u>or</u> otherwise finished with the job color.	3	
6.40	Each roll up door will be provided with a drip pan located below the roll of the door.	3	
6.41	Unless otherwise specified, each of the hinged compartment doors will be double pan.	3	
6.42	Unless otherwise specified, each compartment will be provided with LED strip lighting will be positioned on both sides of the door opening to illuminate the compartment.	3	
6.43	All fire body compartment doors will be provided with a magnetic switch that will be integrated into the door ajar warning system.	3	
6.44	All roll up fire body compartment doors will be provided with pull straps to facilitate access to close the door.	3	
6.45	Each fire body compartment door will be provided with an electric operated power locks that includes a manual override in the event of power failure.	6	
6.46	For consistency, the compartments will be identified as left (driver's or street side) or right (officer's or curb side) and numbered beginning with the forward most compartments on the fire body.	2	
6.47	The pump house will contain the pump, pre-connected cross-lays, hydraulic generator and booster hose reels.	5	
6.48	The pump house will be designed to support a slide out step below the left side running board. The fire apparatus manufacturer will install the step to the pump house.	5	
6.49	L-1 will be a compartment constructed of aluminum tread plate with a single panel aluminum tread plate hinged door secured with butterfly or similar latches located immediately ahead of the pump house and outboard of the aerial storage cradle. The intent of this storage compartment is to secure a tripod scene light. The compartment floor will not be required to support a load of 750 pounds.	5	
6.50	L-2 located immediately rearward of the pump panel will be approximately 40" wide x 63" high. The lower 25" of the compartment height will be no less than 24" deep and the remaining upper portion will be no less than 12" deep.  The compartment will be provided with one lower level adjustable height shelf and two upper level adjustable height shelves.	5	
6.51	The external forward facing side of compartment L-2 nearest the pump panel will be provided with an overlay of aluminum tread plate.	3	
6.52	The forward facing side of compartment L-2 will be provided with one large fold down step.	3	
6.53	A Cast Products EB0013, or similar, weatherproof enclosure with latch will be mounted on the front face of L-2 intended to contain David Clark communication equipment.	3	
6.54	L-3 located above the rear wheel will be a combination of one or more upper compartments producing storage of approximately 84" wide x 25" high and 12"	5	





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	deep.		
6.55	L-3 will be provided with an internal divider to maximize the efficiency of the compartment space.	3	
6.56	The forward portion of the L-3 will be used to store a three gallon drinking water container, generator controls and AC-voltage circuit breaker panel.	3	
6.57	The rear portion of L-3 will be provided with two adjustable height shelves.	3	
6.58	L-4 located behind the rear wheels will be approximately 45" wide by 57" high. The lower 25" of the compartment height will be no less than 24" deep and the remaining upper portion will be no less than 12" deep.	5	
6.59	The lower portion of L-4 will be provided with PAC Dual Trac on the back wall of the compartment and will be used to secure fire extinguishers and two Amkus Rams.	5	
6.60	L-4 compartment will be provided with two adjustable height upper level shelves.	5	
6.61	R-1 will be a compartment constructed of aluminum tread plate with a single panel aluminum tread plate hinged door secured with butterfly or similar latches located immediately ahead of the pump house and outboard of the aerial storage cradle. The intent of this storage compartment is to secure a tripod scene light. The compartment floor will not be required to support a load of 750 pounds.	5	
6.62	R-2 located immediately rearward of the pump panel will be approximately 40" wide x 63" high. The lower 25" of the compartment height will be no less than 24" deep and the remaining upper portion will be no less than 12" deep.  The upper portion of the compartment will be provided with two adjustable height shelves.	5	
6.63	Intentionally blank (Points retained to avoid skewed result)	5	
6.64	Intentionally blank (Points retained to avoid skewed result)	5	
6.65	The lower portion of compartment R-2 will be provided with a full sized custom constructed insulated and climate controlled cabinet insert provided by OTE International. The apparatus manufacturer will confirm the size and design of the inserted cabinet that will be approximately 40" wide by 24" deep by 25" high. The inserted cabinet will be designed to allow full removal from the apparatus for maintenance or needed replacement.  The cabinet insert will include a secured locking internal compartment to support the safe storage of controlled drugs. The balance of the cabinet insert will be used to store the EMS trauma bag and possibly the defibrillator. The cabinet insert will include an insulated hinged door to manage the internal climate and to prevent the admittance of dirt and water.  The interior space within the cabinet insert will be provided with LED lights to illuminate the storage space.  Final details concerning specific design and function will be addressed at the pre-construction meeting.  OTE International may be contacted at 6695 CR 4625, Anthens, TX 75752 or (888) 666-9361 or <a href="http://www.oteinternational.com">www.oteinternational.com</a>	5	
6.66	Intentionally blank	5	



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6.67	The external forward facing side of compartment R-2 nearest the pump panel will be provided with an overlay of aluminum tread plate.	3	
6.68	The forward facing side of compartment R-2 will be provided with one large fold down step.	3	
6.69	R-3 located above the rear wheel will be a combination of one or more upper compartments producing storage of approximately 84" wide x 25" high and 12" deep.	5	
6.70	R-3 will be provided with an internal divider to maximize the efficiency of the compartment space.		
6.71	The forward portion of R-3 will be provided with one adjustable height shelf.	3	
6.72	The rear portion of R-3 will be provided with two swing out tool boards, one with the hinge located at the front of the divider and one at the rear part of the compartment.	3	
6.73	R-4 located behind the rear wheels will be approximately 45" wide by 57" high. The lower 25" of the compartment height will be no less than 24" deep and the remaining upper portion will be no less than 12" deep.	5	
6.74	R-4 will be provided with a full extension roll out tray.	3	
6.75	The lower portion of R-4 will be provided with PAC Dual Trac on the back wall of the compartment.	3	
6.76	The upper portion of the compartment will be provided with PAC Dual Trac on the back wall of the compartment.	3	
6.77	The rear of the fire body will include a storage compartment for equipment. The rear compartment will be approximately 27" wide x 35" high and 26" deep.	5	
6.78	The rear compartment will be provided with a roll up door with natural aluminum finish.	5	
6.79	The rear compartment will be provided with one adjustable height compartment.	3	
6.80	The fire body will also have one or more hinged compartment doors to cover and protect the storage of ground ladders and pike poles.	3	
6.81	Delivered with the apparatus, separate of the loose equipment identified later in these specifications, will be the following Duo Safety products:  <u>Stored in one or more enclosed ladder compartments:</u> One 35-ft. three section extension ladder One 24-ft two section extension ladder Two 16-ft roof ladders One 10-ft folding (attic) ladder Two 6-ft pike poles Two 8-ft pike poles One 10-ft pike pole One 12-ft pike pole	5	
6.82	The rear of the fire body will be provided with a rear bumper that is of the same design and dimensions as that of the rub rail.	5	
6.83	A special storage container constructed of aluminum tread plate will be provided outboard of the aerial cradle support located between the rear of the cab and the left side pump panel for the storage of two long spine boards. The compartment will not be illuminated and will use a single thickness vertically hinged tread plate door for containment.	5	
6.84	A special storage container constructed of aluminum tread plate will be provided outboard of the aerial cradle support located between the rear of the cab and the right side pump panel for the storage of brooms, squeegees or other long	5	



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	light weight tools. The compartment will not be illuminated and will use a single thickness vertically hinged tread plate door for containment.		
6.85	All steps and walking surfaces are to be provided with an aluminum tread plate material that provides the slip resistance required by NFPA 1901.	5	
6.86	An access stair will be provided to the turntable on both the left and right sides immediately ahead of the rear corner of the apparatus. The steps will be constructed of aluminum with an anti-slip surface. The stairs will be normally stowed inward and then deployed outward to a locking position to improve the angle of operational use.	5	
6.87	Both stairs will be provided with hand rails located on each side of the individual ladder to help guide and balance the climber.	5	
6.88	The access stairs to the turntable will be included in the door ajar system to warn the driver when the stairs are not properly stowed.	3	
6.89	Spare SCBA cylinder storage will be built into each side of the rear wheel area of the fire body.	3	
6.90	The SCBA storage will be contained within an aluminum enclosure that is vertically supported at both the front opening area as well as the back wall.	3	
6.91	Each side will have the ability to store two cylinders behind brushed aluminum, or stainless steel, hinged compartment doors manufactured by Cast Products or equal.	3	
6.92	The apparatus will have the ability to safely store, with retaining straps, no less than five 45-minute 4500 psi air cylinders and no less than one size "D" oxygen cylinder.	3	
6.93	The fire body will accommodate two separate hose beds, one for 3" and the second for 5" double jacket fire hose.	5	
6.94	Each of the pre-connect hose beds will be constructed of aluminum, designed to be removable, self-draining and complementary to hose aeration.	3	
6.95	The left hose bed will be provided with an adjustable hose bed divider. The far left side of the left hose bed will be used to contain a 200 feet of pre-connected 2-1/2" double jacket Blitz line.	5	
6.96	The pre-connected 2-1/2" Blitz line will be supplied by a 2-1/2" male NST fitting located at the front of the hose bed.	5	
6.97	The bulk storage of 2-1/2" double jacket hose will consist of no less than 400 feet.	5	
6.98	The right hose bed will contain no less than 500 feet of 5" double jacket fire hose with storz fittings.	5	
6.99	Each of the hose beds will be provided with removable black vinyl hose bed covers.	3	
6.100	Each of the rear facing hose bed openings will be provided with separate and replaceable hose bed retainers constructed of a black fabric material that will include the company designation.	3	
6.101	The rear face of the apparatus fire body and compartment doors will be smooth and finished with a reflective chevron.	5	
6.102	A standing platform will be provided for the left (driver's side) pump panel. Stowed beneath the pump panel, the platform will be used while the aerial device is in operation. The platform will support no less than 500-lbs while fully extended out from beneath the pump house. The glides used for the steps will be On-Scene Solutions model 81900 or equal.	5	
6.103	Though separate, the pump house will be designed to resemble and complement the balance of the fire body.	6	





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6.104	The details and capabilities of the pump house will be described in the section pertaining to the fire pump and plumbing.	3	
6.105	Two Zico Quic-chock wheel chocks, model SAC-44 and SQCH-44-H folding chock holder will be provided and mounted beneath the left side compartments.	3	
6.106	Access to the rotational swivel will be achieved through the rear compartment and removable access panels on both the left and rear sides of the apparatus fire body.	5	
<b>7.00</b>	<b>ELECTRICAL FOR FIRE BODY</b>	0	
7.01	The Bidder will acknowledge and provide generic details describing the electrical wiring diagrams, inclusion of numbers, colors and function description of individual wires and wire looms used in the construction of the apparatus.	6	
7.02	All wiring used for the fire body will be identified by color, number and function at intervals of no greater than every four inches.	6	
7.03	Wiring that is grouped together and covered by a protective loom will also be color and function coded to prevent unwanted and unneeded opening of the loom during diagnosis of system failures.	5	
7.04	The fire body will be fully multiplexed with the same system as used with the chassis.	5	
7.05	All wire terminations will be coated and sealed with a dielectric grease or sealer to prevent corrosion.	3	
7.06	Unless specified otherwise, all circuits are to be protected with automatic resetting circuit breakers. Fusible links are not to be used.	5	
7.07	Individual loads are not to exceed the electrical switch manufacturer's component amperage ratings. Relays will be used for heavy loads.	5	
7.08	All electrical components and systems will be installed by the apparatus manufacturer and operated during the performance test of the electrical system.	5	
7.09	Exterior lighting, including marker and clearance lighting, will be provided and will meet or exceed the federal, state and NFPA requirements for the fire body. All marker and clearance lighting will be LED type.	5	
7.10	The rear tail light assembly will be a Whelen M6FCV4 polished cast light fixture for Whelen M6 series lights. The assembly will contain a maximum intensity back up light, maximum intensity brake/tail light, and maximum intensity amber turn signal populated in the shape of an arrow. The fixture will also include a red warning light.	5	
7.11	The red warning light in the rear tail light assembly will flash when the emergency warning lights are switched on and will be wired in a fashion whereby they will stop flashing and will simultaneously remain on when the brake is applied.	5	
7.12	A third brake light will be provided at an elevated location on the center rear of the apparatus. The light will be a Whelen Strip-Lite model PSRASXCR-B/T/T brake, tail, turn fixture.	5	
7.13	An axillary turn signal, model 9186-8580 LED (PR), or equal, will be located at the center of the rear wheels.	3	
7.14	Britax rubber red/amber LED marker lights extending from the rear corners of the apparatus will be provided.	3	
7.15	The rear of the apparatus will be provided with an illuminated license plate bracket. The position of the license plate bracket will be determined at the pre-construction meeting.	3	
7.16	A solid state electronic audible back-up alarm that automatically operates when the transmission is shifted into reverse will be provided at the rear of the	3	





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	apparatus.		
7.17	<p>Under body lights, LED type, will be provided beneath the body and aimed towards the walking space next to the apparatus. The lights will automatically operate with engagement of the parking brake. The lights will be positioned at the following locations:</p> <ul style="list-style-type: none"> <li>• Two beneath the front bumper facing forward</li> <li>• Two, one each side, facing outward to the side at the gravel shield of the front bumper</li> <li>• One beneath each door as previously described</li> <li>• Two, one each side, facing outward to the side of the pump panel ahead of the rear wheels.</li> <li>• Two, one each side, facing outward to the side behind the rear wheels</li> <li>• Two, one each side, facing outward to the side at the rear of the apparatus</li> <li>• Two, one each side, facing rear ward at the back of the apparatus</li> </ul>	6	
7.18	The stairs or steps leading to the turntable will be provided with LED lights that automatically operate with the headlight switch.	3	
7.19	The pump compartment will be provided with LED lights that will be switched at the master switch located on the left pump panel.	3	
7.20	The rear of the fire body, located one each side, will be provided with two Whelen PFBP12 pedestal mount floodlights with black rear covers and integral switches.	3	
7.21	Each compartment will be provided with Amdor, or equal, LED lights that produce no less than 30 lumens per LED that have 180 degree illumination.	3	
7.22	The parameter of the hose bed will be provided with hooded LED strip lights.	3	
<b>8.00</b>	<b>PUMP, PLUMBING, TANKS AND FOAM</b>	<b>0</b>	
8.01	<p>The fire pump will be provided with a Hale® SmartFOAM control system for the production of class “A” foam solution. The system will utilize a Hale FoamLogix 6.5 foam injection pump to provide foam for each of the following discharges individually or in unison:</p> <ul style="list-style-type: none"> <li>• both 1-3/4” pre-connected crosslays</li> <li>• 2-1/2” pre-connected blitz line located in the main hose bed</li> <li>• Both booster reels</li> </ul> <p>5” discharge located on the right pump panel</p>	10	
8.02	The pump house will measure approximately 52 inches in width and approximately 70 inches between the left and right pump panels.	2	
8.03	An actual or “one to one” scale (full sized), image of the actual fire pump and related controls will be provided for operational training.	6	
8.04	The fire pump is to be a Hale model QMAX single stage mid-ship fire pump that will be plumbed and rated for 1,500 GPM.	10	
8.05	Though the pump house or pump module will be totally independent upon the cab and fire body but will be designed and constructed of materials to match the design and appearance of that provided by the fire apparatus manufacturer. This includes the running boards, rub rails, structural capability to support slide-out standing platforms and other similar components described in other sections of these specifications.	10	
8.06	The fire pump will be compliant with the current edition of NFPA 1901 being tested and certified by an independent third party such as Underwriters Laboratory or National Testing.	10	



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8.07	The pump is to be provided with the maintenance free, self-adjusting mechanical seal.	6	
8.08	The pump is to be provided with electronically monitored cathodic protection. The anodes will be located in the discharge manifold and in each inlet. The test panel for monitoring the anodes will be located inside the pump house within view and reach of technicians inspecting and servicing the fire pump.	6	
8.09	The pump shift to be air operated with the shift controls to be located within the cab. A manually operated pump shift is not required.	5	
8.10	A Trident Emergency Products AirPrime™ air operated fire pump primer with automatic electric panel switch will be provided.	5	
8.11	The pump will be provided with two Hale Master Intake Valves (MIV)s. One located on each side, the appliances are to be manually operated with a large hand-wheel, measuring approximately 5 inches in diameter, located adjacent to the respective master intake. The controls will be provided with an indicator system to inform the operator of the valve position.	5	
8.12	Access to each of the MIV valves will not require the removal of the entire pump panel. Ideally access will be obtained through an access door or large escutcheon plate used with each of the two valves.	3	
8.13	Each MIV will be provided with a bleeder valve to discharge air while the water is filling the hose and the MIV is in the closed position	3	
8.14	Each MIV will be provided with an Elkhart, or similar, relief valve that will discharge excess intake pressure to the atmosphere. Preset at 125 psi, the relief valves will include a mechanism to adjust the pressure.	3	
8.15	The fire pump to be provided with a thermal relief valve, Hale model TRV, set a minimum of 120° degrees F. The valve to discard the hot water below the left or driver's side pump panel and create both an audible and visual signal at the pump panel.	5	
8.16	The pump to be provided with two 6-inch intakes, one on each side. The 6-inch intakes to extend outside of the pump panel so that the panel side of the cap or other fitting is no less than 3-inches to the side of the panel.	5	
8.17	The discharge manifold for the pump will be constructed of stainless steel.	5	
8.18	The manifold and plumbing of all discharges will be fastened with Victaulic, or similar, fittings. Threaded pipe will be avoided.	5	
8.19	High pressure braided hose is preferred to pipe or tubing for discharges that require multiple elbows or extended lengths.	5	
8.20	The pump to be provided with a master drain to drain both the manifold and pump. Though this may require two separate valves, it is preferred to consist of a single valve operated at the left pump panel.	5	
8.21	Unless specifically addressed, all valves to be, or completely interchangeable with Akron 8000 series quarter turn, locking, swing out, ball valves.	5	
8.22	Unless otherwise specified, all drain valves will have lift up style handles that are identified as to their function.	4	
8.23	All valves to operate smoothly with minimal physical effort.	5	
8.24	Caps, plugs and similar devices that require retainers will use a plastic coated stainless steel cable. Traditional ball chain is not acceptable.	5	
8.25	A 4" tank-to-pump line is to include both a ball valve and check located on the suction side of the pump. The tank-to-pump valve will be operated by an electric switch located on the pump panel that controls an air valve that opens or closes the valve.	5	
8.26	Two, one each side, 2-1/2" intakes with operating valves will be provided. Each	5	



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	intake to be provided with 2-1/2" NST chrome swivels with brass inlet strainers, chrome plugs and retaining cables. The intakes to be plumbed into the suction side of the pump.		
8.27	The 2-1/2" intake valves will be located behind the pump panel. Each 2-1/2" intake will be operated from the respective side of the intake.	4	
8.28	A manually operated pump to tank, or tank fill line, with 2" plumbing and valve to be provided and operated from the left or driver's side pump panel. The discharge into the water tank will not be in the same, or immediately adjacent, baffled area as used for the tank discharge used as an intake to the fire pump.	6	
8.29	A half-inch (1/2") circulating line to be provided with a 1/2" valve from the discharge side of the pump and terminate inside the tank or tank fill tower. The intent of the line is to circulate water through the pump to reduce the potential of overheating the pump.	5	
8.30	Each of two (2) pre-connected 1-3/4" crosslays located above the fire pump will be positioned, in relation to the ground, as vertically low as possible to provide improved ergonomic access for expedient deployment. The bid will include a measurement from the ground to the bottom of the hose bed.	5	
8.31	Each of the 1-3/4" crosslays will have the ability to contain no less than 200 feet of 1-3/4" double jacket kink resistant fire hose.	5	
8.32	The hose bed divider used to separate the pre-connected hose lines will include an integrated hand hold openings to provide assistance while loading the hose line.	4	
8.33	Each of the hose beds will be provided with removable black vinyl hose bed covers.	3	
8.34	Each of the 1-1/2" crosslays will be plumbed with 2" high pressure hose or pipe and provided with a 2" valve. The valves serving the pre-connected crosslays to be operated from the left or driver's side pump panel.	5	
8.35	Each of the crosslays located will be provided with 2" swivels with 1-1/2" NST male fittings.	5	
8.36	The swivel for each crosslay will be positioned as close to the hose bed opening of the respective crosslay as possible so as to improve access while standing on the running board.	5	
8.37	Two, one each side, Hannay booster reels with electric rewind containing 100 feet of 1" 800 psi booster hose will be located over the fire pump. The reels will include roller assemblies on the outboard position of the reel as well as inboard to facilitate use on the opposite side.	5	
8.38	Each booster reel will include a momentary switch on the pump panel to rewind the hose reel.	3	
8.39	Each of the booster hose reels will be supplied with 1-1/2" 800 psi high pressure or pipe and a 1-1/2" valve.	3	
8.40	Each of the booster lines will be controlled by a valve located on the left pump panel.	3	
8.41	One 2-1/2" <u>pre-connected hose line</u> will be provided in the left side of the main hose bed. Provided with no less than 2-1/2" plumbing and valve the discharge will terminate with a 2-1/2" NST male fitting located in the bulkhead between the pump module and the left side main hose bed.	5	
8.42	A 4-inch discharge will be provided on the right pump panel and controlled at the left pump panel. The discharge will be operated by a full flow 4-inch electrically operated valve.	5	
8.43	The 4-inch discharge will be finished with a 4" NST male fitting. The discharge	5	





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	will be described as a 5" discharge.		
8.44	A 4-inch discharge for the aerial waterway will be provided on the left pump panel.	5	
8.45	The discharge side of the discharge serving the aerial waterway will be provided with no less than 5 inch pipe that will extend to the rear of the apparatus and serve the aerial waterway.	5	
8.46	Four, two each side, 2-1/2" discharges to be provided with valves. The discharges to be 2-1/2" NST and provided with 30 degree elbows with 2-1/2" NST fittings equipped with caps and retaining cables.	3	
8.47	The 2-1/2" caps will include a thread design that will relieve stored pressure before the cap is fully removed.	3	
8.48	All discharges, except the pump to tank (tank fill) line, to be provided with individual drains or bleeder valves. Flexible hoses to be attached to the valves and extended to a position below the running board.	3	
8.49	All 2-1/2" discharge valves will be, or fully interchangeable with, Akron Tork Lock, if used with a horizontally operated handle.	5	
8.50	All ball valves of 1-1/2" or larger to be, or fully interchangeable with, Akron swing out ball valves.	5	
8.51	Ball valve type drains with lift style handles with identification plates will be provided for each discharge.	4	
8.52	Both the left and right side pump panels will be constructed of stainless steel with a brushed finish.	4	
8.53	Both the left and right pump panels will be designed be fully removed during extensive work upon the pump, valves, plumbing, etc. Each of the panels will be secured by fasteners that do not require tools to acquire access or remove.	5	
8.54	The left pump panel will include a hinged panel near the top that will give access to the back side of gauges, plumbing and other related components.	5	
8.55	The left lower pump panel will be fully removable after the fittings, caps and plugs are removed. The panel need not be hinged.	3	
8.56	If gauges or instruments are attached to the upper hinged pump panel, the associated tubing, hoses, and wiring will be long enough to allow the panel to be fully opened.	3	
8.57	The left pump panel will be provided with LED lights that are illuminated with the engagement of the fire pump. The lights will be shielded to direct the lights onto the pump panel and to minimize glare that could impede the view of personnel and traffic.	3	
8.58	The right pump panel will be split where by the upper portion may be quickly opened for access to the pump, valves, controls, etc.	3	
8.59	The right lower pump panel will be fully removable after the fittings, caps and plugs are removed. The panel need not be hinged.	3	
8.60	The right pump panel will be illuminated by LED lights.	3	
8.61	All fire pump pressure gauges will have a white face with black markings and black needle. The gauges will be liquid filled with a material to prevent freezing and will be temperature compensating.	3	
8.62	Gauges and instruments that are not directly related to the fire pump and are separate of the pressure governor will use a black face with white markings and needle if applicable.	3	
8.63	Gauges on the left pump panel will include the following: <ul style="list-style-type: none"> <li>• 4-1/2" liquid filled Compound vacuum pressure gauge</li> <li>• 4-1/2" liquid filled Master Pressure gauge</li> </ul>	4	





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	<ul style="list-style-type: none"> <li>2-1/2" gauges for each discharge having an operating valve of 2" or larger.</li> </ul>																																																											
8.64	<p>All discharges and respective line gauges will be labeled and color coded to match. Though they will be confirmed at the pre-construction meeting, the following colors are recommended:</p> <table border="1"> <thead> <tr> <th>DESCRIPTION</th> <th>LABEL</th> <th>COLOR</th> </tr> </thead> <tbody> <tr><td>Left 6" intake</td><td>Left MIV Intake</td><td>Green</td></tr> <tr><td>Left 2-1/2" intake</td><td>Left Auxillary Intake</td><td>Green</td></tr> <tr><td>Right 6" intake</td><td>Right MIV Intake</td><td>Green</td></tr> <tr><td>Right 2-1/2" intake</td><td>Right Auxillary Intake</td><td>Green</td></tr> <tr><td>Rear aerial intake</td><td>Aerial Intake</td><td>Green</td></tr> <tr><td>Tank to Pump</td><td>Tank to Pump</td><td>Bright Green</td></tr> <tr><td>Forward Pre-Connected Crosslay</td><td>Crosslay #1, Foam Capable</td><td>Red</td></tr> <tr><td>Rear Pre-Connected Crosslay</td><td>Crosslay #2, Foam Capable</td><td>White</td></tr> <tr><td>Rear Pre-Connected Blitz</td><td>Blitz, Foam Capable</td><td>Dark Blue</td></tr> <tr><td>Left Hose Reel</td><td>Left Reel, Foam Capable</td><td>Bright Pink</td></tr> <tr><td>Right Hose Reel</td><td>Right Reel, Foam Capable</td><td>Pink</td></tr> <tr><td>Left 2-1/2" Discharge forward</td><td>Discharge #1</td><td>Orange</td></tr> <tr><td>Left 2-1/2" Discharge rear</td><td>Discharge #2</td><td>Yellow</td></tr> <tr><td>Right 2-1/2" Discharge forward</td><td>Discharge #3</td><td>Brown</td></tr> <tr><td>Right 2-1/2" Discharge rear</td><td>Discharge #4</td><td>Tan</td></tr> <tr><td>Right 4" Discharge</td><td>5" Discharge</td><td>Gray</td></tr> <tr><td>Aerial Discharge</td><td>Aerial, Foam Capable</td><td>Black</td></tr> <tr><td>Tank Fill</td><td>Tank Fill</td><td>Teal</td></tr> </tbody> </table>	DESCRIPTION	LABEL	COLOR	Left 6" intake	Left MIV Intake	Green	Left 2-1/2" intake	Left Auxillary Intake	Green	Right 6" intake	Right MIV Intake	Green	Right 2-1/2" intake	Right Auxillary Intake	Green	Rear aerial intake	Aerial Intake	Green	Tank to Pump	Tank to Pump	Bright Green	Forward Pre-Connected Crosslay	Crosslay #1, Foam Capable	Red	Rear Pre-Connected Crosslay	Crosslay #2, Foam Capable	White	Rear Pre-Connected Blitz	Blitz, Foam Capable	Dark Blue	Left Hose Reel	Left Reel, Foam Capable	Bright Pink	Right Hose Reel	Right Reel, Foam Capable	Pink	Left 2-1/2" Discharge forward	Discharge #1	Orange	Left 2-1/2" Discharge rear	Discharge #2	Yellow	Right 2-1/2" Discharge forward	Discharge #3	Brown	Right 2-1/2" Discharge rear	Discharge #4	Tan	Right 4" Discharge	5" Discharge	Gray	Aerial Discharge	Aerial, Foam Capable	Black	Tank Fill	Tank Fill	Teal	6	
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Aerial Discharge	Aerial, Foam Capable	Black																																																										
Tank Fill	Tank Fill	Teal																																																										
8.65	A Class 1 ITL-40 water tank level indicator will be provided on the left pump panel.	5																																																										
8.66	The pump tank level system will be prepared for the installation of axillary tank level indicators that are to be located on each side of the cab aft the rear doors.	5																																																										
8.67	<p>A Class 1 Sentry pressure governor system will be provided on the left pump panel to allow the operator to operate the pump and monitor apparatus functions. The system will be visible in direct sunlight</p> <ul style="list-style-type: none"> <li>Display intake and discharge pressure</li> <li>Identify target pressure</li> <li>Identify engine RPM</li> <li>Confirm presence of safety interlocks</li> <li>Display system voltage</li> <li>Display engine coolant temperature</li> <li>Display engine oil pressure</li> <li>Display transmission temperature</li> <li>Display engine fuel consumption</li> </ul>	10																																																										
8.68	The throttle control for the fire pump and pressure governor will be a Class 1 Twister Vernier style throttle control.	6																																																										
8.69	<p>Additional left pump panel displays and controls will include:</p> <ul style="list-style-type: none"> <li>Thermal relief valve indicator light with test button</li> <li>Test gauge outlets for both suction and discharge sides of the fire pump</li> <li>A cut out for a momentary button switch intended to operate the chassis air horn</li> <li>Pump panel light switch</li> <li>Hale Total Pressure Management system</li> <li>Foam system controls and foam tank gauge</li> </ul>	6																																																										
8.70	The fire pump will include a redundant or manual back up for operation.	5																																																										



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	Located behind a panel door, a switch will be available to turn off the pressure governor and to enable the backup system.		
8.71	<p>The backup system will include a Class 1 Twister Vernier style throttle control that will be located behind the aforementioned panel door.</p> <p>As with other Tulsa apparatus, the normal pressure governor is located on the left pump panel and then a backup throttle and mechanical pressure relief valves are located behind a panel located on or about the left pump panel. The normal pressure governor is operating the primary ECM for the motor and a switch behind the a panel disables that control and engages the backup throttle control that operates the cruise control side of the motor.</p>	5	
8.72	To regulate the pressure as a backup system, a Hale TPM total pressure master relief valve will be provided. The TPM will be manually adjustable and provided with a pressure indicator. It will monitor and respond to pressure variations on both the suction and discharge sides of the pump to protect the pump from over pressurization.	5	
8.73	<p>The fire pump will be provided with a Hale® SmartFOAM system for the production of class “A” foam solution. The system will provide foam for each of the following discharges individually or in unison:</p> <ul style="list-style-type: none"> <li>• both 1-3/4” pre-connected crosslays</li> <li>• 2-1/2” pre-connected blitz line located in the main hose bed</li> <li>• Both booster reels</li> <li>• 4” discharge located on the right pump panel finished with a 5” locking storz</li> </ul>	10	
8.74	The foam system will have the ability to deliver the foam concentrate at a range between 0.1 to 6.5 gpm to enable the greatest range of need from a very small flow up to a combined total flow exceeding 1,000 gpm at 0.3% solution at a pressure up to 200 psi.	6	
8.75	The foam system will utilize a rotary gear type foam pump. <b>NO EXCEPTION</b>	10	
8.76	<p>The foam system will include a pump panel control module that includes:</p> <ul style="list-style-type: none"> <li>• An ultra-bright LED digital readout</li> <li>• Injection percentage from 0.1% to 10.0%</li> <li>• Low concentrate warning</li> <li>• Water flow rate</li> <li>• Total water used</li> <li>• Percent of foam concentrate</li> <li>• Total concentrate used</li> <li>• Protection from operation in the absence of concentrate through the combined use of a low concentrate warning light and automatic disengagement after 60 seconds of dry operation</li> <li>• Provide description of system errors or faults in English terms instead of coded messages</li> <li>• Will produce plain English error messages in inform the pump operator of system issues without the cross referencing of alpha/numeric codes</li> <li>• Continued production of foam concentrate during system errors</li> </ul>	6	
8.77	<p>The foam fill system will include(s)</p> <ul style="list-style-type: none"> <li>• High-capacity rotary gear foam concentrate pump</li> <li>• Continuous duty 12 volt motor</li> </ul>	6	



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	<ul style="list-style-type: none"> <li>• Electronic microprocessor control</li> <li>• Flush valve</li> <li>• Indicator lights</li> <li>• Pump panel plate with instructions</li> <li>• 1" concentrate pick-up wand</li> <li>• Check valves</li> <li>• 6' of one inch suction hose with wand</li> <li>• Includes a field serviceable foam concentrate strainer</li> <li>• Ability to flush the system with clear water</li> <li>• Brass or 3000 series stainless steel plumbing that has contact with foam concentrate or solution</li> </ul>		
8.78	The foam system will include a Hale® EZ-Fill truck-mounted foam concentrate refill system.	5	
8.79	The foam system and refill system will be managed at the left pump panel.	5	
9.00	<b>WATER AND FOAM TANK</b>	0	
9.01	The water tank will be constructed of UV stabilized 1/2" thick Polyprene®.	6	
9.02	The water tank, with integral foam cell, will be manufactured by Pro Poly or UPF.	6	
9.03	The water tank will be designed and provided with removable lifting eyes to facilitate installation and removal should repair be required of the tank or fire apparatus.	5	
9.04	The water tank will include a lifetime of the apparatus warranty.	6	
9.05	The tank is to contain no less than 500 gallons of water and 20 gallons of Class A foam concentrate.	10	
9.06	Has the ability to receive intake flows up to 1,000 gpm at 100 psi without damage or cause to void the tank warranty.	10	
9.07	The water tank and foam tank will be compliant with the current edition of NFPA 1901 and will be inspected and certified.	6	
9.08	The water tank will be as short in height as possible. This will reduce the center of gravity of the vehicle and reduce the height of the hose bed.	3	
9.09	The water tank to be located inside the fire body. The design and placement of the tank will be determined by the manufacturer.	3	
9.10	A tank vent/fill tower will be provided and to have an outside measurement of approximately 11-inches by 11-inches. The tower will located as far forward and at the center width of the hose bed as possible.	3	
9.11	The riser and top lid of the water tank riser to be blue in color and labeled as water.	3	
9.12	A 4-inch diameter overflow will be provided and designed to dump behind the rear wheels. The overflow discharge will be positioned where it will not place water onto the top of the fuel tank.	5	
9.13	The tank will be mounted to isolate the tank from road shock and vibration. Tank cushions are to be permanently mounted to the body frame. The tank is to be completely removable.	4	
	The tank will be provided with a 1-1/2" tank fill, 1/2" tank circulating, and 4" tank-to-pump line. The opening for the tank-to-pump line will be provided with an anti-swirl plate. All lines to have flex connections or hoses to protect the tank from any adverse stress or vibration.	3	
9.14	To minimize the risk of aeration that could produce cavitation of the pump, the discharges for the tank fill and tank circulating lines shall not share the same	5	



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	baffled area as the tank-to-pump line and should be located as far away from the tank sump as possible.		
9.15	The tank will be provided with necessary baffles and design to prevent bulging or flexing while storing or filling with water.	5	
9.16	The water level meter will enter the tank from the top and will be located immediately ahead of the fill reservoir to allow easy access and maintenance of the sending unit.	5	
9.17	A 20-gallon foam tank to be provided and located internal to the water tank. The tank will be used for Class "A" foam concentrate.	4	
9.18	The foam tank is to have an independent riser approximately 12" x 12" and provided with a hinged air tight lid provided with a latch to prevent accidental opening of the lid.	3	
9.19	The foam tank riser and lid will be green in color and be labeled as "Class A Foam."	3	
9.20	A vacuum relief will be provided on the foam tank riser or lid to allow air to enter the tank while the concentrate is being used or drained.	3	
9.21	Each tank will be provided with a removable screen to prevent the entrance of debris during the inspection and filling of the tanks.	3	
9.22	The foam tank will be provided with a discharge point that will be fitted with a brass or stainless steel ball valve to stop the flow of concentrate should a leak develop in the associated plumbing.	5	
9.23	The foam tank is to be capable of being drained. The drain is to be provided with identified and flexible hoses extended to a position below the running boards. The terminal end of each foam drain will be provided with a 1-inch stainless steel male cam and groove coupling. The fitting will also be provided with a female couple dust cap. The dust cap will be attached to the apparatus with a retaining cable.	5	
<b>10.00</b>	<b>GENERATOR, HYDRAULIC POWER, A/C POWER AND LIGHTING</b>	0	
10.01	The apparatus will be provided with a Harrison Integrated Hydraulic Technologies featuring Hydra-Qube (IHT-HQ) system to simultaneously support power for a hydraulic generator and a hydraulic rescue tool system.	8	
10.02	The hydraulic system will utilize a transmission mounted PTO coupled with an axial piston pump to supply all required flows and pressures of both the generator and rescue tool systems.	3	
10.03	Actuation of the master hydraulic switch will operate the transmission mounted PTO that will operate the hydraulic pump, and engage the hydraulic fluid heat exchanger fan. A panel mounted indicator light that is labeled "Hydraulic Power Ready" will illuminate when the system is active.	3	
10.04	The hydraulic system will include a hydraulic fluid reservoir with oil level site glass and a thermometer. The system will also include filters and a drain line fitted with a stainless steel ball valve and drain line that extends to an open area beneath the apparatus to facilitate drainage without contamination to other apparatus systems or components. Each of the components and systems will be designed and positioned to provide access during inspection and maintenance.	3	
10.05	Engagement and selection of the desired hydraulic system will consist of three switches that will be operated in the cab. Operational use of the generator or rescue tool system will be begin with the engagement of the master hydraulic PTO switch followed by the selection of the generator switch and/or the rescue	4	





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	tool system switch as desired.		
10.06	An Amkus model HH2S hydraulic power supply will be provided. Driven by the PTO hydraulic system, the Amkus power supply will provide the hydraulic fluid and power actually used by the Amkus rescue tools.	4	
10.07	The Amkus power supply will be located in a position where it will be accessible for operation of the control valves as well as for the inspection and maintenance of the hydraulic fluid reservoir.	3	
10.08	Each of the hose reels are to include 12-volt electric rewind and include 100 feet of dual hydraulic hose fitted with 100 feet of continuous uncoupled lengths that are free of unions and rated for no less than 10,500 psi.	3	
10.09	One hose reel will include hose that is blue in color and the other hose reel will be red in color.	2	
10.10	The generator will be a Harrison commercial generator set, hydraulic series HG10000 producing 10kW of 60 hertz 120/240 single phase power.	5	
10.11	The generator and related wiring, circuits and appliances will be in compliance with NFPA 1901 and NFPA 70, National Electrical Code.	10	
10.12	Generator will provide a digital display that will monitor and control the generator. The display will be located inside an upper left side compartment of the fire body.	5	
10.13	The generator will be wired to a distribution panel that will have the ability to distribute the generated power into 12 circuits. The distribution panel will be weather resistant and located inside compartment L-2 of the fire body which will be in close proximity to the digital display.	5	
10.14	A single 240 VAC single phase receptacle, NEMA 6-50R will be provided near the generator controls and circuit breaker panel.	3	
10.15	A 120 VAC duplex receptacle, NEMA 5-20R will be provided in R-1. It will be marked as "generator only" and will have a red cover plate.	3	
10.16	The following circuits will be provided: <ul style="list-style-type: none"> <li>• 120 volt, left side cord reel</li> <li>• 120 volt, right side cord reel</li> <li>• 240 volt receptacle in compartment L-2</li> <li>• 120 volt receptacle in R-1</li> <li>• 120 volt receptacle, inside the in cab storage compartment</li> <li>• 120 volt lights on the aerial ladder</li> <li>• 120 volt receptacle on the aerial ladder</li> </ul>	5	
10.17	Two, one each side, Hannay Reels model ESFCR1622-14-16 electric operated cord reels will be located on top and near the forward part of L-1 and R-1 compartments of the fire body. The cord reels will be installed without additional encasement or enclosure.	4	
10.18	Each cord reel will have the ability to store 200-ft of 10-3 cord, yellow in color, and finished with a 5L-20R twist lock connector.	4	
10.19	Each of the cord reels will be provided with a roller assembly to guide the cord on and off of the spool.	3	
10.20	Each cord will be provided with a large stopper ball to keep the cord from being drawn completely into the cord reel.	3	
10.21	A push button rewind switch for the cord reel will be in close proximity to the cord reel.	3	
<b>11.00</b>	<b>AERIAL DEVICE</b>	<b>0</b>	
11.01	The apparatus will be provided with a conventional rear mounted aerial ladder specifically designed for use in the fire service without exception to the design,	5	



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	construction and operational requirements identified in chapters 8, 9 and 19 of the 2016 edition of NFPA 1901. The aerial ladder may be constructed of steel or of aluminum.		
11.02	If the aerial is constructed of steel, it will be painted white. If the aerial is constructed of aluminum, it will be buffed to produce a swirl type appearance.	5	
11.03	All welded components of the aerial will be manufactured and welded in accordance to American Welding Society standards by certified welders.	5	
11.04	The vertical height of the aerial device will be no less than 100 feet as described by the 2016 edition of NFPA 1901.	10	
11.05	The horizontal reach of the aerial device will be no less than 100 feet as described by the 2016 edition of NFPA 1901.	10	
11.06	The load capacity of the aerial device will be no less than 750 pounds at the tip without water flowing or the aerial resting upon a support as described by the 2016 edition of NFPA 1901.	10	
11.07	The load capacity of the aerial device will be no less than 500 pounds at the tip while flowing 1,500 gpm with the nozzle at or below waterway center line without the aerial resting upon a support as described by the 2016 edition of NFPA 1901.	10	
11.08	The aerial ladder will be able to operate in winds at or less than 35 mph or coating of ice up to 0.25 inches without a reduction in load capacity.	10	
11.09	The aerial ladder stabilizers, elevation cylinders, extension cylinders and rotation motors will be operated by hydraulics supported by a hydraulic pump.	5	
11.10	The aerial ladder's hydraulic pump will be controlled by electrical switches located in the cab and at the aerial turntable controls.	5	
11.11	The aerial device, specifically the hydraulic pump, will be provided with an hour meter to identify the amount of time that it has been operated.	3	
11.12	The aerial ladder's hydraulic pump will not engage without electronic confirmation of interlocks that the parking brake has been set and the transmission is either in neutral or switched over to fire pump operations.	3	
11.13	The hydraulic pump and system will be of a constant pressure design to minimize the creation of heat in the system and provide a consistent and smooth operation of the hydraulic system.	5	
11.14	The hydraulic system will include a reservoir of no less than 20 gallons.	5	
11.15	The reservoir will include a hydraulic oil sight gauge and will also be provided with an electronic monitoring system.	3	
11.16	The hydraulic oil will be pre-filtered before it is installed into the reservoir.	3	
11.17	The hydraulic system will be provided with an oil filter system that is easily accessed and capable of being changed without loss of hydraulic fluid during maintenance and filter exchange.	3	
11.18	The hydraulic system will be monitored for temperature. An audible and visual warning will be provided to both control stations should the system become overheated.	5	
11.19	A backup or emergency hydraulic pump will be provided. The pump will be operated by a 12-volt hydraulic power pump.	5	
11.20	While being used, the emergency hydraulic pump will control the aerial device at approximately one-half speed.	3	
11.21	All hydraulic cylinders used for aerial stabilization, elevation and extension will be painted job color and have chrome plated cylinder rods.	3	
11.22	All hydraulic functions will be provided with electronic controls to reduce the hydraulic flow and cylinder movement as it approached both maximum and	5	



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	minimum cylinder position.		
11.23	The hydraulic system will be provided with electronic ramping to minimize the sudden start and stop hydraulic actions that result in jerky type movement. This is particularly important to the rotational movement of the aerial.	5	
11.24	The aerial device will be provided with collision avoidance controls to minimize the risk of the aerial striking any component of the apparatus during aerial operations.	5	
11.25	Any hydraulic override switches or controls will be physically located in a secure area to prevent unwanted access and require the use of a second person to operate the designed system.	5	
11.26	The lower controls used to position the stabilizers will positioned at the rear of the apparatus near each corner. The controls will include needed illumination, level assist switch, override switch to override the interlocks, emergency stop switches and emergency power unit switch.	3	
11.27	The aerial will use a combination of two or more stabilizers to support the apparatus and aerial device.	3	
11.28	The stabilizers will have a spread of no greater than 18 feet when fully extended on both sides.	4	
11.29	The aerial device will have the ability to be operated "short jacked" whereby the side opposite of the placement of the aerial operations may be deployed less than full extension.	6	
11.30	The stabilizer system will be in compliance with NFPA in design and operational capability.	6	
11.31	The stabilizers will be provided with dual pilot operated check valves directly attached to each cylinder to hold the cylinder in the stowed or working position.	6	
11.32	Each stabilizer will include an attached plate to distribute weight onto the ground while deployed. The attached plate will be no less than 0.75 square feet.	5	
11.33	Each stabilizer will be provided with supplemental ground pads measuring 24" x 24" to distribute the load of the aerial to a larger surface area. The supplemental ground pads will be constructed of a composite material to be light weight but capable of safely supporting and distributing the loads produced by the aerial device.	4	
11.34	With use of the ground pads, the maximum pressure exerted by the aerial to the ground will not exceed 75psi.	10	
11.35	The supplemental ground pads will be stowed in brackets positioned beneath the compartments, one on each side of the apparatus.	5	
11.36	Each stabilizer will be provided with a light to automatically illuminate the area of the stabilizer whenever the aerial ladder hydraulic pump is engaged.	3	
11.37	Red LED warning lights attached to stabilizers that extend outside the width of the apparatus body will begin to flash whenever the switch for the aerial's hydraulic pump is engaged. The lights will consist of three Whelen® model T0R00FRR 2" flashing lights with one forward facing from the stabilizer beam, one rearward facing from the stabilizer beam and one facing away from the side of the apparatus mounted in the cosmetic trim covering the stabilizer.	3	
11.38	Engagement of the aerial ladder hydraulic pump will simultaneously operate lasers that are located with each outward projecting stabilizer. The laser will produce an image onto the ground where the stabilizer will be positioned if fully extended during deployment. The image produced by the lasers will be visible	5	





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	in bright sunlight on clean concrete.		
11.39	A camera will be provided for each outward projecting stabilizer to provide an image on a screen within view of the driver of where the stabilizer will be positioned if fully extended during deployment.	5	
11.40	Each of the stabilizers will be cosmetically trimmed with bright aluminum tread plate, polished stainless steel or chrome plated steel to protect the stabilizer while stowed.	3	
11.41	The horizontal surface of the stabilizer's structure that projects outward from the fire body will be trimmed with reflective red and lime-yellow alternating stripes.	3	
11.42	The aerial will be provided with both manual and electrically operated controls to deploy and retract the stabilizers. The controls will be located at the rear of the apparatus positioned where the operator can see the stabilizer while it is being operated.	3	
11.43	The electronic stabilization process will include an automatic leveling process.	3	
11.44	The manual stabilization process will include the use of a bubble level indicator to identify the aerial's side to side elevation.	3	
11.45	The hydraulic system will use a series of interlocks to prevent unwanted operation of the aerial device. With the aerial still in its stowed position, the hydraulic system will be limited to only the stabilizers. Only after the vehicle has been adequately positioned, leveled and stabilized will an interlock allow the hydraulics to be transferred to the aerial device. Once transferred, the hydraulic system cannot operate the stabilizers until the aerial has been safely secured back into its stowed position.	3	
11.46	The aerial device will be provided with a wireless remote control that may be used to control the stabilizers, aerial elevation, aerial rotation, aerial extension, nozzle position and nozzle pattern.	5	
11.47	The aerial will be provided with a torque box that is of sufficient design and construction to safely support the aerial without failure or damage.	6	
11.48	The torque box will not be welded to the chassis frame.	6	
11.49	The aerial will operate upon a rotational turntable that rests upon maintenance free rotational bearings that do not require external lubrication.	5	
11.50	A turntable will be constructed on top of the rotational bearing and serve as the attachment point for the balance of the aerial device.	4	
11.51	The turntable will be designed to complement access to and use of both the left and right hose beds.	3	
11.52	The aerial will be provided with a hydraulic swivel to allow the passage of high pressure hydraulic fluid, fire suppression water, DC voltage and AC current to pass from the apparatus to the aerial with continuous 360 degree rotation. Access will be made to the swivel for periodic maintenance from the rear compartment and access panels from both left and right sides of the fire body.	3	
11.53	The rotational swivel will include no less than 28 twenty-amp electrical collector rings and a waterway of no less than 5 inches in nominal diameter.	5	
11.54	The aerial device will be provided a hydraulic rotational motor that will allow the turntable and aerial to continuously rotate in either direction.	3	
11.55	The aerial device will be provided with a spring applied, hydraulically released disc type spring brake to provide positive breaking of the turntable assembly.	3	
11.56	The left side of the turntable will be used to support the turntable control pedestal.	3	
11.57	The turntable will be provided with an approved walking surface, handrails and spring loaded Mansaver™ bars.	3	





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11.58	The upper portion of the railing at the rear of the turntable or fire body will be as short as possible while remaining compliant with NFPA 1901.  Depending upon the geometry of the specific apparatus, the handrail may need to be designed to be hinged, telescoping or otherwise adjustable in height to minimize the risk of interface with station overhead door headers during departure from the station. Specifics and details will be addressed at the pre-construction meeting.	4	
11.59	The aerial will be constructed of four sections consisting of a base section, inner mid-section, upper mid-section and a top fly section.	4	
11.60	Boom panels, one each side, will be mounted onto the bed section of the aerial. The panels will be mounted in a fashion that allows the outward facing side of the panel to be free of all mounting hardware to provide a smooth flat surface for lettering.	3	
11.61	The boom panel located on the left side will be designed to store a full sized stokes basket within a fully enclosed aluminum storage box. The boom panel located on the right side will be designed to store an 18 ft. Duo Safety roof ladder.	3	
11.62	Extension markings with corresponding numerical indicators will be provided along each inside and outside top rail of the base section at intervals of ten feet. Markings and indicators will be reflective and placed where they are clearly visible to the aerial operator.	3	
11.63	Each rung of the aerial ladder will be inherently designed or provided with attached covers that meet the requirements of NFPA 1901.	4	
11.64	The aerial device will include a sensor that will display when the rungs from each section are aligned with each other.	3	
11.65	The top fly section of the aerial will be provided with folding steps located near the tip of the aerial to provide a standing position for a firefighter. The folding steps will be provided with a non-skid surface.	3	
11.66	The tip of the top fly section of the aerial will be provided with a replaceable egress section that is bolted onto the top fly section. The bolted on egress section will be painted bright red or orange.	5	
11.67	The replaceable tip will include lifting eyes located at each end of the very top rung.	4	
11.68	The top fly section will be provided with PAC mounting brackets for a pick head axe and 6 ft Duo Safety pike pole. Each item will be provided and installed at the manufacturing facility.	3	
11.69	While stowed, the aerial will rest in a cradle that will support the bed section of the aerial at a position immediately behind the chassis cab.	3	
11.70	The surface area of the aerial's bed section that comes into contact with the cradle support will be provided with stainless steel scuff plates to provide protection to each.	2	
11.71	The cradle will include sensors to prevent the aerial from being powered downward once appropriately stowed.	3	
11.72	The cradle sensor will also serve as a component of the interlock system to prevent the aerial from being operated until the stabilizers have been engaged and the turntable placed into a stable and level position.	3	
11.73	Elevation of the aerial will be accomplished by two elevation cylinders.	3	
11.74	The aerial device will have the ability to operate between 10 degrees below horizontal to 77 degrees above horizontal.	6	



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11.75	Intentionally blank	0	
11.76	The aerial ladder will include an extension and retraction system that is controlled through the use of dual hydraulic cylinders and wire rope systems.	3	
11.77	All sheaves used in the extension and retraction system will be maintenance free greaseless with sheave and pivot pins constructed of stainless steel.	5	
11.78	The aerial ladder will be provided with wear pads or roller systems will be used to reduce friction between the aerial sections in an attempt to provide a smooth response during aerial extension and retraction. The system will be capable of being adjusted to produce the desired performance.	5	
11.79	Four Whelen Pioneer Micro MPB4W LED lights, black in color, will be provided at the following locations: <ul style="list-style-type: none"> <li>• One mounted on the left side of the base section of the ladder.</li> <li>• One mounted on the right side of the base section of the ladder.</li> <li>• One mounted on the left side of the tip of the aerial.</li> <li>• One mounted on the right side of the tip of the aerial.</li> </ul>	5	
11.80	The 12 volt DC lights mounted on the base section will be switched at the turntable pedestal. The 12 volt DC lights located at the tip will be switched at both the tip and turntable.	3	
11.81	The aerial ladder will be provided with LED rung lighting provided on both sides of the aerial ladder base and all three fly sections. The lighting will automatically turn on when the turntable pedestal controls are activated through the master battery switch. The color of the sections will be: <ul style="list-style-type: none"> <li>• Base section to be blue</li> <li>• Lower mid-section to be green</li> <li>• Upper mid-section to be amber</li> <li>• Top fly section to be red</li> </ul>	4	
11.82	There will be two Whelen model M2WAC or Whelen VTX609A flashing LED lights located at the tip and positioned with one on the left and one on the right side, each facing outward. The flashing amber lights will automatically operate when the aerial is lifted from the cradle.	3	
11.83	The tip of the aerial will be provided with two, one each side, Whelen model PFP1AP, 120 volt AC LED floodlights mounted on a Whelen model PBAPEDA pedestal swivel base.	3	
11.84	120 volt 20 amp twist lock, NEMA 5L-20R receptacle with weatherproof cover will be located at the tip of the aerial.	3	
11.85	Fire Research model ICA900-12, or equal, two-way intercom system will be provided. The control module will be located at the turntable control pedestal. The controls will include an LED volume display and push-button volume control at the pedestal.	3	
11.86	The intercom at the tip of the aerial will be hands free and constantly transmit signal to the pedestal control unless the pedestal control push-to-talk is pressed.	3	
11.87	The aerial will be provided with a waterway system that connects to the 5 inch swivel upward to the heel pin swivel. The heel pin will have the ability to swivel from 10 degrees below horizontal to 77 degrees above horizontal.	5	
11.88	Located below the aerial ladder, the waterway will be an internal telescopic water tube beginning with 4.5" at the base section and 3.5" diameter at the top fly section.	5	
11.89	The aerial ladder waterway will have ability to flow 1,000 GPM at 100 psi with the aerial at full elevation, full extension and in all 360 degrees of rotation while	5	



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	pumping from a static water supply.		
11.90	The waterway will have the ability to maintain a tip load of no less than 500 PSI while flowing 1,250 GPM in all aerial positions that are not at risk of collision with the apparatus with the nozzle in all possible positions of elevation and horizontal relationship to the aerial ladder.	5	
11.91	The aerial will be provided with an electrically operated Akron model 3480 monitor with an Akron SaberMaster model 1577 nozzle rated at 1,250 gpm at 80 psi nozzle pressure using a 1-15/16" solid stream bore or the fog stream function.	5	
11.92	The nozzle will have the ability to flow up to 30 degrees above horizontal.	5	
11.93	Controls for the aerial's monitor will be located at the tip of the ladder as well as at the turntable pedestal.	3	
11.94	Courtesy lights will be provided at the tip to illuminate the aerial monitor controls.	3	
11.95	The position of the aerial's waterway and nozzle may be positioned to the tip of the aerial for water delivery or secured to the upper mid fly section for rescue operations.	3	
11.96	The monitor location will be changeable by use of a single handle. With the ladder fully retracted, the handle, attached to a cam bracket, will simply be moved forward to lock the monitor at the top fly section or rearwards to secure the monitor to the upper mid fly section. The process does not use or need pins.	3	
11.97	The electrically operated monitor may be used and controlled at either position and will not require any connections or adjustments to the applicable electric connections.	3	
11.98	The waterway will be provided with a flow meter that will have a display located on the turntable pedestal controls.	3	
11.99	The waterway may receive water from the fire pump or from an inlet located at the rear of the apparatus.	3	
11.100	The rear inlet will be finished with a male 5" NST fitting provided with a long handle cap.	3	
11.101	The aerial waterway will be provided with an adjustable relief valve.	3	
11.102	A 1.5" drain with valve will be located in the lowest point(s) of the waterway system.	3	
11.103	A pressure gauge will be located adjacent to the aerial waterway inlet located at the rear of the apparatus.	2	
11.104	A mechanical aerial elevation angle indicator will be provided on the base of the aerial device within direct view of the turntable pedestal control station.	3	
11.105	The aerial will be managed by a microprocessor or other engineered system or process that will automatically engage or disengage aerial operations resulting from distracted or inexperienced operators. The desired controls and safety systems will include the following features: <ul style="list-style-type: none"> <li>• Collision avoidance with the cab and fire body.</li> <li>• Automatic deceleration while lowering into the cradle.</li> <li>• Automatic deceleration nearing the end of a cylinder's stroke during both extension and retraction.</li> <li>• Automatic deceleration nearing the limits of travel of the device.</li> <li>• Automatic ramping of the hydraulic system operation at both the initial call for hydraulic power as well as termination to minimize hydraulic surges that result in jerky movements.</li> </ul>	6	



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	<ul style="list-style-type: none"> <li>Prevention of the aerial from rotating into an unstable position such as being short jacked.</li> </ul>		
11.106	Controls for the aerial and related accessories will be located in a protected housing located on the apparatus left side turntable pedestal.	3	
11.107	<p>The turntable pedestal controls and monitors will include the following:</p> <ul style="list-style-type: none"> <li>Controls to elevate, rotate and extend the aerial ladder.</li> <li>Monitor that has the ability to provide numerous control and monitoring screens that is weather resistant and able to be seen in bright sunlight.</li> <li>Provide audible and visual alarms</li> <li>Include a load chart</li> <li>Live load applied to the aerial</li> <li>Include aerial operating envelope</li> <li>Identify outrigger stowed, fully extended or partially extended</li> <li>Identify when rungs are aligned</li> <li>Identify elevation</li> <li>Identify extension</li> <li>Identify aerial height</li> <li>Identify aerial angle</li> <li>Identify grade of vehicle</li> <li>Identify slope of vehicle</li> <li>Intercom control with the tip of the aerial</li> <li>Tip tracking light switch</li> <li>Emergency Stop</li> <li>High idle switch</li> <li>Aerial boom lights</li> <li>Aerial rung lights</li> <li>Chassis air horn switch</li> <li>Waterway flow and pressure</li> <li>Nozzle controls</li> <li>The safe load capacity of the aerial shown as number of people and their location on the aerial</li> </ul>	6	
<b>12.00</b>	<b>AUDIBLE AND VISUAL WARNING DEVICES</b>	0	
12.01	All warning lights will be connected to a master warning light switch. Engagement of the switch will signal the multi-plexing system to sequence the operation of the warning lights so as to minimize any electrical spikes to the warning systems or electrical system.	4	
12.02	An alternating headlight flasher will be provided. The headlight flasher will be capable of being individually turned off through the use of the multiplexing system and will automatically turn off. The flasher will automatically disengage when the high beams are being used as well as upon engagement of the parking brake	3	
12.03	Two Whelen 6RBRC red flashing LED warning lights with clear curved lens located inboard of the forward facing turn signals.	2	
12.04	A Roto Ray, model 4000W rotating warning light will be provided on the front of the cab near the upper center portion of the front grill. The light will be provided with a PAR46 red LED, PAR46 white LED and a PAR 46blue LED light. The light will be provided with a switch that is energized with the Master Warning lights and release of the parking brake.	6	





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12.05	All lower level light heads mounted to the body will be provided with black mounting flanges.	3	
12.06	Two, one each side, Whelen model M6RC, red with clear lens, will be mounted onto the side of the gravel shield.	2	
12.07	Two, one each side, Whelen model M6RC, red with clear lens, will be mounted onto the side of the cab near the rear at an elevation near the same as the top of the wheels.	2	
12.08	Two, one each side, Whelen model M6RC, red with clear lens, will be mounted onto the side of the body near the rear wheels.	2	
12.09	Two, one each side, side facing Whelen RFLANGE2B with two LINZ6R will be located below the hand rails for the stairs to the turntable.	2	
12.10	Two, one each side, Whelen model MCRC, red with clear lens, will be mounted into the assembly used for the tail, brake, turn, backup and warning light assembly. The lights will flash when the emergency lights are being operated but will simultaneously stay illuminated when the brakes are applied.	2	
12.11	A GTT, model 794 LED Opticom traffic light controller set to high priority will be installed on the roof of the cab facing forward. The light will be independently switched within the Master Warning Control. The light will automatically disengage upon setting of the parking brake.	6	
12.12	Two Whelen F4NMINI light bars, red with clear lens, will be located on the front of the roof and positioned at an angle.	5	
12.13	Located on both sides of the cab located over each of the rear doors will be warning lights that are mounted at the roof line with Whelen brow brackets and aluminum plate painted job color red. Mounted to the plate will be three Whelen Rota Beam fixtures consisting of Whelen 6RBRC (red), 6RBBC (blue) and 6RBRC (red).	2	
12.14	Two, one on each side on the top of the body at the rear of the fire body, Whelen model B6LED Super-LED® Beacon with Polished Base. The rotating light will be red with clear lens and the rear facing light will be amber with clear lens.	2	
12.15	Two Whelen, one on each side, rear facing, at an elevation equal between the upper and lower warning lights, model 6RBRC, red with clear lens.	2	
12.16	The rear facing 6RBRC light fixture will use a black flange and will be outlined by no less than a 3 inch circumference of a black vinyl or painted flange.	2	
12.17	A Whelen model 295HFSC9, 200 watt, dual tone electronic siren with noise canceling microphone will be provided. Foot operated switches will be provided for the driver and front passenger floor to change the tone of the electronic siren. All foot switches to be identified with durable labels.	3	
12.18	The siren is to be provided with an interlock that stops the siren sound when the apparatus parking brake is engaged.	2	
12.19	Two, one each side, Whelen KDE, SA314A 100-watt cast aluminum speakers are to be mounted forward facing through the front bumper. The speakers will be positioned one to each side of the outboard frame extensions.	2	
12.20	Two, one each side, Grover Studdertone 24-inch chrome air horns will be recessed into the front bumper. The air horns are to be forward facing and will not have any obstruction to the front open end of the horn.	5	
12.21	The electrically operated air horn switches will power a flasher that will alternate the sounding of the horns.	2	
12.22	The air horns to be operated by a foot switch located at the passenger's floor and the center horn button of the steering wheel. The floor switch is to be	2	



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	identified.		
12.23	A switch is to be located on the dash for the selection of the twin electric horns or the air horns for the steering wheel center horn button.	2	
12.24	A Federal Signal model Q2B electro-mechanical siren will be provided. The siren will be mounted on top of the bumper on the left side. The Q2B siren will be operated by foot switches located at both the driver's and front passenger's floor. A brake will be provided within reach of the front passenger. The switches and brake will be identified and the siren will only operate when the master warning light switch is placed in the on position.	5	
12.25	The portion of the bumper that will support the model Q2B siren will be reinforced to support the weight and torque produced by the siren. This will include structural support beneath the finished deck of the front bumper.	6	
12.26	A Chrome plated electrically operated 12" fire bell, cast in brass, with chrome acorn nut and pedestal stand will be provided on the right front bumper. The bell will be operated by two momentary switches, one within reach of the driver and one within reach of the front passenger.	5	
12.27	The portion of the bumper that will support the bell will be reinforced to support the weight and torque produced by the siren. This will include structural support beneath the finished deck of the front bumper.	6	
12.28	One Whelen TAL65 LED traffic warning device (directional arrow) will be mounted on the rear face of the fire body directly above the rear ground ladder storage compartment door. The controls for the traffic warning device will be located in the cab within reach of the driver and will produce a visual signal that is being produced by the light at the rear of the truck. A protective cover will be provided above the light to reduce the risk of the fixture from being damaged.	3	
<b>13.00</b>	<b>ELECTRONICS AND COMMUNICATIONS</b>	0	
13.01	The chassis, fire body, fire pump and aerial device will use the same electrical multiplex system that will be interconnected with one another.	6	
13.02	The electrical multiplex system will be Class 1 ES-Key system.	10	
13.03	The preferred electrical switches to operate various circuits and systems on the fire apparatus will be the Class 1, 1Touch switch panel.	5	
13.04	The multiplex system will include a Class 1 Supernode II to consolidate the universal system manager, data logger, digital input module and power distribution.	10	
13.05	The multiplex system will have the ability to identify and diagnose faults related to the chassis, driveline, fire body, pump, aerial, and visual warning systems.	10	
13.06	The multiplex system will automatically monitor the electrical system and will sequence added loads to prevent unwanted variances in voltage and amperage.	6	
13.07	The multiplex system will automatically monitor the electrical system and will shed preselected loads should the system become overly taxed.	5	
13.08	The multiplex system will include the ability to record preselected performance features of the vehicle for analysis, diagnosis of issues or event investigation.	10	
13.09	The multiplex system will monitor and control the climate control for the vehicle chassis and cab.	5	
13.10	The driver will have in view and within arm's reach a Class 1 UltraView™ 700 display and control station.	10	
13.11	The vehicle will include an integrated camera system that will provide multiple images independently of one another or collectively to produce a general 360	10	



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	degree image. The system will automatically display an image with sound produced from a rear facing camera with the transmission is placed into reverse. The system will also automatically produce an image in the appropriate direction with engagement of the turn signal. The image and controls for the camera system will be within view and control of the driver.		
13.12	The vehicle will be provided with collision avoidance detection while turning or backing. An audible alarm will sound to alert the driver whenever the apparatus is subject to collision.	10	
13.13	The multiplex system will monitor, record and in the absence of seatbelt usage, produce an audible and visual warning. A seat belt monitor display will be provided and installed on the ceiling mounted switch area directly ahead of the front right passenger.	10	
13.14	The absence of seatbelt usage will also produce an audible and visual alarm on the driver's display and control station.	10	
13.15	The multiplex system will monitor the position of cab doors, compartment doors, slide out steps, stabilizers and aerial device. Any item that is not properly stowed or secured will produce an audible and alarm when the parking brake is released.	6	
13.16	In addition to the audible and visual alarm, the multiplex system will identify the specific item on a graphic display.	6	
13.17	A digital clock that is interfaced with multiplex system will be provided and installed on the ceiling mounted switch area directly ahead of the front right passenger.	3	
13.18	A digital speedometer will be provided and installed on the ceiling mounted switch area directly ahead of the front right passenger.	4	
13.19	The multiplex system will include a modem to allow the apparatus to be connected to a network for remote diagnosis of the driveline, pump, aerial and electrical system(s).	10	
13.20	The system will include an information center that will be located in an inconspicuous location on the cab dash.	6	
13.21	The system will be provided with a data transfer dongle and interface and USB to CAN & Serial to CAN interface module.	6	
13.22	A Class 1 UltraView™ 700 display and control station will be provided at the aerial ladder control station. The unit will be used to control and monitor accessories and operational performance of the aerial device.	6	
13.23	The pump controls and monitoring system will be interfaced into the Class 1 multiplex system.	6	
13.24	The electrical system will have a dedicated power source for the radio. The selected source will automatically deactivate with the battery switch turned off.	3	
13.25	The electrical system will have a dedicated power source for the computer. The selected source will remain energized with the battery switch turned off. The power will be provided from connection to the clean power terminals on the chassis batteries.	3	
13.26	The dash will include a three position 12-volt cigar type power supply for assorted temporary 12 volt systems such as phone chargers, etc.	2	
13.27	All communication, data recording, and similar electrical systems will be installed by the manufacturer of the apparatus and included in the electrical performance test.	5	
13.28	Questions concerning the radio need to be directed to Officer Gerry Tarver (918) 596-9894.	1	





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13.29	The fire apparatus will be provide and install a Motorola APX6500 7/8000 MHZ mid power mobile radio.	5	
13.30	The fire apparatus manufacturer will install two multi-function antennas at the manufacturing factory, one mounted on each side of the roof outboard of the nested aerial device. The cable will be installed into the space between the roof and the headliner. The antennas will support the radio, GPS, Rocket, computers, etc. The radio antennas will be by ROK Brothers Inc. item number SH-TUL-006 Tulsa Sharkee Kit with 25 ft. cables. <a href="http://www.rokbrothers.com/antennas.php">http://www.rokbrothers.com/antennas.php</a> NO EXCEPTION.  Note: Each of the two antennas will have five cables that should be installed and run to the front center position of the cab dash.	5	
13.31	The antennas will be provided with coaxial cable that will terminate near the center of the dash for connection to the radio and computer equipment.	6	
13.32	The apparatus will be provided with a Utility Rocket vehicle router. The unit will be safely secured within the cab and connected to the appropriate Sharkee antenna. The device will use a cellular service from Verizon. The power will be provided for the Rocket will be from the clean power terminals on the chassis batteries.. <a href="http://www.utility.com/">http://www.utility.com/</a> NO EXCEPTION	10	
13.33	The apparatus will be provided with an automated drive recorder type camera that will monitor and record both the audible and the visual images inside the cab as well as directly outside the front windshield. The camera will be a Safety Vision SafeDrive MiniDVR™. The camera will be positioned near the upper center portion of the windshield where it will have a clear view of the front two passengers without obstructing vision for either. NO EXCEPTION	10	
13.34	NOTE: The selection of the radio will probably not be known until a time just before delivery of the completed apparatus. If a new radio is to be used it will be a Motorola APX 6500 7/800 MHz mobile radio.	N/A	
13.35	A Knox Box KeySecure® 3B USB, part 2651 will be provided and installed within the cab located in a position which is accessible to the front right passenger. NO EXCEPTION	10	
<b>14.00</b>	<b>PAINT AND FINISH</b>	0	
14.01	Body assemblies that cannot be finished painted after assembly are to be finish painted before assembly.	6	
14.02	An isolation tape or gasket will be used to prevent damage to finished surfaces before re-assembly and reinstallation of lights, handrails, door hardware and any miscellaneous items.	6	
14.03	The cab, manufactured fire body and affiliated components are to be painted with no less than 5 finish coats of PPG red paint code FBCH 70436C or equal. The color will be confirmed before the actual application.	6	
14.04	The lift and extension cylinders of the aerial device will be painted job color red.	3	
14.05	The chassis frame, frame liner and cross-members will be treated against corrosion and then painted the same color as the cab and fire body.	3	
14.06	The aerial device will match PPG white paint code 90087 or equal. The color will be confirmed before the actual application.	6	
14.07	<u>Intentionally blank</u>	0	
14.08	The interior surfaces of the compartments will be painted with a gray truck bed material, Zolatone, or similar material, paint code ZOL 20-72.	2	





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14.09	The interior of the cab will be painted with a gray truck bed material, Zolatone or similar finish.	2	
14.10	All hydraulic hoses, air hoses, wires and wiring loom will be masked before painting.	3	
14.11	The Air conditioning condenser housing will be painted the same job color as the cab.	2	
14.12	The apparatus manufacturer will apply reflective gold-white-gold stripes onto the cab and body. The reflective material used in this application will be 3M Scotchlite 680CR. Positioned with the lower gold strip positioned immediately above the deck of the extended front bumper, the stripes will begin at the radiator grill and extend across the front and sides of the cab and continue the same elevation to the rear of the apparatus. In most cases the reflective stripe is 1" gold, 1" space, 6" white, 1" space, and 1" gold.	5	
14.13	A second set of reflective stripes will be positioned on each side of the fire body slightly above midlevel in height of the fire body. These stripes will be 3M Scotchlite 680CR reflective black with adjoining accent of gold leaf above and below the reflective black.	5	
14.14	The second upper series of reflective stripes will originate at the forward most portion of compartment L-1 and R-1 extending to L-2 and R-2 with a cut-out in the reflective material stating "EMERGENCY CALL 9-1-1" located near the forward part of L-1 and R-1. The stripe ensemble will then make a P-Q-R-S wave of a QRS complex heart wave beginning on L-2 and R-2 with the balance of the wave on L-3 and R-3.	5	<p>Example of the complex image for the apparatus left side without text imbedded into the wave. The size and colors of the stripe will be determined at the pre-construction meeting.</p> 
14.15	The rear face of the apparatus will be provided with a reflective chevron of red and lime-yellow. The chevron will be designed and installed in compliance with the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD). The reflective stripes will be six-inches in width and will be positioned on the rear face of the apparatus at an angle of 45-degrees sloping to the lowest and outermost corner of the apparatus.	10	
14.16	The front bumper will be provided with a reflective chevron of red and lime-yellow.	10	
14.17	The vertical and horizontal portions of the aerial ladder stabilizers and support structure will be provided with alternating reflective red and lime-yellow stripes constructed of the same material.	5	
14.18	The reflective material used to create the front and rear chevrons will be manufactured by 3M. The lime-yellow material will be used as the background and will consist of 3M diamond grade DG3 Fluorescent lime-green sheet 4083. The red material used to create the diagonal stripes will be 3M Scotchlite Electronic Cutable Film – 1172-Red.	5	
14.19	The inside face of the vertically hinged compartments will be provided with no less than 4" wide reflective chevron style image with reflective red and lime	4	



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	yellow material across the bottom of the door.		
14.20	The flange surface of shelves and trays that face the exterior of the compartment will be provided with lime yellow reflective material.	3	
14.21	Gold leaf striping and arrow points with an adjacently located white pinstripe will be provided near the bottom of the cab, across the front door, around the front wheels, and around the rear door, and bottom of the cab aft the rear door.	3	
14.22	Gold leaf stripe, with an adjacently located white pinstripe, will be provided below the windshield on each front corner of the cab. Specific details will be determined at the pre-construction meeting. An example of striping on the front left corner of the cab. The horizontal portion will extend across the front of the cab and the vertical portion will be located slightly ahead of the front door hinges.	3	
14.23	All gold leaf will be encapsulated between two layers of clear vinyl. The vinyl lettering and maltese cross should not be covered with clear coat.	3	
14.24	The gold leaf will be Extra-Large "Smartgold" vinyl, or equal, with 3M clear removable graphic film.		
14.25	All non-reflective vinyl will be 3M removable graphic film with Comply Performance.	3	
14.26	All reflective vinyl will be 3M Scotchlite removable graphic film with Comply Performance.	3	
14.27	All lettering and numerical digits will be clearface bold with black outline and shadow. Images of text shown below are representation of size and position to the art and are not representative of the desired font.	2	
14.28	Gold leaf with black background forming the words "TULSA FIRE DEPT." will be located on both front doors of the cab. The lettering is to be elliptically arched with "Tulsa" above "Fire Dept." The word "Tulsa" will be approximately 3-1/2-inches in height and the words "Fire Dept." will be approximately 3-inches in height.	2	
14.29	An 11-1/2 inch Maltese cross will be provided in the center of the lettering on the front doors. The maltese cross will be of gold leaf with black art work. A sample of the art will be provided at a later date.	3	
14.30	Four inch gold leaf lettering with black background forming the words "Ladder" over eight inch tall numerical digits such as "30." The lettering will be located on both rear doors of the cab. The numerical digit is to be verified with the Fire Department before installation.	2	
14.31	Reflective white numbers, approximately 8" in height with black background will be located on both front corners of the cab.	2	



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14.32	<p>Two, one each side, side boom panels will be located on the aerial. The panel will be job color red with gold leaf digits, sized to fit, forming "Tulsa Fire Dept." positioned above "Rescue Ladder Co." then numerical digits.</p> <div style="text-align: center; background-color: red; color: yellow; padding: 5px; border: 1px solid black;"> <b>TULSA FIRE DEPT. RESCUE LADDER Co. 33</b> </div>	2	
14.33	The corners of the boom panel will be outlined with reflective gold with corner accents. Details will be provided at the pre-construction meeting.	2	
14.34	Reflective red numbers, no less than 8" but sized to fit, with black background will be located on the rear of the apparatus.	2	
14.35	The front grill will be painted in a fashion that will appear to be a waving United States flag in the appropriate colors. .	2	
14.36	<p>A reflective US flag with an appearance of waving with an integrated eagle head will be installed on the upper portion of the cab located between the front and rear doors. The flag on the right side of the apparatus will be reverse image.</p> <p>The image will be similar in appearance as this image.</p> <div style="text-align: center;"> </div>	2	
14.37	The fire apparatus manufacturer will provide and install all NFPA 1901 required signage.	10	
14.38	The fire apparatus manufacturer will provide and install the labels onto the valves and related components of the fire pump. The specific details and related colors are described in Chapter 8 of the specifications.	5	
14.39	All graphics will be developed and prepared for review during the pre-construction meeting.	5	
<b>15.00</b>	<b>LOOSE EQUIPMENT</b>	0	
15.01	<p>The apparatus will be delivered with the following items mounted in appropriate brackets or storage areas:</p> <ul style="list-style-type: none"> <li>• One Duo Safety 35-ft. three section extension ladder</li> <li>• One Duo Safety 24-ft two section extension ladder</li> <li>• Two Duo Safety 16-ft roof ladders</li> <li>• One Duo Safety 10-ft folding (attic) ladder</li> <li>• Two Duo Safety 6-ft pike poles</li> <li>• Two Duo Safety 8-ft pike poles</li> <li>• One Duo Safety 10-ft pike pole</li> <li>• One Duo Safety 12-ft pike pole</li> <li>• 18-ft Duo Safety roof ladder mounted onto the aerial device</li> <li>• pick head axe mounted onto the aerial device</li> <li>• 6-ft Duo Safety pike pole mounted onto the aerial device</li> </ul>	3	
15.02	For each purchase order of one or more apparatus, the bidder will provide the following software in the form of CD/DVD/electronic file or internet access with	5	





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	<p>appropriate password(s): The Tulsa Fire Department expects to receive one of each:</p> <ul style="list-style-type: none"> <li>✦ One copy of Cummins Troubleshooting/Repair Manual of the selected and installed motor</li> <li>✦ One Cummins Inline 6 USB kit</li> <li>✦ One Cummins ISM Owners Manual</li> <li>✦ One Cummins Warranty Manual</li> <li>✦ One of each module from Cummins Virtual Engine</li> <li>✦ 4091840 Belt Update-Basic Electronics Theory and troubleshooting</li> <li>✦ 4091907 (Gen-2) BETT</li> <li>✦ 4091908 (Gen-3) BETT</li> <li>✦ 4091909 (Gen-4) BETT</li> <li>✦ 4091910 (Gen-5) BETT</li> <li>✦ 4091847 (Gen-12) QSOL and Clean Care</li> <li>✦ 4091945 (Tutorial) How to use the Virtual College Library</li> <li>✦ 4091911 (Gen-8) Insite 6 Update</li> <li>✦ 401912 (Gen-8) Insite 6 Update</li> <li>✦ 4091839 INSITE 6 Update Virtual College</li> <li>✦ 4091913 Cummins Virtual College (Gen-8) Fuel Systems – CELECT, Quanturm, HPI-TP</li> <li>✦ 4091926, Disc HD-08, Intro cooling, lube, fuel, engine brake</li> </ul> <p>Allison Transmission</p> <ul style="list-style-type: none"> <li>• One Allison DOC® for Fleets (3000/4000)</li> <li>• One Allison Electronic Controls Feature Information</li> <li>• One Allison General Technician Guide</li> <li>• One Allison Warranty Manual</li> </ul> <p>Meritor WABCO</p> <ul style="list-style-type: none"> <li>• One Toolbox Software™</li> </ul> <p>Class 1 ES-Key Professional software</p>		
15.03	The following items will be provided for each apparatus. The items may be delivered to the Tulsa Fire Department immediately following the issuance of a contract or purchase order for the specified apparatus. Substitutions of make and model of specified items may be rejected if not previously approved by the Tulsa Fire Department.	5	
15.04	One Task Force Tips Blitzfire high elevation oscillating monitor with 2-1/2" NST inlet, storage bracket, model MD18A max-matic 100 psi automatic tip with 2-1/2" NST base, MST-3NJ 3stacked tips with 2-1/2" NST base inlet, 5" stream straightener with 2-1/2" inlet and outlet.	2	
15.05	One Elkhart model BG-104 water thief with pressure gauge	2	
15.06	One Elkhart Rapid Action Monitor (R.A.M.) with Rapid Attack Nozzle and truck mount bracket	2	
15.07	One Elkhart 282-A Mini stream shaper for RAM	1	
15.08	One Elkhart 181-A 1-3/8" smooth bore nozzle for RAM	1	
15.09	Two Elkhart B-100-A 2-1/2" x 1-1/2" NST gated wye	1	
15.10	Three sets, Kocheck Co. Inc. Large Diameter Hose (LDH) spanner set of four (KS3) with mounting bracket (KS34). No substitution.	2	
15.11	Two Kocheck Co. Inc. 30 degree 6" NST long handled swivel female to 5" storz for each MIV	1	





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15.12	Three 2-1/2" NST double males constructed of black finish aluminum alloy	0.5	
15.13	Three 2-1/2" NST double female, swivel, constructed of black finish aluminum alloy	0.5	
15.14	Three 2-1/2" to 1-1/2" NST reducers constructed of black finish aluminum alloy	0.5	
15.15	One 5" NST 30°elbow with 5" locking Storz with cap and retaining cable	0.5	
15.16	Three Akron style 2443 triple wrench set containing the mounting bracket, two style 10 spanners and one style 15 hydrant wrench	1	
15.17	Two 1-1/2" NST female to 1" NST male adapter	0.5	
15.18	Two, Akron Saberjet 1" nozzles with pistol grip and 3/8 solid stream orifice	2	
15.19	Four, Akron SaberJet style 1527 1-1/2" nozzles with yellow pistol grip and 7/8" solid stream orifice and large yellow operating bale	3	
15.20	Four, Akron SaberJet style 1527 1-1/2" nozzles with 1-1/8" solid stream orifice, red operating bale and	3	
15.21	Four Akron style 0426 2-1/2" inlet playpipe with ladder hook and 1-1/2" outlet	2	
15.22	One 4-ft Akron piercing nozzle, 1-1/2" with ball valve	1	
15.23	One Akron style 538 Cellar Nozzle Applicator	1	
15.24	Ten Akron style 373 E-Z Lok nozzle holder, 2-1/2"	1	
15.25	Five Akron style 373 E-Z Lok nozzle holder, 1-1/2"	1	
15.26	Thirty Akron style 42 vertical tool bracket	0.5	
15.27	Twenty Akron style 40 horizontal tool bracket	0.5	
15.28	Twenty Akron style 1078 Sprinkler shutoff	0.5	
15.29	One 20-lb stored pressure ABC type dry chemical fire extinguisher with a rating of no less than 20A:120B:C	0.5	
15.30	One 15-lb CO2 fire extinguisher with rating of no less than 10B:C.	0.5	
15.31	One 2-1/2 gallon Air-Pressurized-Water (APW) fire extinguishers	0.5	
15.32	Ten Husky Portable Containment 10-ounce red vinyl floor runners measuring approximately 3 ft x 18 ft.	0.5	
15.33	Twenty-four Husky Portable Containment part #HTV-1218,10-ounce red vinyl salvage covers measuring approximately 12 ft x 18 ft	0.5	
15.34	Four Nupla 6-lb pick head axes with yellow Classic® fiberglass handles	0.5	
15.35	Four Nupla 6-lb flat head axes with yellow Classic® fiberglass handles	0.5	
15.36	Two Nupla 3-ft fiberglass pike poles, round shaft with "D" handles	0.5	
15.37	Two Nupla 49" Pry bar single end, curved	0.5	
15.38	Two New York Roof Hook, 60"	0.5	
15.39	Three 30" Pro-Bar Halligan tool NO EXCEPTION	2	
15.40	One Paratech Super Ram Bar	0.5	
15.41	One Paratech standard Vehicle Stabilization Kit (VSK) part 22-796850	1	
15.42	Four True North Gear Irons strap	0.5	
15.43	K-Tool lock Puller	0.5	
15.44	42-inch bolt cutters, H.K. Porter #0590MHX or equal	0.5	
15.45	18-inch bolt cutters, H.K. Porter or equal	0.5	
15.46	Glas-Master windshield cutting tool	0.5	
15.47	Two FireCraft® trACer™ non-contact AC voltage detector	0.5	
15.48	Leader model MT240 gas powered positive pressure fan with Honda GX 200 motor producing 29,224 open air CFM and 22,272 AMCA airflow	2	
15.49	Leader model EDS 230-2 electric powered positive pressure fan with 2 hp single speed electric motor.	2	
15.50	Hilti 36-volt lithium ion reciprocating saw with 110-volt AC charger, two batteries and soft storage bag. Hilti WSR 36A 3.9 AH Kit (2 Batteries) item # 03453679.	1	



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	Contact Rick Fike, Account Manager I & G, Greater Tulsa Area, P.O. Box 21148 I, Tulsa, OK 74121-1148 800-879-7000 <a href="mailto:rick.fike@hilti.com">rick.fike@hilti.com</a> for details and quotes		
15.51	Hilti DSH 900-16 Hand-held gas saw with 16" capacity. Kit is to include saw, blade guard, wet kit, reversible wheels, reversible flanges, maintenance set and tool set. Contact Rick Fike, Account Manager I & G, Greater Tulsa Area, P.O. Box 21148 I, Tulsa, OK 74121-1148 800-879-7000 <a href="mailto:rick.fike@hilti.com">rick.fike@hilti.com</a> for details and quotes	1	
15.52	Two Hilti 18-volt lithium ion cordless angle grinder AG 500-A18 with Quick-Locking nut flat for AG 500-A18, two batteries, 110 volt AC charger and soft storage bag. Contact Rick Fike, Account Manager I & G, Greater Tulsa Area, P.O. Box 21148 I, Tulsa, OK 74121-1148 800-879-7000 <a href="mailto:rick.fike@hilti.com">rick.fike@hilti.com</a> for details and quotes	1	
15.53	One Hilti 18-volt lithium ion cordless drill/driver, model SFC 18-A, with two batteries, 110-volt AC charger and soft storage bag. Contact Rick Fike, Account Manager I & G, Greater Tulsa Area, P.O. Box 21148 I, Tulsa, OK 74121-1148 800-879-7000 <a href="mailto:rick.fike@hilti.com">rick.fike@hilti.com</a> for details and quotes.	1	
15.54	Unifire model PS-16DGCobra ventilation chain saw with carrying strap and depth gauge	2	
15.55	Four Univent Multi-Purpose 14" circular saw blade	2	
15.56	Four Unifire Advanced Special Ops 16" circular saw blade	2	
15.57	Four Hilti Diamond Rescue Blade 14" circular saw blade	1	
15.58	Four Vestank brand water vests with trombone type water pump	0.5	
15.59	Ten rope hose tools, W.S. Darley A-T401 or equal	0.5	
15.60	Eight Gemtor model 531 pompier belt with hook. Two size medium, two size large, two size x-large, two size xx-large	1	
15.61	Five rope bags, orange in color and capacity of 150-ft of 1/2" rope. Bag is to have a grommet in the bottom and a draw string top. WS Darley A-Z108 or equal	0.5	
15.62	Ten sections of 5-inch double jacket fire hose coupled in 100-ft sections with locking Storz couplings. See Annex 17.08 for technical specifications for the hose.	3	
15.63	Two sections of 5-inch double jacket fire hose coupled in 25-ft sections with locking Storz couplings. See Annex 17.08 for technical specifications for the hose.	1	
15.64	Ten sections of 3-inch double jacket fire hose coupled in 50-ft sections with 2-1/2" NST couplings. See Annex 17.07 for the technical specifications for the hose.	3	
15.65	Six sections of 3-inch double jacket fire hose coupled in 25-ft sections with 2-1/2" NST couplings. See Annex 17.07 for the technical specifications for the hose.	1	
15.66	Six sections of 3-inch double jacket fire hose coupled in 6-ft sections with 2-1/2" NST couplings. See Annex 17.06 for the technical specifications for the hose.	1	
15.67	Twenty sections of 2-1/2 inch double jacket fire hose coupled in 50-ft sections with 2-1/2" NST couplings. See Annex 17.06 for the technical specifications for the hose.	2	
15.68	Ten sections of 2-inch double jacket fire hose coupled in 50-ft sections with 1-1/2" NST couplings. See Annex 16.05 for the technical specifications for the hose.	2	
15.69	Twenty sections of 1-3/4" kink resistant combat double jacket fire hose coupled	2	



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	in 50-ft sections with 1-1/2" NST couplings. See Annex 16.06 for the technical specifications for the hose		
15.70	Six 55-gallon drums of Phos-Chek WD 881 class "A" foam concentrate. NO EXCEPTION	4	
15.71	Ten soft kit of 8-PowerFlare battery powered LED flares, amber LED with yellow case and yellow storage bag.	2	
15.72	One Survivair Salvage-Master water vacuum with squeegee and carpet adapters.	1	
15.73	One QRae 3-LEL/O2/CO/HCN pumped, Li-ION, non-wireless four gas monitor with custom X-brace vehicle mount with 120 volt AC charger.	1	
15.74	Three (3) Bullard NXT thermal image cameras with TI basic plus, electronic thermal throttle, digital zoom, scene catcher, retract strap, orange color housing, Resolution of 320 x 240, wireless desktop charging system and wireless truck mount charger.	5	
15.75	One (1) Physio-Control LifePak 15 defibrillator. See the annex 17.02 for technical specifications. NO EXCEPTION	5	
15.76	Twenty NEMA L5-20 Woodhead Super-Safeway® 125V plug, Woodhead part 2647	1	
15.77	Ten NEMA L5-20 Woodhead Super-Safeway® 125V connector, Woodhead part 2747	1	
15.78	Two 14-piece electric and valve lock out – tag out kit, Grainger #1D711 or equal	1	
15.79	Two <u>Rescue 42 The Shark™</u> , large, SRK-L collapsible metal step cribbing.	1	
15.80	Two Amkus high pressure hydraulic hoses, 20-ft red with single connection coupler. NO EXCEPTION	5	
15.81	Two Amkus high pressure hydraulic hoses, 20-ft blue with single connection coupler. NO EXCEPTION	5	
15.82	Two Amkus high pressure hydraulic hoses, 30-ft red with single connection coupler. NO EXCEPTION	5	
15.83	Two Amkus high pressure hydraulic hoses, 30-ft blue with single connection coupler. NO EXCEPTION	5	
15.84	One Amkus AMK-30 push-pull Ram with single connection coupler NO EXCEPTION	5	
15.85	One Amkus AMK-20 push-pull Ram with single connection coupler NO EXCEPTION	5	
15.86	One Amkus AMK-24 Spreader NO EXCEPTION	5	
15.87	One Amkus AMK-22 Cutter NO EXCEPTION	5	
15.88	One Amkus AMK-30CX standard chain package NO EXCEPTION	5	
15.89	One Amkus Ram accessory kit NO EXCEPTION	5	
15.90	One 17-ft Little Giant model 13 super duty 11-ft, type IAA, combination ladder	1	
15.91	Twenty sprinkler valves from Western Hose Handling Equipment Co., Portland, OR (888) 659-1009 or sprinkler stop valve company, or firesafetyplus.com, or Tele-Lite.	1	
15.92	Two Fire Research Spectra Max S LED portable spot/flood, model SPAKR700-B28-ON scene light with option P2 to include a NEMA L5-20 three prong twist lock plug.	1	
15.93	One Fire Research Spectra Max S LED tripod spot/flood, model SPA600-B28-ON tripod scene light with option P2 to include a NEMA L5-20 three prong twist lock plug.	1	
15.94	Six Lassen duffel bags, CMC item #440243 or equal, large duffel bag measuring 28" x 16", red in color.	0.5	





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15.95	Two Ziamatic Walkaway spring clip bracket for Scott X3 SCBA with 45 minute cylinders. The brackets are intended to be used inside fire body compartments.	0.5	
15.96	Two Ziamatic double premix holders, QM-PMH-D	0.5	
15.97	Two Ziamateic premix and bar oil holder, QM-PMH-CB	0.5	
15.98	Three Scott Safety RIT-PAK III® with one 5500 psi 75 minute carbon fiber cylinder NO EXCEPTIONS	5	
15.99	Two Zico nozzle cup mount NCM-B-TFT	0.5	
15.100	Two PAC flexmount P/N 1002 for securing the booster lines	0.5	
15.101	Sixteen PAC hooklok P/N 1001	0.5	
15.102	Sixteen PAC handlelok P/N 1004	0.5	
15.103	Six PAC extended adjustamount kit P/N K5008	0.5	
15.104	Six PAC adjustamount P/N K5006	0.5	
15.105	Three PAC Ironslok P/N K5003	0.5	
15.106	Twelve PAC Toolok P/N 1003	0.5	
	<b>Total</b>	<b>1930</b>	
<b>16.00</b>	<b>OPTIONS</b>	<b>0</b>	
16.01	Mirrors with integrated marker and turn signal lamps.	0	
<b>17.00</b>	<b>ANNEX</b>		

17.01	Equipment anticipated to be carried on the proposed apparatus.				
	<b>Locaton</b>	<b>Description</b>	<b>Qty</b>	<b>Item Weight</b>	<b>Total</b>
	Front Bumper	Hose reel with 100-ft hydraulic hose	2	129	258
	Front Bumper	Amkus rescue tool spreader AMK-24	1	38	38
	Front Bumper	Amkus rescue tool cutter AMK-22	1	46	46
	Cab	Scott SCBA	4	24.75	99
	Cab	TIC	1	4	4
	Cab	QRae gas monitor	1	3.5	3.5
	Cab	Streamlight Fire Vulcan lantern	5	1	5
	Cab	Map book	3	6	18
	Cab	Binoculars	1	1.5	1.5
	Cab	Storm kit	1	10	10
	Cab	EMS Gloves	3	2.5	7.5
	Cab	Box N95 respirators	2	1	2
	Cab	Safety Vest	5	0.5	2.5
	Cab	Portable Radio	4	1.5	7.5
	Cab	Scott PakTracker	1	2.2	2.2
	L-1	Tripod scene light	2	30	60
	L-2	Wheel chocks beneath cabinet	2	21	21
	L-2	25ft of five inch with hydrant catcher	1	27.5	27.5
	L-2	50ft of five inch with hydrant catcher	1	52.5	52.5
	L-2	2-1/2" Playpipe	1	5.5	5.5
	L-2	Double female, 2-1/2"	2	1.25	2.5
	L-2	Double male, 2-1/2"	2	.63	1.2
	L-2	2-1/2 X 1-1/2 Reducer	2	.5	1
	L-2	Rubber Mallet	1	2.5	2.5
	L-2	4" to 5" Storz adapter (white)	1	2.5	2.5
	L-2	4-1/2 LH female to 5" storz (orange)	1	2.5	2.5
	L-2	2-1/2" female to 5" storz adapter	1	2.5	2.5
	L-2	2-1/2" male to 5" storz adapter	1	2.5	2.5
	L-2	Two Clappered 2-1/2" NST female to one 5" storz Siamese	1	17	17
	L-2	5" NST female long handle to 5" storz (rear waterway)	1	4	4
	L-2	Rope hose tool	3	1	3
	L-2	Elkhart RAM (top of compartment)	1	17	17
	L-2	Solid stream tip with straightener for RAM	1	2	2
	L-2	2-1/2" female to two 1-1/2" male gated wye	1	3	3





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L-2	Two spanner & hydrant wrench with bracket front face of L1	1	7.5	7.5
L-2	Storz spanner wrench set outside face of L1	1	4	4
L-2	Vest Tanks with trombone pump	3	3	9
L-2	Electrical junction box and cord reel	1	48	48
L-3	2.5-gallon drinking water	1	30	30
L-3	SCBA bracket with Scott SCBA	1	27.75	27.75
L-3	Hose bundle of 2" x 50' with high rise nozzle	2	23	46
L-3	High rise bag with water thief, 6ft of 3 inch and 50ft of 2inch with two spanners	1	47	47
L-3	Piercing nozzle	1	11	11
L-3	Mated irons, strip, hooligan and flat head	1	19	19
L-3	PFD bag of 3PFDs, 2Throw bags	1	15	15
L-4	15lb CO2 extinguisher	1	37.75	37.75
L-4	2-1/2 gallon APW	1	24.5	24.5
L-4	20lb Dry chemical extinguisher	1	38	38
L-4	Adjustable plastic step chocks	2	15	30
L-4	4x4 plastic cribbing	4	3	12
L-4	20" Amkus push/pull ram	1	22.5	22.5
L-4	30" Amkus push/pull ram	1	27	27
L-4	Chain for rescue tool	1	40	40
L-4	Amkus Ram attachment kit	1	7.5	7.5
L-4	Pail of oil dry	1	40	40
L-4	Roll of oil dry collection bags	1	15	15
L-4	Traffic Cones	5	10.5	52.5
L-4	Battery operated flares kit of no less than 5	1	3.5	3.5
L-4	Ladder belts	4	4.5	18
L-4	Tool box with tools	1	25	25
L-4	Tool box with fasteners	1	25	25
L-4	Sprinkler kit	1	20	20
Rear	Two spanner & hydrant wrench with bracket rear face	1	7.5	7.5
Rear	Storz spanner set on rear wall	1	4	4
Rear	Roll of plastic sheeting	1	40	40
Rear	Roll of tar paper	1	40	40
Rear	Salvage covers	4	28	112
Rear	Floor runners	2	22	44
Hose bed & Ladder	500ft of 5" hose with hydrant catcher	5	100	500
Hose bed & Ladder	300ft of 3" hose	6	40	240
Hosebed & Ladder	200 ft of 2-1/2" hose	4	32	128
Hose bed & Ladder	35ft three section	1	170	170
Hose bed & Ladder	24ft two section	1	77	77
Hose bed & Ladder	16ft roof	2	39	78
Hose bed & Ladder	10ft attic	1	41	41
Hose bed & Ladder	6ft pike	2	6	12
Hose bed & Ladder	8ft pike	2	7	14
Hose bed & Ladder	10ft pike	2	8	16
Aerial	6ft pike	1	6	6
Aerial	18ft roof	1	41	41
Aerial	6lb pick head axe	1	8.5	8.5
Pump house	4" x 5" storz elbow	1	8.5	8.5
Pump house	2-1/2" elbow	4	4.5	18
Pump house	1-3/4" double jacket, 50ft coupled	8	20	160
Pump house	Hose reel with 100 ft of 1"	2	160	320
Pump house	1-1/2" nozzle	2	4	8
Pump house	2-1/2" nozzle	1	6.25	6.25
R-1	Backboards	2	17.5	35
R-1	Squeegees	2	4	8
R-1	Push brooms	2	4.5	9
R-1	Pry bars	2	12.5	25
R-1	New York Roof Hook	1	12.5	12.5
R-2	Electrical junction box1 and cord reel	1	48	48
Pump house	Little Giant 13ft	1	28	28
Pump house	Wash tubs	2	6.5	13
Pump house	Mop bucket with wringer	1	18.5	18.5
Pump house	Water vacuum & attachments	1	28.5	28.5
R-2	EMS T-Pack (requirement for first aid kit)	1	40	40
R-2	Defibrillator	1	21	21



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R-2	Disposable tarps	2	2	4
R-2	Mega Mover	1	2	2
R-2	Hilti Reciprocating saw	1	11	11
R-2	Hilti Cordless hammer drill	1	7	7
R-2	Hilti Cordless grinder	1	7	7
R-2	Two spanner & hydrant wrench with bracket front face of R1	1	7.5	7.5
R-2	Storz spanner wrench set outside face of R1	1	4	4
R-3	Round point shovel	1	4	4
R-3	Square point shovel	1	4	4
R-3	Scoop shovel	1	4.5	4.5
R-3	Bag of 100ft of 10/2 w/ground and twist lock	1	6	6
R-3	Bag of 50ft of 10/2 w/ground and twist lock	2	4	8
R-3	Bag of 25ft of 10/2 w/ground and twist lock	2	3	6
R-3	Bag of electrical adapters	1	5	5
R-3	Scene lights	2	9.5	19
R-3	150ft general use life safety rope	1	14	14
R-3	150ft light use life safety rope	1	14	14
R-3	Scott RIT kit	1	33	33
R-4	Gas fan	1	94.8	94.8
R-4	rescue chain saw	1	22	22
R-4	gas powered circular saw	1	25	25
R-4	Alternate circular blades for circular saw	3	2.5	7.5
R-4	Bracket with 2 cycle fuel and bar oil	1	7.5	7.5
R-4	Bracket with 4 cycle fuel	1	7.5	7.5
R-4	Electric fan	1	87	87
R-4	Glass Master	1	1.5	1.5
R-4	K-tool lock puller	1	1	1
R-4	42" bolt cutters	1	14.5	14.5
R-4	18" bolt cutters	1	4.5	4.5
R-4	A/C voltage detector	1	2.5	2.5
R-4	6lb Pick head axe	1	8.5	8.5
R-4	6lb Flat head axe	1	8	8
R-4	8lb sledge hammer	1	11.5	11.5
R-4	3ft D handle pike	1	3.5	3.5
Rear Wheels	SCBA cylinder storage	5	10	50
Rear Wheels	Oxygen cylinder storage	1	5	5
<b>Estimated Total Weight of Loose Equipment</b>				<b>4,344.95 Pounds</b>

17.02

**Tulsa Fire Department  
Specifications for  
Physio-Control LifePak 15**

**1.00 General**

1.01 The LifePak 15 will be purchased through Physio Control regional representative Todd Shire at cellular 405-919-5493 or Todd.shire@physio-control.com.

**2.00 Defibrillator**

2.01 Each defibrillator include the following catalog item numbers with description:

2.01.01 One 99577-000047 – LPP15 Monitor/Defib, CPR, Pace, to 360J, SPO2/CO/MetHb, 12L GL, NIBP, CO2, Trend, BT

2.01.02 One 41577-000007 – LP15 Ship Kit

2.01.03 Two 11996-000091 – ELECTRODE ASSY-ADULT, QC STD. WORLDWIDE. Accessory 11996-0000910EM ELCTD 14 LANG



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- 2.01.04 One 21330-001365 – TEST LOAD, Assy – Test Load, Engine
- 2.01.05 Four 21330-001176 – LI-ION BATTERY 5.7 amp Hour CAPACITY, Rechargeable Lithium-Ion, with fuel gauge
- 2.01.06 One 11577-000004 – STATION BATTERY CHARGER, AC operation for stationary applications, for use with the Li-ION 5.7 amp battery including AC power cord, mounting bracket and operating instructions.
- 2.01.07 One 11577-000002 – KIT – CARRY BAG, MAIN BAG, Accessory 1157-000002 LT kit Cry Bag
- 2.01.08 One 11220-000028 – Top Pouch, Storage for sensors and electrodes. Insert in place of standard paddles.
- 2.01.09 One 11260-000039 – KIT – CARRY BAG, REAR POUCH, kit – Carry Bag, Rear Pouch
- 2.01.10 One 11577-000001 – KIT – CARRY BAG, SHOULDER STRAP, Accessory 11577-000001 LP15 Kit CRY Bag
- 2.01.11 One 11171-000032 – RAINBOW DCI-DC8, ADULT REUSE SENSOR, 8-FT, REF 2407, Rainbow DCI\_DC8, Adult Reuse sensor, 8-ft, Ref 2407
- 2.01.12 One 11996-000025 – Large Adult Cuff, 16x24cm Reusable
- 2.01.13 One 11996-000023 – SMALL ADULT CUFF, 12X30CM REUSABLE, Accessory 11996-000023 OEM LP12
- 2.01.14 One 11171-000033- RAINBOW DCIP-DC8-PED REUSE SENSOR, 8FT,REF2640, Rainbow DCIP-DC8, Ped reuse sensor, 8ft, ref 2640
- 2.01.15 One 99428-000218 – LIFENET TRANSMISSION SUBSCRIPTION – 5 YR, five year transmission subscription for LifePak devices, subscription is per device.

17.03

**TULSA FIRE DEPARTMENT**

**SPECIFICATION FOR  
ONE (1) INCH BOOSTER HOSE  
08-20-13**

**INTENT**

This specification applies to one (1) inch high pressure fire engine booster hose. The hose is to be placed onto a hose reel and operated at pressures of less than 250 psi. The hose is to be designed to maintain its structural integrity and dimensional shape while used on the reel without risk of flattening, crushing, or kinking. The hose is to be fully compliant with the current edition of NFPA 1961 standard on *Fire Hose*.

**MATERIAL & WORKMANSHIP**

All materials used in the fabrication of the fire hose will be the best quality normally used for the purpose in good commercial practice for the type designated. The workmanship will be of the highest quality. The hose is to be fully compliant with the current edition of NFPA 1961 standard on *Fire Hose*.

**GUARANTEE**

In addition to the standard guarantee, the manufacturer guarantees that each length of hose to be free against faulty materials and workmanship for a period of ten years. If during this period, such faults develop, the unit or part affected is to be replaced at no cost to the City of Tulsa.

**CONSTRUCTION**



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LINING

The lining to be black synthetic (SBR) rubber tube, smooth and non-porous while being resistant to fire fighting chemicals.

OUTER JACKET

The outer jacket to be a red neoprene cover specially compounded for maximum resistance to oil, abrasion, cutting, and aging. The outer jacket to be smooth and free of visible wraps of fibers or layered compounds.

COUPLINGS

All couplings will be bar way type hard-coat lightweight aluminum couplings of 60651-T6 alloy with reattachment couplings and spanner holes. The couplings will be provided with 1" NST threads.

DIMENSIONS

The internal dimension will not be less than one (1) inch. Each length of hose will be fifty (50) feet in length when measured from the back end of the male coupling to the back end of the female coupling.

**HYDROSTATIC PRESSURE TEST**

The hose is to have a straight burst pressure rating of no less than 3,200 psig and a hydrostatic test pressure of no less than 800 psig.

17.04

**TULSA FIRE DEPARTMENT**

**SPECIFICATION FOR**

**ONE (1) INCH DOUBLE JACKET NYLON WITH EPDM RUBBER LINER FIRE HOSE**

07-31-16

**1.00 GENERAL**

- 1.08 This specification applies to ONE (1) inch diameter attack hose constructed of double jacket nylon with an EPDM rubber liner and finished with 1" NST couplings. The primary purpose of the specified hose will be to serve wild land and trash type suppression activities.
- 1.09 The fire hose is to be fully compliant with the current edition of NFPA 1961 standard on *Fire Hose* and the current edition of NFPA 1962 standard for the *Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*.
- 1.10 The bid will include information describing performance and response to each paragraph of the specifications provided herein. The absence of data or information may be considered as non-responsive or non-compliant to the specifications and may serve as cause for rejection of the bid.
- 1.11 All exceptions to the specifications herein should be fully disclosed and thoroughly described as an equivalent or minor deviation to the specifications.
- 1.12 The Tulsa Fire Department retains the sole right in determining compliance to the specifications where exceptions or alternative options have been offered as an equivalent to the specifications.
- 1.13 The City of Tulsa Fire Department reserves the right to request a sample of the specified garment for examination before the award of the bid. The sample will be provided at no charge to the City within ten-days after request and will be returned at the bidder's expense.
- 1.14 All materials used in the manufacture of the specified hose and couplings should be made and assembled in the USA.

**2.00 CONSTRUCTION**

- 2.01 All materials used in the fabrication of the fire hose will be new, unused materials of the best quality normally used for the purpose of manufacturing fire hose.
- 2.02 The manufactured hose will produce an internal diameter of ONE (1) inches.
- 2.03 The hose will be double jacket Nylon 6-6 continuous filament yarn for both warp and filler.
- 2.04 The outer jacket will be manufactured with a tight weave and high pick "count" that is free of visible defects such as pits, lumps, exposed loops, porosity in the cross section of the hose or other similar imperfections.
- 2.05 The outer jacket of the fire hose will be impregnated with a high-performance to protect the yarn from damage produced by abrasion, chemical exposure, heat, ultra-violet light, dirt, reduced pick-up of water and other potential hazards.
- 2.06 The coating for the outer jacket will be GREEN in color. NO EXCEPTION
- 2.07 The inner jacket will be manufactured with a reverse twill weave of Nylon 6-6 continuous filament warp and filler yarn.
- 2.08 The hose will be provided with a single-ply extruded tube EPD rubber liner that is thoroughly bonded to the inner





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- jacket to prevent unwanted delamination.
- 2.09 The EPDM rubber liner will be resistant to mold and ozone.
- 2.10 The finished and coupled fire hose will have a service pressure of no less than 400 psi.
- 2.11 The finished and coupled fire hose will have an acceptance test pressure of no less than 800 psi.
- 2.12 The outer jacket of the hose will be provided with markings one (1) inch indelible digits that identify the manufacturer and model of hose, country of origin, month and year of manufacture, service test pressure, and statement of compliance with NFPA 1962.
- 2.13 The hose will be equipped with extruded aluminum couplings that are attached directly to the hose through the use of an expansion ring inside the collar of the threaded coupling that allows multiple lengths of hose to be attached to one another.
- 2.14 The couplings will be hard coat anodized.
- 2.15 The female couplings will be manufactured with ball bearing swivels.
- 2.16 All couplings will be provided with standard rocker lugs.
- 2.17 All couplings will be typical 1" diameter with National Standard Threads (NST).
- 2.18 The weight of a 50-ft length of the specified hose without couplings will not exceed 13 pounds nor be less than 9 pounds.
- 3.00 TESTING AND GUARANTEE**
- 3.01 The workmanship will be of the highest quality.
- 3.02 Each finished and coupled length of fire hose will be hydrostatically tested by the manufacturer.
- 3.03 The manufacturer guarantees that each length of hose to be free against faulty materials and workmanship.
- 4.00 AVAILABLE LENGTHS**
- 4.01 The fire hose is to be available in coupled lengths of 50 ft and 100 ft.

17.05

- TULSA FIRE DEPARTMENT  
SPECIFICATION FOR  
ONE AND THREE QUARTER (1-3/4) INCH DOUBLE JACKET KINK RESISTANT FIRE HOSE  
07-31-2016**
- 1.00 GENERAL**
- 1.15 This specification applies to ONE AND THREE QUARTER (1-3/4) inch diameter attack hose constructed of polyester with through the weave nitrile/PVC tube liner and finished with 1-1/2" NST couplings. The primary purpose of the specified hose will be for the attack of fires within a municipal fire department.
  - 1.16 The fire hose is to be fully compliant with the current edition of NFPA 1961 standard on *Fire Hose* and the current edition of NFPA 1962 standard for the *Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*.
  - 1.17 The bid will include information describing performance and response to each paragraph of the specifications provided herein. The absence of data or information may be considered as non-responsive or non-compliant to the specifications and may serve as cause for rejection of the bid.
  - 1.18 All exceptions to the specifications herein should be fully disclosed and thoroughly described as an equivalent or minor deviation to the specifications.
  - 1.19 The Tulsa Fire Department retains the sole right in determining compliance to the specifications where exceptions or alternative options have been offered as an equivalent to the specifications.
  - 1.20 The City of Tulsa Fire Department reserves the right to request a sample of the specified garment for examination before the award of the bid. The sample will be provided at no charge to the City within ten-days after request and will be returned at the bidder's expense.
  - 1.21 All materials used in the manufacture of the specified hose and couplings should be made and assembled in the USA.
- 2.00 CONSTRUCTION**
- 2.01 All materials used in the fabrication of the fire hose will be new, unused materials of the best quality normally used for the purpose of manufacturing fire hose.
  - 2.02 The manufactured hose will produce an internal diameter of ONE AND THREE QUARTER (1-3/4) inches.



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- 2.03 The outer jacket will be constructed from ring spun staple polyester yarns over an inner liner consisting of a one-piece extruded through the weave nitrile/PVC tube with double dip color or clear coat for abrasion resistance.
  - 2.04 The outer jacket will be manufactured with a tight weave and high pick "count" that is free of visible defects such as pits, lumps, exposed loops, porosity in the cross section of the hose or other similar imperfections.
  - 2.05 The outer jacket of the fire hose will be impregnated with a high-performance to protect the yarn from damage produced by abrasion, chemical exposure, heat, ultra-violet light, dirt, reduced pick-up of water and other potential hazards.
  - 2.06 The coating for the outer jacket will be yellow in color with one or more colored stripes of red, blue and/or green impregnated into the outer jacket or red in color with yellow, blue or green impregnated into the outer jacket.  
NO EXCEPTION
  - 2.10 The finished and coupled fire hose will have a service pressure of no less than 500 psi.
  - 2.11 The finished and coupled fire hose will have an acceptance test pressure of no less than 1,000 psi.
  - 2.12 The outer jacket of the hose will be provided with markings one (1) inch indelible digits that identify the manufacturer and model of hose, country of origin, month and year of manufacture, service test pressure, and statement of compliance with NFPA 1962.
  - 2.13 The manufacturer will stencil the hose for the benefit of the fire department. The specific series of numbers, such as 16-1.75-0001, will be coordinated with the Tulsa Fire Department.
  - 2.14 The hose will be equipped with extruded aluminum couplings that are attached directly to the hose through the use of an expansion ring inside the collar of the threaded coupling that allows multiple lengths of hose to be attached to one another.
  - 2.15 The couplings will be hard coat anodized.
  - 2.16 The female couplings will be manufactured with ball bearing swivels.
  - 2.17 All couplings will be provided with standard rocker lugs.
  - 2.18 All couplings will be typical 1-1/2" diameter with National Standard Threads (NST).
  - 2.19 The weight of a 50-ft length of the specified hose without couplings will not exceed 20 pounds nor be less than 16 pounds.
- 3.00 TESTING AND GUARANTEE**
- 3.01 The workmanship will be of the highest quality and will include a written ten year warranty that will include a 1 year warranty for tear and wear.
  - 3.02 Each finished and coupled length of fire hose will be hydrostatically tested by the manufacturer.
  - 3.03 The manufacturer guarantees that each length of hose to be free against faulty materials and workmanship.
- 4.00 AVAILABLE LENGTHS**
- 4.01 The fire hose is to be available in coupled lengths of 6ft, 50ft, 75ft and 100ft as specified at the time of the order.

17.06

**TULSA FIRE DEPARTMENT  
SPECIFICATION FOR  
TWO and ONE HALF (2-1/2) INCH DOUBLE JACKET KINK RESISTANT FIRE HOSE  
07-31-2016**

**1.00 GENERAL**

- 1.22 This specification applies to TWO and ONE HALF (2-1/2) inch diameter attack hose constructed of polyester with through the weave nitrile/PVC tube liner and finished with 2-1/2" NST couplings. The primary purpose of the specified hose will be for the attack of fires within a municipal fire department.
- 1.23 The fire hose is to be fully compliant with the current edition of NFPA 1961 standard on *Fire Hose* and the current edition of NFPA 1962 standard for the *Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*.
- 1.24 The bid will include information describing performance and response to each paragraph of the specifications provided herein. The absence of data or information may be considered as non-responsive or non-compliant to the specifications and may serve as cause for rejection of the bid.
- 1.25 All exceptions to the specifications herein should be fully disclosed and thoroughly described as an equivalent or minor deviation to the specifications.
- 1.26 The Tulsa Fire Department retains the sole right in determining compliance to the specifications where exceptions or alternative options have been offered as an equivalent to the specifications.



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- 1.27 The City of Tulsa Fire Department reserves the right to request a sample of the specified garment for examination before the award of the bid. The sample will be provided at no charge to the City within ten-days after request and will be returned at the bidder's expense.
- 1.28 All materials used in the manufacture of the specified hose and couplings should be made and assembled in the USA.

**2.00 CONSTRUCTION**

- 2.01 All materials used in the fabrication of the fire hose will be new, unused materials of the best quality normally used for the purpose of manufacturing fire hose.
- 2.02 The manufactured hose will produce an internal diameter of TWO AND ONE HALF (2-1/2) inches.
- 2.03 The outer jacket will be constructed from ring spun staple polyester yarns over an inner liner consisting of a one-piece extruded through the weave nitrile/PVC tube with double dip color or clear coat for abrasion resistance.
- 2.04 The outer jacket will be manufactured with a tight weave and high pick "count" that is free of visible defects such as pits, lumps, exposed loops, porosity in the cross section of the hose or other similar imperfections.
- 2.05 The outer jacket of the fire hose will be impregnated with a high-performance to protect the yarn from damage produced by abrasion, chemical exposure, heat, ultra-violet light, dirt, reduced pick-up of water and other potential hazards.
- 2.06 The coating for the outer jacket will be ORANGE in color with one or more colored stripes of red, blue, yellow and/or green impregnated into the outer jacket. NO EXCEPTION
- 2.10 The finished and coupled fire hose will have a service pressure of no less than 500 psi.
- 2.11 The finished and coupled fire hose will have an acceptance test pressure of no less than 1,000 psi.
- 2.12 The outer jacket of the hose will be provided with markings one (1) inch indelible digits that identify the manufacturer and model of hose, country of origin, month and year of manufacture, service test pressure, and statement of compliance with NFPA 1962.
- 2.13 The manufacturer will stencil the hose for the benefit of the fire department. The specific series of numbers, such as 16-2.5-0001, will be coordinated with the Tulsa Fire Department.
- 2.14 The hose will be equipped with extruded aluminum couplings that are attached directly to the hose through the use of an expansion ring inside the collar of the threaded coupling that allows multiple lengths of hose to be attached to one another.
- 2.15 The couplings will be hard coat anodized.
- 2.16 The female couplings will be manufactured with ball bearing swivels.
- 2.17 All couplings will be provided with standard rocker lugs.
- 2.18 All couplings will be typical 2-1/2" diameter with National Standard Threads (NST).
- 2.19 The weight of a 50-ft length of the specified hose without couplings will not exceed 29 pounds nor be less than 25 pounds.

**3.00 TESTING AND GUARANTEE**

- 3.01 The workmanship will be of the highest quality and will include a written ten year warranty that will include a 1 year warranty for tear and wear.
- 3.02 Each finished and coupled length of fire hose will be hydrostatically tested by the manufacturer.
- 3.03 The manufacturer guarantees that each length of hose to be free against faulty materials and workmanship.

**4.00 AVAILABLE LENGTHS**

- 4.01 The fire hose is to be available in coupled lengths of 6ft, 50ft, 75ft and 100ft as specified at the time of the order.

17.07

**TULSA FIRE DEPARTMENT  
SPECIFICATION FOR  
THREE (3) INCH DOUBLE JACKET NYLON WITH EPDM RUBBER LINER FIRE HOSE  
10-03-2012**

**1.00 GENERAL**

- 1.29 This specification applies to THREE (3) inch diameter attack hose constructed of double jacket nylon with an EPDM rubber liner and finished with 2-1/2" NST couplings. The primary purpose of the specified hose will be to



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- serve wild land and trash type suppression activities.
- 1.30 The fire hose is to be fully compliant with the current edition of NFPA 1961 standard on *Fire Hose* and the current edition of NFPA 1962 standard for the *Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*.
  - 1.31 The bid will include information describing performance and response to each paragraph of the specifications provided herein. The absence of data or information may be considered as non-responsive or non-compliant to the specifications and may serve as cause for rejection of the bid.
  - 1.32 All exceptions to the specifications herein should be fully disclosed and thoroughly described as an equivalent or minor deviation to the specifications.
  - 1.33 The Tulsa Fire Department retains the sole right in determining compliance to the specifications where exceptions or alternative options have been offered as an equivalent to the specifications.
  - 1.34 The City of Tulsa Fire Department reserves the right to request a sample of the specified garment for examination before the award of the bid. The sample will be provided at no charge to the City within ten-days after request and will be returned at the bidder's expense.
  - 1.35 All materials used in the manufacture of the specified hose and couplings should be made and assembled in the USA.

**2.00 CONSTRUCTION**

- 2.01 All materials used in the fabrication of the fire hose will be new, unused materials of the best quality normally used for the purpose of manufacturing fire hose.
- 2.02 The manufactured hose will produce an internal diameter of THREE (3) inches.
- 2.03 The hose will be double jacket Nylon 6-6 continuous filament yarn for both warp and filler.
- 2.04 The outer jacket will be manufactured with a tight weave and high pick "count" that is free of visible defects such as pits, lumps, exposed loops, porosity in the cross section of the hose or other similar imperfections.
- 2.05 The outer jacket of the fire hose will be impregnated with a high-performance to protect the yarn from damage produced by abrasion, chemical exposure, heat, ultra-violet light, dirt, reduced pick-up of water and other potential hazards.
- 2.06 The coating for the outer jacket will be YELLOW in color. NO EXCEPTION
- 2.07 The inner jacket will be manufactured with a reverse twill weave of Nylon 6-6 continuous filament warp and filler yarn.
- 2.08 The hose will be provided with a single-ply extruded tube EPDM rubber liner that is thoroughly bonded to the inner jacket to prevent unwanted delamination.
- 2.09 The EPDM rubber liner will be resistant to mold and ozone.
- 2.10 The finished and coupled fire hose will have a service pressure of no less than 400 psi.
- 2.11 The finished and coupled fire hose will have an acceptance test pressure of no less than 800 psi.
- 2.12 The outer jacket of the hose will be provided with markings one (1) inch indelible digits that identify the manufacturer and model of hose, country of origin, month and year of manufacture, service test pressure, and statement of compliance with NFPA 1962.
- 2.13 The manufacturer will stencil the hose for the benefit of the fire department. The specific series of numbers, such as 16-3-0001, will be coordinated with the Tulsa Fire Department.
- 2.14 The hose will be equipped with extruded aluminum couplings that are attached directly to the hose through the use of an expansion ring inside the collar of the threaded coupling that allows multiple lengths of hose to be attached to one another.
- 2.15 The couplings will be hard coat anodized.
- 2.16 The female couplings will be manufactured with ball bearing swivels.
- 2.17 All couplings will be provided with standard rocker lugs.
- 2.18 All couplings will be typical 2-1/2" diameter with National Standard Threads (NST).
- 2.19 The weight of a 50-ft length of the specified hose without couplings will not exceed 35 pounds nor be less than 27 pounds.

**3.00 TESTING AND GUARANTEE**

- 3.01 The workmanship will be of the highest quality.
- 3.02 Each finished and coupled length of fire hose will be hydrostatically tested by the manufacturer.





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3.03 The manufacturer guarantees that each length of hose to be free against faulty materials and workmanship.

**4.00 AVAILABLE LENGTHS**

4.01 The fire hose is to be available in coupled lengths of 6ft, 50ft, 75ft and 100ft as specified at the time of the order.

17.08

**TULSA FIRE DEPARTMENT**

**SPECIFICATION FOR**

**FIVE (5) INCH DOUBLE JACKET NYLON WITH EPDM RUBBER LINER FIRE HOSE**

07-31-2016

**1.00 GENERAL**

- 1.36 This specification applies to FIVE (5) inch diameter attack hose constructed of double jacket nylon with an EPDM rubber liner and finished with 5" locking storz couplings. The primary purpose of the specified hose will be to serve wild land and trash type suppression activities.
- 1.37 The fire hose is to be fully compliant with the current edition of NFPA 1961 standard on *Fire Hose* and the current edition of NFPA 1962 standard for the *Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*.
- 1.38 The bid will include information describing performance and response to each paragraph of the specifications provided herein. The absence of data or information may be considered as non-responsive or non-compliant to the specifications and may serve as cause for rejection of the bid.
- 1.39 All exceptions to the specifications herein should be fully disclosed and thoroughly described as an equivalent or minor deviation to the specifications.
- 1.40 The Tulsa Fire Department retains the sole right in determining compliance to the specifications where exceptions or alternative options have been offered as an equivalent to the specifications.
- 1.41 The City of Tulsa Fire Department reserves the right to request a sample of the specified garment for examination before the award of the bid. The sample will be provided at no charge to the City within ten-days after request and will be returned at the bidder's expense.
- 1.42 All materials used in the manufacture of the specified hose and couplings should be made and assembled in the USA.

**2.00 CONSTRUCTION**

- 2.01 All materials used in the fabrication of the fire hose will be new, unused materials of the best quality normally used for the purpose of manufacturing fire hose.
- 2.02 The manufactured hose will produce an internal diameter of FIVE (5) inches.
- 2.03 The hose will be double jacket Nylon 6-6 continuous filament yarn for both warp and filler.
- 2.04 The outer jacket will be manufactured with a tight weave and high pick "count" that is free of visible defects such as pits, lumps, exposed loops, porosity in the cross section of the hose or other similar imperfections.
- 2.05 The outer jacket of the fire hose will be impregnated with a high-performance to protect the yarn from damage produced by abrasion, chemical exposure, heat, ultra-violet light, dirt, reduced pick-up of water and other potential hazards.
- 2.06 The coating for the outer jacket will be YELLOW in color. NO EXCEPTION
- 2.07 The inner jacket will be manufactured with a reverse twill weave of Nylon 6-6 continuous filament warp and filler yarn.
- 2.08 The hose will be provided with a single-ply extruded tube EPDM rubber liner that is thoroughly bonded to the inner jacket to prevent unwanted delamination.
- 2.09 The EPDM rubber liner will be resistant to mold and ozone.
- 2.10 The finished and coupled fire hose will have a service pressure of no less than 400 psi.
- 2.11 The finished and coupled fire hose will have an acceptance test pressure of no less than 800 psi.
- 2.12 The outer jacket of the hose will be provided with markings one (1) inch indelible digits that identify the manufacturer and model of hose, country of origin, month and year of manufacture, service test pressure, and statement of compliance with NFPA 1962.
- 2.13 The manufacturer will stencil the hose for the benefit of the fire department. The specific series of numbers, such as 16-5-0001, will be coordinated with the Tulsa Fire Department.



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- 2.14 The hose will be equipped with extruded aluminum couplings that are attached directly to the hose through the use of an expansion ring inside the collar of the threaded coupling that allows multiple lengths of hose to be attached to one another.
- 2.15 The couplings will be hard coat anodized.
- 2.16 The female couplings will be manufactured with ball bearing swivels.
- 2.17 All couplings will be provided with standard rocker lugs.
- 2.18 All couplings will be typical 5" diameter locking storz.
- 2.19 The weight of a 100-ft length of the specified hose without couplings will not exceed 100 pounds nor be less than 90 pounds.

**3.00 TESTING AND GUARANTEE**

- 3.01 The workmanship will be of the highest quality.
- 3.02 Each finished and coupled length of fire hose will be hydrostatically tested by the manufacturer.
- 3.03 The manufacturer guarantees that each length of hose to be free against faulty materials and workmanship.

**4.00 AVAILABLE LENGTHS**

- 4.01 The fire hose is to be available in coupled lengths of 25ft, 50ft, 75ft and 100ft as specified at the time of the order.

17.09

**TULSA FIRE DEPARTMENT  
SPECIFICATION FOR  
TWO (2) INCH DOUBLE JACKET KINK RESISTANT FIRE HOSE  
07-31-2016**

**1.00 GENERAL**

- 1.43 This specification applies to TWO (2) inch diameter attack hose constructed of polyester with through the weave nitrile/PVC tube liner and finished with 1-1/2" NST couplings. The primary purpose of the specified hose will be for the attack of fires within a municipal fire department.
- 1.44 The fire hose is to be fully compliant with the current edition of NFPA 1961 standard on *Fire Hose* and the current edition of NFPA 1962 standard for the *Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*.
- 1.45 The bid will include information describing performance and response to each paragraph of the specifications provided herein. The absence of data or information may be considered as non-responsive or non-compliant to the specifications and may serve as cause for rejection of the bid.
- 1.46 All exceptions to the specifications herein should be fully disclosed and thoroughly described as an equivalent or minor deviation to the specifications.
- 1.47 The Tulsa Fire Department retains the sole right in determining compliance to the specifications where exceptions or alternative options have been offered as an equivalent to the specifications.
- 1.48 The City of Tulsa Fire Department reserves the right to request a sample of the specified garment for examination before the award of the bid. The sample will be provided at no charge to the City within ten-days after request and will be returned at the bidder's expense.
- 1.49 All materials used in the manufacture of the specified hose and couplings should be made and assembled in the USA.

**2.00 CONSTRUCTION**

- 2.01 All materials used in the fabrication of the fire hose will be new, unused materials of the best quality normally used for the purpose of manufacturing fire hose.
- 2.02 The manufactured hose will produce an internal diameter of TWO (2) inches.
- 2.03 The outer jacket will be constructed from ring spun staple polyester yarns over an inner liner consisting of a one-piece extruded through the weave nitrile/PVC tube with double dip color or clear coat for abrasion resistance.



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- 2.04 The outer jacket will be manufactured with a tight weave and high pick “count” that is free of visible defects such as pits, lumps, exposed loops, porosity in the cross section of the hose or other similar imperfections.
  - 2.05 The outer jacket of the fire hose will be impregnated with a high-performance to protect the yarn from damage produced by abrasion, chemical exposure, heat, ultra-violet light, dirt, reduced pick-up of water and other potential hazards.
  - 2.06 The coating for the outer jacket will be BLUE in color with one or more colored stripes of red, yellow and/or green impregnated into the outer jacket. NO EXCEPTION
  - 2.10 The finished and coupled fire hose will have a service pressure of no less than 500 psi.
  - 2.11 The finished and coupled fire hose will have an acceptance test pressure of no less than 1,000 psi.
  - 2.12 The outer jacket of the hose will be provided with markings one (1) inch indelible digits that identify the manufacturer and model of hose, country of origin, month and year of manufacture, service test pressure, and statement of compliance with NFPA 1962.
  - 2.13 The manufacturer will stencil the hose for the benefit of the fire department. The specific series of numbers, such as 16-2-0001, will be coordinated with the Tulsa Fire Department.
  - 2.14 The hose will be equipped with extruded aluminum couplings that are attached directly to the hose through the use of an expansion ring inside the collar of the threaded coupling that allows multiple lengths of hose to be attached to one another.
  - 2.15 The couplings will be hard coat anodized.
  - 2.16 The female couplings will be manufactured with ball bearing swivels.
  - 2.17 All couplings will be provided with standard rocker lugs.
  - 2.18 All couplings will be typical 1-1/2" diameter with National Standard Threads (NST).
  - 2.19 The weight of a 50-ft length of the specified hose without couplings will not exceed 24 pounds nor be less than 20 pounds.
- 3.00 TESTING AND GUARANTEE**
- 3.01 The workmanship will be of the highest quality and will include a written ten year warranty that will include a 1 year warranty for tear and wear.
  - 3.02 Each finished and coupled length of fire hose will be hydrostatically tested by the manufacturer.
  - 3.03 The manufacturer guarantees that each length of hose to be free against faulty materials and workmanship.

<b>18.00</b>	<b>ADDENDUM Reserved for changes made following the pre-bid meetings.</b>



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**EXHIBIT A  
BID FORM INCLUDING DELIVERY AND PRICING**

**1. Delivery.** If your Bid is accepted and a contract is executed, state the number of days you need to deliver the Goods and/or to begin providing Services:

\_\_\_\_\_

You must be able to deliver the Goods and/or Services as specified in your Bid. Failure to do so may result in City terminating your contract or canceling the Purchase Order, pursuing collection under any performance bond, as well as seeking any other damages to which it may be entitled in law or in equity.

**2. Pricing**

**(ESTIMATED QUANTITIES FOR EVALUATION PURPOSES ONLY)**

Item	Description	Estimate Annual QTY	Unit Cost	Extended Cost
1.	Ladder Apparatus	4	\$	\$
	Option:			
1.	Mirrors with integrated turn signal lamps	4	\$	\$
<b>TOTAL COST NOT TO EXCEED:</b> <b>(All costs must be included or your Bid will be disqualified )</b>		<b>\$ _____</b>		

**Annual Price Adjustment for Pricing on Exhibit A.** The prices bid for any Goods and/or Services shall not increase during the initial term of the contract. However, if you anticipate that you will not be able to maintain firm prices for any renewal period, a change in price **will be considered** if the following conditions are met:

- d) You must limit any increase to **one** of the following (indicate your choice\*):
  - i. the change in the Consumer Price Index from BLS Table 1 (web link below) from the prior year, as measured by the change in the CPI-U between the most recent month available and that same month in the prior year \_\_\_\_\_ (place an "X" here if this is your choice)
  - ii. a fixed percentage you specify \_\_\_\_\_%
- e) You must notify City, in writing, no later than 90 days before the initial contract period ends, or any renewal period ends, of your intent to exercise the price choice in your bid. **Failure to so notify City will result in City denying any price increases.** In no event can the proposed price change exceed that possible under the choice in your bid. Your notice can be sent by certified mail, fax or email.
- f) **You must certify at renewal that the prices you are requesting from the City, including any increase requested, are as favorable as the prices you are charging your other customers which purchase similar quantities, and types, of goods and services.\*\* Any increase requested at renewal will be considered in the City's decision whether to renew, or re-bid, the contract.**

Notes: \* - Any price increase you choose will be considered in the evaluation of your bid. If you choose the CPI-U, the annual increase used for evaluation will be assumed to equal the change in the CPI-U for the prior year, as described above.

\*\* - The Affidavit of Compliance for Price Adjustment, which will need to be provided **at renewal** if an increase is requested, you may contact the Buyer listed on this Invitation for Bid to request one.





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CPI Web Link: <http://www.bls.gov/news.release/cpi.t01.htm>

Bidder's Company Name \_\_\_\_\_

**Authorized Signature Here ▶** \_\_\_\_\_

Printed Name: \_\_\_\_\_

**RETURN THIS ENTIRE BID PACKET**

