

REMINDER TO ALL BIDDERS

ALL PAGES OF THIS PROPOSAL MUST BE SUBMITTED AT THE TIME OF THE BID OPENING ALONG WITH A SECOND COPY OF THE PROPOSAL. THE COPY SHOULD BE MARKED "COPY"

PLEASE CHECK FINAL DRAFT OF THE PROPOSAL AND MAKE SURE ALL PAGES ARE RESUBMITTED AND SIGNED BEFORE SEALING THE BID IN ITS ENVELOPE.

**PLEASE CLIP OUT THIS PORTION, ATTACH YOUR RETURN ADDRESS MAILING LABEL AT TOP,
AND THEN AFFIX THIS TO YOUR MAILING ENVELOPE AS AN ADDRESS LABEL – THANK YOU.**

Name and Address of Bidder:		
Bid for	ELA 32-14-2	
AERIAL FIRE TRUCK		
Dept. of	OFFICE OF MANAGEMENT AND BUDGET	
Opening Date	AUGUST 22,	2014
All bids must be received in the Office of the City Controller no later than the prevailing date and time listed on the enclosed proposal.		
OFFICE OF CITY CONTROLLER		
FIRST FLOOR		
414 GRANT STREET		
CITY-COUNTY BLDG.		
PITTSBURGH, PA 15219-2468		

**NOTICE
TO
BIDDERS
PROPOSAL #ELA 32-14-2
AERIAL FIRE TRUCK**

**A MANDATORY PRE-BID CONFERENCE WILL BE
HELD ON WEDNESDAY,
JULY 30, 2014**

**AT 10:00 A.M. IN ROOM 502
CITY-COUNTY BUILDING
PITTSBURGH, PA, 15219
(PLEASE USE THE ROSS STREET ELEVATOR)**

Mr. William Clark, Purchasing Agent
Bureau of Procurement, Fleet and Asset Services
Room 502 City County Building
414 Grant Street
Pittsburgh, PA 15219
Facsimile No. (412) 255-2367
E-mail: William.Clark@city.pittsburgh.pa.us

CITY OF PITTSBURGH EQUIPMENT LEASING AUTHORITY
PITTSBURGH, PENNSYLVANIA
PROPOSAL
ELA 32-14-2: AERIAL FIRE TRUCK

1. **AUTHORITY.** This Proposal is submitted to the City of Pittsburgh Equipment Leasing Authority ("Authority"). The **CITY OF PITTSBURGH** is not a party to this Proposal.

2. **BIDDER.** This Proposal is submitted to the Authority by _____
("Bidder" – "Company Name")
which has its principal place of business at _____

Bidder is (check one) ___ a Pennsylvania Corporation, ___ non-Pennsylvania Corporation,
___ Partnership, ___ Sole Proprietorship. Communications with the Bidder should be addressed to the Bidder at _____

or made to telephone number _____ FAX # _____

3. **LAST DATE AND TIME FOR SUBMISSION OF PROPOSAL.** The last date for submission of this Proposal is set forth in EXHIBIT 4 hereto. This Proposal must be submitted on or before 10:00 A.M., prevailing time, on such date.

4. **MANNER OF SUBMISSION.** This Proposal is to be submitted in a sealed envelope at the following address: **CITY OF PITTSBURGH OFFICE OF THE CITY CONTROLLER, FIRST FLOOR, CITY COUNTY BUILDING, 414 GRANT ST., PITTSBURGH, PA 15219.**

5. **EFFECTIVE DATE.** This Proposal is effective on the date and at the time of its receipt by the Office of the Controller at the principal office thereof as evidenced by the clock stamp of the Office of the Controller to be recorded hereon.

6. **DATE OF OPENING.** All Proposals for the items set forth in Exhibit 4 hereof will be opened by an officer of the Authority or his designee and by an officer of the Controller or his designee at 11:00 A.M. prevailing time, on the opening date specified in paragraph 3 of this Proposal, at the principal office of the Authority, or at such other place as may be indicated in Exhibit 4, unless all Proposals are rejected as herein-after provided. No Proposal may be withdrawn after any Proposal has been opened.

7. **INCORPORATION BY REFERENCE OF OTHER DOCUMENTS.** This Proposal incorporates by reference the following documents (1) the bid bond, which is attached hereto as EXHIBIT 1, (2) the performance bond, which is attached hereto as EXHIBIT 2, (3) the Bidder's certification as to affirmative action, which is attached hereto as EXHIBIT 3, (4) the specifications of the items as to which the Bidder makes this Proposal, coupled with certain additional terms and conditions, all of which are attached hereto as EXHIBIT 4, and (5) MBE/WBE Solicitation and Commitment Statements, which are attached as EXHIBIT B.

8. **MANNER OF COMPLETION AND FORM OF PROPOSAL.** Each and every blank space provided in this Proposal must be completed. If the information required to be provided in any blank space is not applicable to the Bidder or to the bid subject hereof, the same should be designated by inserting "Not Applicable" or "N/A", except as hereinafter provided. All proposals concerning the items set forth in Exhibit 4 must be submitted on this Proposal form, and no variant proposals will be considered by the Authority. Each Bidder must bid on every item set forth in Exhibit 4, unless Exhibit 4 expressly indicates otherwise. If Exhibit 4 permits the Bidder to bid on fewer than all the items set forth therein, the Bidder must, nonetheless, mark "No bid" for each item for which it does not wish to submit a bid. This Proposal must be typewritten or completed in ink. It must be signed by hand in ink. Printed signatures are unacceptable. It may be signed only by such representatives of the Bidder as are authorized to **LEGALLY** bind the Bidder. If the Bidder is a sole proprietorship or partnership, the sole proprietor or a partner must sign this Proposal. If the Bidder is a corporation, the President of the corporation must sign this Proposal, except that this requirement may be met by the signature of two (2) other authorized officers or officials of such corporation. In such latter event, the signatory or signatories certify that they are aware of the resolutions and by-laws of the Bidder and that such signature or signatures on this Proposal legally bind the Bidder.

9. **REJECTION OF PROPOSALS AND REBIDDING.** The Authority reserves the right to reject all Proposals for any reason and to solicit new proposals concerning any or all of the items set forth in accordance with law. The Authority reserves the right to reject any Proposal which is improperly completed or for violation of the terms and conditions of this Proposal and the documents incorporated hereby by reference.

10. **AWARD AND ACCEPTANCE OF PROPOSAL.** This Proposal may be accepted at any time within sixty (60) days after the date of opening described herein-above or within such other time as may be imposed or permitted by any law enacted within such sixty (60) day period. Within such period, the Bidder has no right to withdraw or modify this Proposal, even after the Authority has made an award as to some or all of the items set forth in Exhibit 4, to another Bidder or has accepted the Proposal of another Bidder. The Authority may make an award, and/or subsequently accept any proposal, as to all of the items set forth in Exhibit 4 as to which the Bidder has proposed prices or as to any single item or combination of items specified therein, unless Exhibit 4 provides that the award will be made on a lowest, total-bid basis. **This Proposal does not legally bind the Authority in any way whatsoever, and the Authority shall not be liable hereon, until this Proposal has been duly executed by the Chairperson or Vice Chairperson and two (2) other officers of the Authority, and thereby accepted by the Authority. The bidder is advised that neither oral nor written advice making an award as to the items set forth in Exhibit 4, bind the Authority and should not be relied upon.** The Bidder is advised that any action by the Authority with respect to this Proposal may be rescinded before execution hereof by the Authority. Acceptance of this Proposal by the Authority will be mailed or delivered to the Bidder, at the address for communications set forth hereinabove. If any Proposal is accepted, such acceptance will be made only if such proposal is properly completed and sets forth the lowest responsible bid or bids in accordance with the requirements set forth in Exhibit 4.

Bidders may include exceptions to Exhibit 4, but only to the extent that the Authority, in its sole discretion, determines that such exceptions do not constitute material changes thereto, and by submitting this Proposal the Bidder expressly waives any right to contest any such determination by the Authority.

11. **DATE, TIME AND PLACE OF DELIVERY AND ACCEPTANCE OF ITEMS.** If this Proposal is accepted by the Authority in whole or in part, the Bidder will deliver the accepted items, F.O.B. destination, as provided in Exhibit 4, on the date or dates also set forth in Exhibit 4. The items delivered must conform to Exhibit 4 or the accepted Proposal. Deliveries to be made to garages should be scheduled with the garage supervisors at least one (1) day in advance. The Chairperson of the Authority, or his designee, shall have a reasonable time in which to inspect the items so delivered, to determine if the Authority will accept them. In the event any of the items delivered by the bidder do not conform to Exhibit 4 or the accepted Proposal, the Chairperson of the Authority, or his designee, may reject the same and shall notify the Bidder to replace the same with such items as shall be acceptable to him and which shall be in accordance with Exhibit 4 or the accepted Proposal. If such satisfactory replacement is not made within a reasonable time, as determined by the Authority in its sole discretion (as to which the Bidder hereby expressly waives any right to contest), the Authority shall replace such items from other sources, and, in doing so, shall have the right to recover any price differential and administrative costs, as well as any costs incurred by the Authority in returning delivered items to the Bidder, from the Bidder who has failed to make said replacements.

12. **PRICES.** All prices submitted by the Bidder in Exhibit 4 shall be based upon the following:

- a. No taxes of any kind shall be included in any price.
- b. All transportation costs of every kind, including transit insurance, required to effectuate the delivery of the items shall be included in every price. All items shall be delivered F.O.B. destination.
- c. No discounts of any kind shall be included in any price. Discounts, if any, offered to the Authority for prompt payment shall be available for a period of not less than forty-five (45) days after acceptance by the Authority of the items. If offered, discounts must apply to the total price of items as to which the Authority accepts this Proposal, which may be fewer than the total number of items as to which the Bidder proposes prices on Exhibit 4. The size of discounts, but not the length of time therefore after forty-five (45) days, will be considered by the Authority in determining the lowest responsible bid meeting specifications. Exhibit 4 provides an opportunity for the Bidder to set forth discount terms.
- d. All prices quoted shall be firm prices without contingencies for increase. No reference to price increases is permitted. No price increases will be permitted for any reason, including inflation or scarcity. The Bidder hereby expressly waives its right to the defense of impracticability of performance or similar defenses. No separate terms, including, but not limited to, interest of any kind or in any amount, may be included for late or partial payments by the Authority.

13. **BID AND PERFORMANCE BONDS AND OTHER SECURITY.** No Proposal shall be proper and qualify for acceptance by the Authority unless it is accompanied by a bid bond in the form attached to this Proposal as Exhibit 1, unless total bid is less than \$200,000.00, (See Exhibit 4; Section 6). A successful Bidder shall promptly furnish to the Authority a performance bond in the form attached to this Proposal as Exhibit 2. All bid and performance bonds shall be in the amount as specified in Exhibit 4. However, the amount of the bid bond or the performance bond required may be reduced to an amount not less than ten (10%) percent of the total of all prices proposed by the Bidder on Exhibit 4 in the sole

discretion of the Authority, if so provided in Exhibit 4 or at any time after acceptance of any proposals, in the sole discretion of the Authority. The requirements of a bid bond and a performance bond may be substituted for by a certified or cashier's check, or an irrevocable, unconditional letter of credit, of equal amount payable to the Authority accompanying this Proposal or upon the acceptance hereof. The Authority is under no duty to invest any certified or cashier's checks and such checks delivered with respect to a bid will be returned to all unsuccessful bidders only after the expiration of sixty (60) days from the opening date of this Proposal, and will be returned to each successful bidder only after the Authority has accepted delivery of the items which said bidder has contracted to supply or upon the substitution of such certified/cashier's check or letters of credit with a performance bond meeting the requirements hereof. The Authority may, in its sole discretion, return all unsuccessful bidder's checks or letters of Credit or Bond within said sixty (60) day period.

In addition, in the event that the Bidder delivers a certified or cashier's check in lieu of the performance bond, the Bidder hereby expressly authorizes the Authority to retain such check beyond the date that the Authority has accepted delivery of all items which the Bidder has contracted to supply. This additional security shall be deemed to be a warranty bond the purpose of which shall be to secure the performance, by the Bidder, of all obligations arising from the manufacturer's warranty. The warranty bond shall remain in effect until the expiration of the manufacturer's warranty. The Authority may, however, at its sole discretion, reduce the amount of such warranty bond, reduce the duration of its effectiveness, or totally waive its requirement.

14. **DAMAGES**. The Bidder and its surety on the bid, a letter of Credit and performance bond, or the Bidder with reference to a certified check submitted in lieu of such bond or bonds, shall be liable to the extent of damages actually sustained by the Authority and caused by the Bidder's default. As used in this paragraph, "default" means any breach of the terms of conditions of this Proposal which would proximately result in (a) the Authority's purchasing such items at additional cost, which due to inflation or otherwise, and/or (b) the Authority's incurring additional administrative costs, and/or (c) the Authority's paying the Bidder more than necessary for such items due to collusion. The Bidder's responsibility to pay damages is not limited to the amount of any such financial security delivered to the Authority. The Bidder and the surety shall be liable, singly or jointly, for liquidated damages, in addition to other damages authorized in this paragraph, in the amount per day specified in Exhibit 4. It is the express intent of both the Bidder and the Authority that such liquidated damages shall represent a good faith effort to estimate, in advance, the actual damages that will ensue by a default by the Bidder and that such damages in no way represent a penalty for non-performance. In addition to the damages specified in this paragraph, and elsewhere in this Proposal, the Authority reserves the right to accept the Proposal(s) of other Bidder(s) for those items involved in the default, or to seek additional bidder(s) for the same, and to cancel, without liability to the Authority, the acceptance of the Proposal of the defaulting Bidder. Additionally, it may be considered a default, in the sole discretion of the Authority, if lawsuits, liens or claims, including, but not limited to, lawsuits involving patents or inventions, of third parties involving the items delivered have been filed against the Authority. The Bidder hereby expressly agrees to indemnify and save harmless the Authority from all such lawsuits, liens or claims, and further expressly agrees that the Authority may, in its sole discretion, retain as security for the performance of such indemnification, such amount, as the Authority solely determine to be appropriate, of any payment due the Bidder under this Proposal. If the Authority breaches this Proposal after its acceptance thereof, the Bidder hereby expressly agrees that its damages will be limited to, but may be less than, the total amount of its bid set forth in Exhibit 4.

15. **CONFLICTS OF INTEREST**. The Bidder hereby certifies that no member of the Authority or officer or employee thereof is either directly or indirectly a party to or is in any manner interested in this Proposal. The Bidder here-by acknowledges that if this Proposal is accepted in violation of the immediately preceding certification, this Proposal shall be null and void and no action may be maintained hereon against the Authority. The Bidder hereby agrees to make available to the Authority, upon request, the names of all of its partners or shareholders (to the extent reasonably practicable).

16. **LAWSUITS BY OR AGAINST THE AUTHORITY**. The Bidder hereby agrees to provide, without expense to the Authority, such evidence and information as may be in its possession or reasonably available to it as may be useful, in the judgment of the Authority, in any lawsuit filed or threatened to be filed by or against the Authority.

17. **COLLUSION**. The Bidder hereby certifies that it has not engaged in collusion of any kind concerning this Proposal.

18. **ASSIGNMENT OF ANTITRUST CLAIMS**. By submitting this Proposal to the Authority, the Bidder hereby offers to assign, sell and transfer to the Authority all rights, title and interest in and to all causes of action which the Bidder may have under the antitrust laws of the United States of America or the Commonwealth of Pennsylvania, or any other state, for price fixing, which causes of action have accrued prior to the effective date of said assignment, and which relate solely to the particular items purchased or procured by the Authority pursuant to this Proposal. Such offer of assignment shall be deemed to be accepted by the Authority upon final payment by the Authority to the Bidder for such items.

19. **SETTLEMENT OF DISPUTES**. The Bidder expressly agrees that in the event of any disagreement or controversy arising between the Authority and the Bidder, as to the interpretation of Exhibit 4 or the interpretation or proper execution of this Proposal or as to the settlement hereunder, or in the event of any disagreement as to any question or matter whatever which may arise or be in dispute under this Proposal or said Exhibit 4 or as to the terms or conditions thereof, such disagreement or controversy shall be immediately inquired into and decided by the Chairperson of the Authority, whose decision thereon, based upon the reasonable exercise of the discretion granted herein, shall be final and conclusive as to all matters in controversy.

20. **ASSIGNMENTS**. This Proposal may not be assigned by the Bidder without the prior written consent of the Authority. An assignment made without such written consent may be considered as a breach hereof, in the sole discretion of the Authority, for which, among other things, bid and performance bonds, or checks in lieu thereof, may be forfeited. Any assignment agreed to by the Authority shall not relieve the Bidder of its responsibilities under this Proposal, and the Bidder shall remain liable hereon. The Bidder agrees to terminate any assignment immediately upon notification by the Authority, and if the Bidder does not agree with the Authority as to such termination, the Bidder nonetheless agrees to accomplish such termination immediately and then to proceed with the settlement of said controversy in accordance with the terms and conditions of this Proposal. This paragraph is expressly applicable to subcontractors, as well as to assignments, and to any and all delegations by the Bidder of duties under this Proposal.

21. **APPLICABLE LAW**. This Proposal shall be interpreted in accordance with the laws of the Commonwealth of Pennsylvania in effect on the effective date hereof. With respect to matters not specified in this Proposal, the law of the Commonwealth of Pennsylvania shall govern, including, but not limited to, the Municipality Authorities Law of 1945, P. L. 382, 53 P.S. 301 et seq.

22. **CONTRACT DOCUMENTS**. This Proposal, together with all exhibits and any supplements, amendments, addenda and/or riders thereto, when accepted by the Authority, shall constitute the contract between the Bidder and the Authority. Such contract shall be binding upon and inure to the benefit of the parties hereto and their heirs, executors, administrators, legal representatives, successors, and assigns where permitted by this Proposal.

23. **SEVERABILITY**. In case any one or more of the provisions contained in this Proposal shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision hereof and this Proposal shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein

24. **CAPTIONS**. The captions herein are inserted only for convenience of reference and in no way define, limit or describe the scope or intent of this Proposal or any particular paragraph or section hereof, nor the proper construction hereof.

25. **MBE/WBE SOLICITATION AND COMMITMENT** - It is the Authority's current goal to encourage increased minority and women's participation in all Authority contracts. It is believed that it is reasonable to expect that within five years minority participation will constitute twenty-five percent (25%) and women's participation will constitute ten percent (10%) of the total dollar of Authority contracts. The Authority, therefore, requires that all bidders demonstrate a good faith effort to obtain the participation of Minority and Women's Business Enterprises in work to be performed under this contract. In order to demonstrate this good faith commitment, all bidders are required to complete and submit with their bids either an MBE/WBE Solicitation and Commitment Statement, which details the efforts made by the bidder to obtain such participation, or an MBE/WBE Commitment Waiver Request. Failure to submit either an MBE/WBE Solicitation and Commitment statement or an MBE/WBE Commitment Waiver Request may result in rejection of the bid. (Exhibit B)

- A. Bids must be accompanied by either an MBE/WBE /VBE Solicitation and Commitment Statement or an MBE/WBE Commitment Waiver Request.
- B. On contracts for \$25,000 or more, the performance security will be retained by the Authority at least until all work is performed under the contract and the contractor submits a final report to the Authority detailing the actual levels of MBE and WBE and VBE participation as well as explaining any failure to meet MBE and WBE goals which had been stated in the previously submitted MBE/WBE Solicitation and Commitment Statement. The report must be submitted within thirty (30) days after the Authority's request.

26. **MBE/WBE REPORT** - By entering into a contract with the Authority the bidder agrees to submit a final report, within thirty (30)days of the request, detailing the actual levels of MBE and WBE and VBE participation in the contract. Any disparity between actual participation levels and the Statement will be explained in the final report. The performance security will be retained by the Authority at least until such time as the MBE/WBE participation report is received. Failure to make a good faith effort to meet the goals stated in the MBE/WBE / VBE Solicitation and Commitment Statement may be considered a material breach of the contract resulting in debarment from participation in future contracts.

By its execution hereof in the space(s) provided below, the Bidder represents and certifies that it has carefully read this Proposal, including the Exhibits attached hereto, and fully understands the meaning of the same, and hereby agrees that it will comply with all of the terms, covenants and conditions herein set forth, and further represents that the Bidder intends for the Authority to rely upon this representation and certification. The Bidder certifies by its execution hereof that this Proposal is made without any connection with any other person or entity making any other Proposal for any of the items set forth in Exhibit 4.

27. **MODIFICATION / CHANGES TO THIS BID / CONTRACT** – The parties to this contract / proposal agree that unless specifically authorized, in writing by both the Bidder and the City of Pittsburgh Equipment Leasing Authority, which does not include the City of Pittsburgh or its employees, the authority to waive, alter or enlarge this bid / contract or to make any new or substituted or different contract, representation or warranty, is specifically prohibited.

BIDDER'S NAME:

ATTEST:

(If a corporation)

(Type or Print in ink name of Company bidding)

(Signature)

(Type or print in ink name & title of person signing)

DATE: _____

(Signature)

(Type or print in ink name & title of person signing)

ACCEPTANCE BY THE AUTHORITY:
CITY OF PITTSBURGH EQUIPMENT LEASING AUTHORITY

Jennifer Sample, Chair

DATE _____

Guy Costa, Vice Chair

DATE _____

William S. Urbanic, Treasurer

DATE _____

Bruce A. Kraus, Assistant Treasurer

DATE _____

Michael Huss, Secretary

DATE _____

Approved as to Form

James J. Gladys, Solicitor

DATE _____

EXHIBIT 1
BID BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT _____, as principal,

and _____, as surety, are held and firmly bound unto the City of Pittsburgh Equipment Leasing Authority (the "Authority"), as Obligee in the sum of \$_____

as a Bid Bond, to be paid to the said City of Pittsburgh Equipment Leasing Authority, its certain attorneys, successors, or assigns, to which payment, well and truly to be made, we do bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above bounden principal has filed with the City of Pittsburgh Equipment Leasing Authority, proposal(s) for the sale of certain items to said Authority to be done under and pursuant to the Acts of Assembly and Resolutions of said Authority relating thereto;

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that if the principal shall be awarded the proposal, the said principal will, within the time required, give a good and sufficient bond to secure the performance of the terms and conditions of the proposal, then this obligation to be void; otherwise the principal and surety will pay the Authority the difference in money between the amount of the bid of the said principal and the amount the Authority contracts with another party for delivery of the items set forth in the proposal, including all administrative costs, if the latter amount be in excess of the former.

WITNESS our hands and seals this ____ day of _____, 2014

ATTEST:

(Name of Bidder – Company Name)

For Bidder

BY: _____ (SEAL)
(Signature)

ATTEST:

(Name of Surety)

For Surety Company

BY: _____ (SEAL)
(Attorney-in-Fact)

EXHIBIT 2
PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT _____ as principal, and _____, as surety, are held and firmly bound unto the City of Pittsburgh Equipment Leasing Authority (the "Authority"), as Oblige, in the sum of \$ _____ as a Performance Bond, to be paid to the said Authority, its certain attorneys, successors or assigns, to which payment, well and truly to be made, we do bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, The above bounden principal has filed with the City of Pittsburgh Equipment Leasing Authority, proposal(s) for the sale of certain items to said Authority to be done under and pursuant to the Acts of Assembly and Resolutions of said Authority relating thereto and said proposal has been accepted by the Authority; now

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that if the said principal shall will and faithfully perform and fulfill in all its part the proposal made and entered into by and between the said Authority and the said principal for the sale of certain items to the Authority in accordance with the above-mentioned proposal and the principal shall indemnify and save harmless said Authority from all liens, and shall otherwise indemnify, save and hold harmless said Authority from all lawsuits, liens, charges, claims, demands, loss, costs, and damages of every kind and nature whatsoever, then this obligation shall be void; but otherwise this obligation shall remain in full force and effect.

It is further agreed that any alterations which may be made in the terms of the proposal or in the items to be furnished under it, or the giving by the said Authority of any extension of time for the performance of the contract or any other forbearance on the part of either the said Authority or the principal to the other, shall not in any way release the principal and the surety or sureties, or either of them, their heirs, executors, administrators, successors or assigns, from their liability hereunder, notice to the surety or sureties of any such alteration, extension or forbearance being hereby waived.

WITNESS our hands and seals this _____ day of _____, 2014

ATTEST:

(If a corporation)(Name of Bidder – Company Name)

For bidder

BY: _____(SEAL)

ATTEST:

(Name of Surety)

For Surety Company

BY: _____(SEAL)
(Attorney-in-Fact)

EXHIBIT 3

CITY OF PITTSBURGH EQUIPMENT LEASING AUTHORITY

AFFIRMATIVE ACTION PARTICIPATION CERTIFICATE

The Bidder hereby certifies that it has complied with all federal, state, and local Affirmative Action requirements applicable to its business now in effect.

BIDDER'S NAME:

(Type or Print in ink Company Name)

BY: _____

(Signature)

(Type or print in ink title of person signing)

BY: _____

(Signature)

Type or print in ink name & title of person signing)

BY: _____

(Signature)

DATE: _____

THE BIDDER IS FURTHER ENCOURAGED TO USE ITS BEST EFFORTS TO ASSURE THAT, TO THE GREATEST EXTENT FEASIBLE UNDER THE CIRCUMSTANCES, PURCHASES OF PRODUCTS AND SERVICES WILL BE MADE FROM RELIABLE, MINORITY-OWNED BUSINESSES.

EXHIBIT 4
CITY OF PITTSBURGH EQUIPMENT LEASING AUTHORITY
SPECIFICATIONS AND BID SHEET

ADDITIONAL TERMS AND CONDITIONS OF THE PROPOSAL

1. The last date of submission of the Proposal is AUGUST 22, 2014 IN THE OFFICE OF THE CITY CONTROLLER, FIRST FLOOR, CITY COUNTY BUILDING, 414 GRANT ST., PITTSBURGH, PA 15219.

BIDS WILL BE OPENED AND PUBLICLY READ AT 11:00 A.M. IN ROOM 502, DEPARTMENT OF FINANCE, CITY COUNTY BUILDING, 414 GRANT ST., PITTSBURGH, PA 15219.

2. This Exhibit cannot be submitted without carefully reading the foregoing Proposal. The paragraph captioned "Prices" therein is particularly important. An improperly completed Proposal, including this Exhibit, will be rejected.

3. Liquidated damages per day in the event of a breach by the Bidder are as follows:
\$250.00 per day per vehicle for delivery after last specified allowable date.

-
-
4. The destination(s) of the items hereinabove specified is (are):
**CITY OF PITTSBURGH, AUTOMOTIVE REPAIR FACILITY II
29 1/2 AND A.V.R.R. STREETS, PITTSBURGH, PA 15201**

5. Place of opening of the Proposal, if other than the principle office of the Authority:
-
-

6. Mandatory Bid bond must be in the minimum amount of 10 % of all prices proposed by the Bidder if the total amount bid is in excess of \$200,000.00. Successful bidder must submit performance bond in the minimum amount of 20 % of the amount awarded within 15 days of receipt of award letter.

7. **Two (2) proposals shall be submitted (one original and one copy) complete with all brochures, drawings, pricing and any other information submitted or required.**

BIDDER COMPLETION OF THIS EXHIBIT BEGINS HERE

1. Discount terms, which if offered, must allow at least forty-five (45) days for payment, are _____% of the total price of items to be awarded to the Bidder (Bidder must insert zero ("0") or some percentage figure).

2. The date(s) and time(s) of the delivery or deliveries are:

3. If the specifications permit the bidding of used items, the items set forth hereinafter will be new unless herein stated:

4. Bidder must submit two (2) complete bids, one original and one copy. Please indicate which is the original and which is the copy. Bidder must complete price sheet and indicate bid compliance where indicated.

COST OF UNITS

STATE BID COST OF PUMPER PER ATTACHED SPECIFICATIONS

If any exceptions to these specifications are taken, the bid price should reflect these exceptions. The exceptions and the rationale for each exception taken should be clearly titled, "exceptions to specifications". Do not include any options in bid cost, but list the cost of all options separately in "options" section.

APPROX

<u>QUANTITY</u>	<u>DESCRIPTION OF ITEM</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
1	AERIAL FIRE TRUCK AS PER ATTACHED SPECIFICATIONS, from Date of Award through March 31, 2015	\$ _____	\$ _____
	EXTENDED WARRANTY (Please provide description) Must be manufacturer's warranty unless unavailable by OEM Awarded Vendor Must Supply Pick-up & Delivery for Warranty Work From Date of Award through December 31, 2014		\$ _____

ADDITIONAL OPTIONS NOT SPECIFIED FOR ALL YEARS BID:
FACTORY INVOICE PLUS OR MINUS _____ %

MAKE, MODEL OF UNIT BID: _____

OPTIONAL BIDDING SECTION

The vendor may bid 2nd year pricing at vendor's option. The ELA will award the contract for one or two years at its sole option, whatever is in the best interests of the ELA. The cost of the pre-build conference and inspection trips are to be factored into the bid price for each contract year.

APPROX

<u>QUANTITY</u>	<u>DESCRIPTION OF ITEM</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
1	AERIAL FIRE TRUCK AS PER ATTACHED SPECIFICATIONS from April 1, 2015 through December 31, 2015	\$_____	\$_____
	EXTENDED WARRANTY (Please provide description) Must be manufacturer's warranty unless unavailable by OEM Awarded Vendor Must Supply Pick-up & Delivery for Warranty Work From April 1, 2015 through December 31, 2015	\$_____	\$_____

CONTACT PERSON: _____

TITLE: _____

PHONE AND FAX NUMBERS: _____

**THE CITY OF PITTSBURGH
EQUIPMENT LEASING AUTHORITY
SILENCE OF SPECIFICATIONS**

The apparent silence of this specification as to any details or the omission from it of a detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail and that only materials of first quality and correct type, size and design are to be used. All workmanship is to be first quality. The unit herein specified shall be constructed throughout of new parts and materials which shall have seen no service other than that necessary for the factory test. The unit bid must be the latest model. All interpretations of this specification shall be made upon the basis of this statement.

Nothing in the following specifications shall be construed to restrict the bidding to any particular make of unit. Where the specifications refer to an item which is peculiar to the products of one manufacturer, a substitute will be acceptable so long as such substitute will perform in an equal manner and is specified with the bid proposal submitted for consideration.

Units will be titled and licensed by the successful bidder at the time of delivery to the City of Pittsburgh Equipment Leasing Authority.

SERVICE AND PARTS

Each bidder must be able to display that they have in recent times and are currently maintaining an established service center and parts depot capable of satisfying the warranty service requirements and parts requirements for the model and quantity of units bid. The bidder must be willing to submit a current parts price list covering all parts for the model of unit bid.

APPLICABLE LAW

The unit proposed to be furnished shall, at the time of delivery, conform in all respects with rules, regulations, and requirements of the unit code and all other laws, regulations, etc., relating to the Motor unit Code of the Commonwealth of Pennsylvania. In addition, the unit must comply at delivery with applicable City and Federal laws and regulations. All units must be delivered with the most current Pennsylvania State Inspection sticker affixed. Any bid submitted must meet the Pennsylvania Buy-American Laws and the Buy American requirements of section 1605 of the American Recovery and Reinvestment Act of 2009, to the extent applicable.

EXCEPTIONS

Any exception taken to the specifications listed herein must be documented and attached to the proposal submitted for consideration. Exceptions should be placed on separate letterhead paper and enumerated by page number and shall be referenced by paragraph number.

DELIVERY AND PAYMENT

Payment for units will be processed only after units bid have been verified as complying with specifications and accepted by the Equipment Leasing Authority.

ALL INVOICES AFTER DELIVERY OF AWARDED EQUIPMENT MUST BE SENT TO THE EQUIPMENT LEASING AUTHORITY, ROOM 526 CITY COUNTY BUILDING, PITTSBURGH PA 15219, ATTN: CHAIRMAN.

TITLE

Title to the equipment must be registered as follows:

**City of Pittsburgh
Equipment Leasing Authority
Room 526 City County Building
Pittsburgh, PA 15219**

VEHICLE REGISTRATION / LICENSE PLATES

The successful bidder will be required to provide completed registration documents, i.e., MSO and PA MV-1 for all vehicles, and those forms are to be delivered to the City of Pittsburgh offices of the Department of Finance, Bureau of Procurement, Fleet and Asset Services. License plates requested for unmarked vehicles will be provided by successful vendor as well as the appropriate completion of the MV-1 indicating issuance. All other vehicles that will require "Municipal Government" (MG) plates will not be issued by the successful vendor but exclusively by the city of Pittsburgh.

NOTEWORTHY FEATURES

Please attach any applicable documentation of performance superiority or listing of noteworthy features to be considered in awarding this contract.

BID SUMMARY

Each bid must be accompanied by a Bid Summary which details the features of the unit bid. The Summary should use the same format as the specifications for easy comparison. All features meeting specifications, as well as those features where exceptions are taken, should be listed in the Bid Summary.

MSDS

The City of Pittsburgh is obligated to comply with the Pennsylvania worker and Community Right to Know and Sara Title III laws. Successful bidders must submit a material Safety Data Sheet (MSDS) for all chemicals that the City purchases from this contract. If you have training courses available concerning products contracted for under this contact by these laws, please advise the Office of Safety and Inspections at (412) 255-2492 at your earliest convenience.

The laws covering these products indicate that when purchased, the products must be properly labeled and an MSDS sent to the customer. Successful vendors are required to have an MSDS sent to the Fleet Superintendent and that one be sent to the Office of Safety and Inspections, 200 Ross Street, Pittsburgh, PA, 15219. Also, we require that the address where the products are sent and the contact number that the products are purchased from are referenced on the MSDS.

Further information concerning these laws can be obtained from:

**DEPARTMENT OF LABOR AND INDUSTRY
RIGHT TO KNOW OFFICE
SEVENTH & FORESTER STS.
HARRISBURG, PA 17120
(717) 783-2071**

In addition, the City of Pittsburgh requires all unit vendors to notify the Fleet Superintendent if the brake linings are made with asbestos.

Administration	Compliance	
	Y	N
<p>Responsible Vendor Proposal: To facilitate the ease of comparison, the proposal of each vendor must be in the same order as this specification. Failure to meet this requirement may cause confusion and delay the process.</p>		
<p>Responsible Vendor Requirements: The responsible vendor shall be licensed to conduct business in Pennsylvania and meet all Pennsylvania State Board of Vehicle Manufacturers, Dealers, and Salesperson requirements. The vendor shall meet the requirements of State Code 19.18. A photocopy of the license shall be included in the vendor’s proposal.</p> <p>The vendor shall provide proof of having been in business for a minimum of three (3) years prior to bid opening date.</p> <p>The salesperson representing the responsible vendor shall be properly licensed and registered with the Commonwealth of Pennsylvania Department of State, Bureau of Professional and Occupational Affairs. A photocopy of the license shall be included in the vendor’s proposal.</p>		
<p>Vendor Experience: Vendor must have significant design/ build experience with fire department aerial apparatus. Vendor is to include a reference list of at least three similar projects that were designed and built for an urban, metro-sized department, along with appropriate contact information.</p>		
<p>Service Center: The service center of the responsible vendor should be within a 30 mile radius of the Pittsburgh Bureau of Fire Administration Office located at 200 Ross Street Pittsburgh, Pennsylvania. If the vendor’s service center is beyond the 30 mile radius, the vendor is responsible for all costs associated with the transport of the vehicle to their service center, and its return to the Pittsburgh Fire Bureau. This shall include, but is not limited to fuel, labor, tolls, etc. The responsible vendor must be capable of making service calls to Pittsburgh Fire Bureau facilities on demand via a mobile service truck. The service center shall employ only certified Emergency Vehicle Technicians as mechanics. The service center shall maintain an inventory of component parts in stock at the service center as needed to keep the vehicle in service.</p> <p>In addition, the service center must be capable of the following services:</p> <ul style="list-style-type: none"> • Fabricating metal to make minor repairs and adjustments to the apparatus as may be required. • Body damage repair and paintwork, including the ability to spray the Linex product used to provide abrasion resistance to surface on the vehicle • must be certified by original equipment manufacturer to work on the components used in constructing the vehicle. 		

<p>General Requirements: These specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details concerning the finish, equipment, and appliances with which the successful bidder must conform. Details of construction and materials, where not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features.</p>		
<p>Legal Requirements: The apparatus shall comply with all applicable federal and state or provincial laws and regulations. All certification shall be performed by a certification organization that is accredited for inspection and testing systems of fire apparatus in accordance with ISO/IEC 17020, <i>General criteria for the operation of various types of bodies performing inspection, or ISO/IEC Guide 65, General requirements for bodies operating product certification systems.</i> There shall be no conditional, temporary, or partial certification test results.</p>		
<p>Sole Source Requirement: Because of the complexity of modern aerial devices the City of Pittsburgh Bureau of Fire places emphasis on acquisition of aerial apparatus from a sole source provider meaning that the vendor selling to the City, engineers, tests and assembles all components of the aerial apparatus and vehicle to these specifications.</p>		
<p>NFPA Compliance: The entity responsible for final assembly of the apparatus shall deliver with the fire apparatus a certification that the apparatus fully complies with all requirements of NFPA standards.</p>		
<p>Cab Test Information: The cab shall have successfully achieved survival of the International crash test ECE-R29, Addendum 28, Revision 1 standards as indicated. It shall also meet SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks and SAE J2422 Cab Roof Strength Quasi-Static Roof Load test requirements. As part of testing, the frontal area of the cab is struck by a 3,700-pound pendulum weight. The weight is brought back to a sixty-degree angle and then the weight is released and allowed to swing forward, imparting some 32,600 lbs. /ft. of force to the cab front face. The cab shall be so constructed that after the test, there will be minimal intrusion of the cab structure into the passenger area. The doors shall remain usable for both entry and exit. In addition, as part of the test the cab roof must withstand a static load-bearing test. The cab shall withstand a weight of over 60,000 pounds without permanent damage or collapse. The above tests shall be witnessed by and attested to by an independent third party. The test results shall be recorded on/by cameras, high-speed imagers, accelerometers, and strain gauges. Documentation of the testing shall be provided upon request.</p>		
<p>Silence of Specifications: The apparent silence of this specification as to any details or the omission from it of a detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail and that only materials of first quality and correct type, size and design are to be used. All workmanship is to be first quality. The motor vehicle herein specified shall be constructed throughout of new parts and materials that shall have seen no service other than that necessary for the factory test. The vehicle bid must be the latest model. All interpretations of this specification shall be made upon the basis of this statement.</p>		

Documentation: The manufacturer shall deliver with each apparatus at least two sets of complete operation and service documentation covering the completed apparatus as delivered and accepted. The documentation shall address at a minimum the inspection, service, and operations of the fire apparatus and all major components thereof. The manufacturer shall also deliver with each fire apparatus the following documentation for the entire apparatus and each major operating system or major component of the apparatus:

1. Manufacturer's name and address
2. Country of manufacture
3. Source for service and technical information
4. Parts replacement information
5. Descriptions, specifications, and ratings of the chassis, and pump
6. Wiring diagrams for low voltage and line voltage systems to include the following information:
 - a. Pictorial representations of circuit logic for all electrical components
 - b. Circuit identifications
 - c. Connector pin identification
 - d. Zone location of electrical components
 - e. Safety interlocks
 - f. Alternator-battery power distribution circuits
 - g. Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems
7. Lubricating charts
8. Operating instructions for the chassis, any major components such as the aerial device, and any auxiliary systems
9. Precautions related to multiple configurations of aerial devices, if applicable
10. Instructions regarding the frequency and procedure for recommended maintenance
11. Overall apparatus operating instructions
12. Safety considerations
13. Limitations of use
14. Inspection procedures
15. Recommended service procedures
16. Troubleshooting guide
17. Apparatus body, chassis, and other component manufacturer's warranties
18. Paint confirmation letter with spray outs to confirm primary and secondary paint color
19. Special data required by this standard
20. A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus

Documentation will be accepted in electronic format.

UL CERTIFICATION – 100 foot aerial device: A third party inspection certificate for the aerial device will be furnished upon delivery of the aerial apparatus. The certificate will be Underwriters Laboratories, Inc. Type 1 and will indicate that the aerial device has been inspected on the production line and after final assembly.

<p>The following test will be conducted:</p> <ul style="list-style-type: none"> • Magnetic particle inspection will be conducted on every structural weld to assure the integrity of the weldments and to detect any flaws or weaknesses. Magnets will be placed on each side of the weld while iron powder is placed on the weld itself. The powder will detect any crack that may exist. This test will conform to ASTM E709 and be performed prior to assembly of the aerial device. • With aluminum structural components, visual inspection will be performed on aluminum surfaces (non-magnetic). A liquid penetrant test will be performed on any suspected defective area. The test will conform to ASTM E165 and be performed prior to assembly of the aerial device. • Ultrasonic inspection will be used to detect any flaws in pins, bolts and other critical mounting components. <p>Functional tests, load tests, stability tests, and visual structural examinations will be performed. These tests will determine any unusual deflection, noise, vibration, or instability characteristics of the unit.</p> <p>No Exception to this specification</p>		
<p>Total Vehicle Assessment Test: The apparatus will be third-party, independent, audit-certified through Underwriters Laboratory (UL) to the current edition of NFPA 1901 standards. The certification includes: all design, production, operational and performance testing of this apparatus.</p> <p>No Exception to this specification.</p>		
<p>Performance Tests: A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus will meet NFPA 1901 acceleration requirements and NFPA 1901 braking requirements. The apparatus when fully loaded will not have less than 25% or more than 50% on the front axle and not less than 50% or more than 75% on the rear axles.</p>		
<p>12-Volt NFPA Test: The following NFPA 9-14 test requirements shall be performed and recorded:</p> <ul style="list-style-type: none"> • RESERVE CAPACITY TEST • ALTERNATOR TEST AT IDLE • ALTERNATOR TEST AT FULL LOAD • LOW VOLTAGE ALARM TEST 		
<p>Generator Test: The generator system will be tested, approved and certified by Underwriters Laboratory (UL) at the manufacturer's expense. The test results will be provided to the Fire Bureau at the time of Delivery.</p>		

<p>Warranty – General Requirements: A copy of each warranty certificate listed below shall be provided with the bid package.</p> <p>All warranties shall go into effect when the vehicle goes into service, not upon delivery of the vehicle to the Fire Bureau.</p> <p>NO EXCEPTIONS TO THIS PROVISION</p>		
<p>Chassis Warranty: The chassis manufacturer shall provide a limited parts and labor warranty to the original purchaser of the custom built cab and chassis for a period of twelve (12) months, or the first 24,000 miles, whichever occurs first. The warranty period shall commence on the date the vehicle is delivered to the end user. The warranty shall include conditional items listed in the detailed warranty document, which shall be provided upon request.</p>		
<p>Chassis: The Fire Bureau will not accept an HME Chassis.</p>		
<p>Frame Warranty: The frame and cross members shall carry a limited lifetime warranty to the original purchaser. The warranty shall include conditional items listed in the detailed warranty document, which shall be provided upon request.</p>		
<p>Apparatus Warranty: The warranty for each new motorized fire apparatus manufactured shall be for a period of ONE YEAR from the date of delivery, except for chassis and other components noted herein. Under this warranty, bidder agrees to furnish any parts to replace those that have failed due to defective material or workmanship where there is no indication of abuse, neglect, unusual or other than normal service providing that such parts are, made available for our inspection at our request, returned to the factory, or other location designated by manufacturer. Pre-paid transportation shall be provided within thirty days after the date of failure, or within one year from the date of delivery of the apparatus to the original purchaser, whichever occurs first, and inspection indicates the failure was attributed to defective material or workmanship. The warranty on the chassis and chassis supplied components, storage batteries, generators, electrical lamps and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for the same are to be made directly with the manufacturer by the customer. This warranty shall not apply to those items that are usually considered normal maintenance and upkeep services: including, but not limited to, normal lubrication or proper adjustment of minor auxiliary pumps or reels. This warranty is in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on the part of the manufacturer. The manufacturer neither assumes, nor authorizes any person to assume any liability on behalf of the manufacturer in connection with the sales of this apparatus unless made in writing by the manufacturer.</p>		
<p>Engine Warranty: The diesel engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.</p>		
<p>Transmission Warranty: The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.</p>		

<p>Front Axle Warranty: The front axle shall be warranted by the Original Equipment Manufacturer for two (2) years with unlimited miles under the general service application.</p>		
<p>Rear Axle Warranty: The rear axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application.</p>		
<p>Cab Structural Warranty: The cab structure shall be warranted for a period of ten (10) years or one hundred thousand (100,000) miles which ever may occur first. Warranty conditions may apply and shall be listed in the detailed warranty document that shall be provided upon request.</p>		
<p>Body Structural Warranty: The City of Pittsburgh requires that the body, under normal use and with reasonable maintenance, be structurally sound and will remain free from corrosion perforation for 20 years to original purchaser on original chassis. If vendor does not offer a 20-year warranty, vendor must indicate the cost to upgrade to the 20 year warranty in the bid.</p>		
<p>Paint Warranty: The vehicle shall come with a ten (10) year paint limited warranty on the apparatus cab and body. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.</p>		
<p>Aerial Structural Warranty: The aerial device shall be provided with a twenty (20) year material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service. This warranty shall be limited to the torque box, turntable, aerial sections and other structural components.</p>		
<p>Aerial Swivel Warranty: An Amity five (5) year limited swivel warranty shall be provided.</p>		
<p>Hydraulic System Warranty: All plumbing component suppliers will warrant the hose, adaptors, and fittings from component failure for a period of five (5) years. The supplier's obligation under this warranty will be limited to the replacement or repair of any failed components.</p> <p>Each hydraulic cylinder will have a structural warranty of not less than five (5) years and seal warranty of not less than three (3) years.</p> <p>All hydraulic system component suppliers will warrant all motion and control components for a period of five (5) years. This warranty will cover the valves, pumps, and hydraulic motors. Each component supplier's obligation under this warranty will be limited to the replacement or repair of any failed components.</p>		
<p>Aerial Waterway Warranty: An Amity ten (10) year limited waterway warranty shall be provided.</p>		
<p>Personnel Protection: Guards, shields, or other protection shall be provided where necessary in order to prevent injury of personnel by hot, moving, or rotating parts during non-maintenance operations. Electrical insulation or isolation shall be provided where necessary in</p>		

<p>order to prevent electrical shock from on-board electrical systems. Vehicle workmanship shall ensure an operating environment free of accessible sharp projections and edges. Safety related (caution, warning, danger) signs shall meet the requirements of ANSI Z535.4 <i>Product Safety Signs and Labels</i>.</p>		
<p>Preconstruction Conference: A pre-construction conference shall be conducted at the apparatus manufacturer's factory at which time all final designs and equipment mounting locations will be approved, prior to any sheet metal being cut. A factory employed design engineer shall be present during the pre-construction conference to answer any design, and/or engineering questions relating to the layout of the apparatus. At the Pre-construction conference, the City's specifications shall be discussed page by page. Any changes that are agreed to by both parties shall be changed and highlighted in electronic format as soon as possible. After examining the agreed upon changes to the City's specifications a representative from both parties shall sign an agreement that the changes are correct. The new specification shall be emailed to all those who attended the meeting. The City shall send a maximum of six (6) representatives to the Pre-construction conference. Costs shall be included in the bid price. Departure shall be from Pittsburgh, Pa. and shall be a direct flight when applicable. Air travel (for distances over 250 miles), meals, and lodging expenses shall be included.</p>		
<p>Approval Drawings: Prior to construction, drawings shall be supplied to the Fire Department. The drawings shall be signed and returned to the factory and kept on file for future reference. The drawings shall be as detailed as possible, and shall include the following:</p> <ul style="list-style-type: none"> • The apparatus including a front, rear, top, views of both sides, and measurements • Interior of the cab showing seating positions, and measurements • The dash showing switch positions and a description of their function • Ladder storage area showing configuration of ladders. • Lettering and striping configuration • Waterway piping diagram 		
<p>Inspection Trips: Inspection trips for six (6) Fire Department personnel shall be made to the facility during the course of construction of the apparatus. Successful bidder shall consult with Fire Department committee chairperson as to the proper timing of the inspection trips. Air travel (for distances over 250 miles), meals, and lodging expenses shall be included in vendor's bid. The inspection trips will be a mid-production or pre-paint and a final prior to delivery. In the event the order shall include multiple apparatus, and all apparatus are at the same stage of production, all apparatus can be inspected at the same time. There will be a minimum of two inspections. Both inspections will be held at the manufacturing facility.</p>		
<p>Delivery: Final delivery of the completed apparatus shall be made FOB Fire Department Headquarters or as directed by the Fire Bureau.</p>		
<p>Demonstrations: Fire Department personnel shall be properly instructed as to the proper use of the entire apparatus including, but not limited to, chassis, fire pump system, the apparatus and all equipment. The demonstration shall be made by a factory trained Specialist who shall</p>		

<p>be responsible for complete instruction as to operation and maintenance of the chassis, and the completed vehicle. A demonstration specialist shall remain at the Fire Department for a sufficient amount of time to provide thorough instruction to all personnel, or as instructed by Chief of the Department. This will typically be for a period of four (4) days at a minimum to cover all shifts. All meals, motel and travel costs shall be the responsibility of the successful bidder.</p>		
<p>Exceptions: Manufacturers shall strictly adhere to the following specifications. Exceptions will be allowed at the discretion of the Fire Bureau during review of the proposals. Any bidder taking exception to the specification must note so on a separate list within the proposal titled "EXCEPTIONS TO SPECIFICATIONS". Exceptions lists shall refer to specific paragraph. In addition, bidders shall return a copy of these specifications as a part of their proposal, with any exceptions to these specifications outlined with a bright marking pen. Any section of the specifications not marked shall be considered to be in full compliance with these specifications. The marked copy of these specifications shall become a part of the final contract. <u>PROPOSALS TAKING TOTAL EXCEPTION TO THESE SPECIFICATIONS, OR PROPOSALS TAKING EXCEPTION TO MAJOR PORTIONS OF THESE SPECIFICATIONS (I.E. CHASSIS, BODY, ELECTRICAL SYSTEM, DELIVERY REQUIREMENTS, ETC.), COULD BE REJECTED.</u> Units will be inspected upon delivery for compliance with specifications. Deviations will not be accepted and will be cause for rejection of apparatus unless they were originally listed and accepted in the bidder's proposal by the Equipment Leasing Authority and the Bureau of Fire. Bidders checking the "YES" comply column must comply with the entire paragraph checked. It shall be assumed that columns checked "YES" for compliance shall offer the exact components and construction techniques as spelled out in the specification. The "NO" column should be checked if the bidder offers components which are said to be equal to or greater than the specification calls for in the opinion of the bidder. Checking "YES" indicates total compliance as stated in the specifications. All paragraphs checked "NO" must be listed in exact detail as an Exception or Clarification. No exceptions will be accepted for parts of this specification that are marked</p> <p><u>NO EXCEPTIONS to this requirement.</u></p>		

General Requirements	Compliance	
	Y	N
<p>Description of Apparatus: It is the intent of these specifications to describe the furnishing and delivery of a complete Aerial Fire Apparatus equipped as herein specified. Features of the apparatus include a minimum 100 foot heavy duty aerial ladder with waterway, no pump or water tank and aluminum, or stainless steel construction of all body components. Vehicle length shall not exceed forty one (41) feet. Vehicle height shall not exceed twelve (12) feet and wheelbase shall not exceed 240 Inches. The vehicle shall have a maximum width of 96.00 inches. Bidders shall pay particular attention to the angles of approach and departure described in these specifications.</p>		

<p>Model: The chassis shall be a custom fire apparatus model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit, and maneuverability. The chassis shall be manufactured for heavy-duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.</p>		
<p>Model Year: The chassis shall have a vehicle identification number that reflects a 2014 model year.</p>		
<p>Country of Service: The chassis shall be put in service in the country of United States of America (USA). The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4, which accompanies each chassis. Chassis manufacturer Chassis is not responsible for compliance to state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from Chassis manufacturer Chassis or their OEM needed to comply with those regulations.</p>		
<p>Apparatus Type: The apparatus shall be an aerial vehicle designed for emergency service use, which shall be equipped with a permanently mounted aerial device with waterway. Apparatus shall be designed to withstand the rigors of fire service use.</p>		
<p>Vehicle Type: The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted aerial apparatus behind the cab. The aerial apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.</p>		
<p>Axle Configuration: The chassis shall feature a 3 axle configuration consisting of a tandem rear drive axle with a single front steer axle.</p>		
<p>Principle Apparatus Dimensions: The principle dimensions of the completed apparatus shall not exceed the following maximum acceptable dimensions:</p> <ul style="list-style-type: none"> • OVERALL LENGTH: 492 inches • OVERALL WIDTH 96 inches • OVERALL HEIGHT not to exceed 12 feet • WHEELBASE not to exceed 240 inches 		
<p>Rear Overhang: The chassis rear overhang shall be determined by body builder.</p>		
<p>Angle of Approach and Departure: The angle of approach and the angle of departure shall exceed the NFPA minimum by the greatest margin possible. The Fire Bureau places great emphasis on this because of the steepness of the streets in our response area.</p>		
<p>Aerial Provision: The chassis shall include provisions to mount an aerial device on the rear of the chassis, more commonly known as a rear-mount configuration.</p>		
<p>Vehicle Top Speed: The top speed of the vehicle shall be approximately 60 MPH +/-2 MPH at governed engine RPM.</p>		

<p>Dissimilar Metals: The body and components shall be thoroughly protected against corrosion and/or oxidation caused by contact between dissimilar metals. These areas shall be protected by the use of corrosion resistant primers, gaskets and "ECK" (electrolic corrosion material) or any equivalent material.</p>		
<p>Painting: Body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments. All painted surfaces shall follow the following procedure to insure a lasting finish: Metal surfaces shall be sanded to remove all burrs and imperfections in material. Upon the application of the required body fillers and their preparation, the unit shall be primed with a coating designed for corrosion resistance and surface paint adhesion. Sandable primer filler shall then be sprayed on the surface. This primer will be sanded smooth leaving the best surface for topcoat. The apparatus body shall be painted with a high luster polyurethane paint system approved by the Fire Bureau. Any location where aluminum is penetrated after painting shall be treated with a corrosion inhibiting material.</p>		
<p>Undercoating: The body sub-frame shall be undercoated with a heavy-duty automotive type undercoating before the rubber backing and the compartments are attached. After the body has been attached to the sub-frame and all final items have been installed the entire body assembly shall be undercoated.</p>		
<p>Touch-Up Paint: There shall be touch-up paint furnished with the truck.</p>		
<p>Lettering: Striping shall be 3M brand Scotchlite Gold with black borders placed on both sides of the apparatus body. Lettering to be placed on each cab door as directed by fire department shall be a maximum of eighty (80) letters.</p>		
<p>Reflective Safety Stripe: A 4" and 2" wide 3M brand Scotchlite #680-10 reflective stripe shall be affixed to the perimeter of the vehicle. Striping shall be placed up to 60" above ground level and shall conform to NFPA reflectivity requirements. At least 60% of the perimeter length of each side and width of the rear, and at least 40% of the perimeter width of the front of the vehicle shall have reflective stripe. The side stripe shall be applied straight across the body. A 2.5" gap between top stripe and bottom stripe is required. The stripe shall be white in color trimmed in black ¼" reflective.</p>		
<p>Diamond Grade Reflective Stripe: There shall be a reflective stripe placed on the entire rear of the apparatus to form a "Chevron" pattern. The striping shall be 6" wide alternating red and yellow. The pattern shall be an inverted "V".</p>		
<p>Occupant Protection</p> <p>The vehicle shall include an occupant protection system, which shall secure belted occupants and increase the survivable space within the cab. The occupant protection system shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the occupant protection system shall also provide ejection mitigation protection.</p>		

The system components shall include:

- Driver steering wheel airbag
- Driver knee air bag
- Officer knee airbag.
- Large driver, officer, and crew area side curtain airbags
- Seat belt system - retractor pre-tensioners tighten the seat belts around the occupants, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries
- Control Module - receives inputs from the outboard sensors, selectively deploys occupant protection systems, and records sensory inputs immediately before and during a detected qualifying event
- Integrated outboard crash sensors mounted at the perimeter of the vehicle - detects a qualifying front or side impact event and monitors and communicates vehicle status and real time diagnostics of all critical subsystems to the control module
- Fault-indicating light on the driver's instrument panel

Frontal impact protection shall be provided by the outboard sensors and the control module. In a qualifying front impact event the outboard sensors provide inputs to the control module. The control module activates the steering wheel airbag, driver side knee airbags, officer side knee airbag, and advanced seat belts for each occupant in the cab.

The occupant protection system frontal impact system shall be independently tested to ensure occupant injury criteria does not exceed injury criteria defined in Federal Motor Vehicle Safety Standard (FMVSS) 208. Frontal impact into a rigid barrier at 25 mph shall be conducted by an independent third party test facility using belted 95th percentile Hybrid II test dummies.

Rollover, side impact, and ejection mitigation shall be provided by the outboard sensors and the control module. In qualifying rollover or side impact events the outboard sensors provide inputs to the control module. The control module activates the side curtain airbags and advanced seat belts for each occupant in the cab. The control module measures roll angle, lateral acceleration, and roll rate to determine if a rollover event or side impact event is imminent or occurring.

In the event of a qualifying offset or other non-frontal impact, the control module shall determine and intelligently deploy the front impact protection system, the side impact protection system, or both front and side impact protection systems based on the inputs received from the outboard crash sensors.

<p>The occupant protection system side impact system shall be independently tested to ensure occupant injury criteria does not exceed injury criteria defined in Federal Motor Vehicle Safety Standard (FMVSS) 214. Side impact from a moving barrier at 17 mph shall be conducted by an independent third party test facility using belted 50th percentile ES-2re test dummies.</p>		
<p>Identification & Safety Labels: A permanent plate shall be installed in the driver's compartment to specify the quantity and type of the following fluids in the vehicle:</p> <ol style="list-style-type: none"> 1. Engine oil 2. Engine coolant 3. Transmission fluid 4. Pump Transmission Lubrication Fluid 5. Pump Primer Fluid (If applicable) 6. Drive Axle Lubrication Fluid 7. Air-conditioning refrigerant 8. Air-conditioning lubrication oil 9. Power steering fluid 10. Transfer case fluid 11. Equipment rack fluid 12. Air compressor system lubricant 13. Generator system lubricant <p>When trucks have been UL certified, a permanent plate with pump performance data and serial numbers shall be installed on the pump panel. A permanent plate shall be installed in the driver's compartment specifying the maximum number of personnel the vehicle is designed to carry per NFPA standards. It shall be located in an area visible to the driver. An accident prevention sign stating "DANGER PERSONNEL MUST BE SEATED AND SEAT BELTS MUST BE FASTENED WHILE VEHICLE IS IN MOTION OR DEATH OR SERIOUS INJURY MAY RESULT". The warning sign shall be placed so it is visible from all seating positions.</p> <p>An accident prevention sign stating "DANGER DO NOT RIDE ON REAR STEP WHILE VEHICLE IS IN MOTION, DEATH OR SERIOUS INJURY MAY RESULT" shall be placed so it is visible from the rear step of the vehicle. If an inlet located at the pump operator's position has a valve, it shall be provided with a permanent label that states, "WARNING SERIOUS INJURY OR DEATH COULD OCCUR IF INLET IS SUPPLIED BY A PRESSURIZED SOURCE WHEN THE VALVE IS CLOSED".</p>		

Chassis and Vehicle Components	Compliance	
	Y	N
<p>Chassis General: The chassis shall be a custom designed chassis developed exclusively for the fire service. The chassis provided will be designed and manufactured for heavy-duty service, with adequate strength, capacity for the intended load to be sustained, and the type of service required. The chassis will be designed as a heavy duty fire aerial apparatus and support a tilt-style cab.</p>		
<p>The chassis shall be a model year 2014 four (4)-door model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit, and maneuverability. The chassis shall be manufactured for heavy-duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time. The apparatus shall be an aerial vehicle designed for emergency service use, which shall be equipped with a permanently mounted steel 100 foot aerial device. The aerial device shall be mounted to the rear of the apparatus. The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted aerial apparatus at the rear of the apparatus. The aerial apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.</p>		
<p>Frame: The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, with the outer rail measuring 13.38 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail shall be constructed of 120,000-psi minimum yield high strength low alloy steel. Each double rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,119,040 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width. Proposals calculating the frame strength using the "box method" shall not be considered. Proposals including heat-treated rails shall not be considered. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail. A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The head bolts shall be flanged type with distorted threads, held in place by flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25-inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame. Any proposals not including additional reinforcement for each cross member shall not be considered. All relief areas shall be cut in with a minimum 2.00-inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point. The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the frame warranty shall be made available upon request. Proposals offering warranties for frames not including cross members shall not be considered.</p>		
<p>Frame Paint: The frame shall be powder coated black. Black paint shall be applied over the powder coating for added protection. All powder coatings, primers, and paint shall be compatible with all metals, pretreatments, and primers used. The crosshatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per</p>		

<p>ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils. Any proposals offering painted frame with variations from the above process shall not be accepted. The film thickness of vendor-supplied parts shall also be sufficient to meet the performance standards as stated above.</p>	
<p>Gross Axle Weight Rating Front: The front gross axle weight rating (GAWR) of the chassis shall be 22,800 pounds. This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.</p>	
<p>Gross Axle Weight Rating Rear: The rear gross axle weight rating (GAWR) of the chassis shall be 48,000 pounds. This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.</p>	
<p>Load Distribution: The apparatus manufacturer shall calculate the load distribution for the apparatus, and that load distribution plan shall be delivered with the fire apparatus. The manufacturer shall engineer the fire apparatus to comply with the gross axle weight ratings (GAWR), the overall gross vehicle weight rating (GVWR), and the chassis manufacturer's load balance guidelines. The apparatus, when loaded to its estimated in-service weight, shall have a side-to-side tire load variation of no more than 7 percent of the total tire load for that axle. Each tire shall be equipped with a visual indicator or monitoring system that indicates tire pressure. The chassis shall feature a 6 X 4-axle configuration consisting of tandem rear drive axles with a single front steer axle. The front gross axle weight rating (GAWR) of the chassis shall be 22,800 pounds. This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel. The rear gross axle weight rating (GAWR) of the chassis shall be 48,000 pounds. This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel. The cab and chassis shall have provisions for a rear-mount aerial dry (no pump) configuration.</p>	
<p>Engine: The chassis will be powered by an electronically controlled diesel engine as described below:</p> <ul style="list-style-type: none"> • Minimum Horsepower: 500 bhp at 1800 rpm • Peak Torque: 1650 lb-ft at 1200 rpm • Governed Speed: 2080 rpm • Emissions Level: EPA 2013 • Fuel: Diesel • Number of Cylinders: Six (6) • Displacement: 781 cubic inches (12.8L) • Starter: Delco 39MT • Fuel Filters: Dual cartridge style with check valve, water separator, and water in fuel sensor. • Coolant Filter: Cartridge style with shut of valves on supply and return lines. <p>The engine shall include on-board diagnostics (OBD), which provides self diagnostic and reporting. The system shall give the owner or repair technician access to state of health information for various vehicle sub systems. The system shall monitor vehicle systems, engine and after treatment. The system shall illuminate a malfunction light on the dash console if a problem is detected.</p>	

<p>Cab Engine Tunnel: The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade, 0.19 of an inch thick aluminum. The tunnel shall be a maximum of 41.50 inches wide X 25.50 inches high.</p>		
<p>Diesel Particulate Filter Controls: There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit.</p>		
<p>Engine Programming High Idle Speed: The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.</p>		
<p>Engine High Idle Control: A high idle switch shall be provided, inside the cab, on the instrument panel, that shall automatically maintain a preset engine rpm. A switch shall be installed, at the cab instrument panel, for activation / deactivation.</p> <p>The high idle shall be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light shall be provided, adjacent to the switch. The light shall illuminate when the above conditions are met. The light shall be labeled “OK to Engage High Idle.”</p>		
<p>Engine Programming Road Speed Governor: The engine shall include programming which will govern the top speed of the vehicle.</p>		
<p>Auxiliary Engine Brake: An engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.</p> <p>The driver shall be able to turn the engine brake system on / off and have a high, medium and low setting.</p> <p>The engine brake shall be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.</p> <p>The ABS system shall automatically disengage the auxiliary engine braking device when required.</p>		
<p>Auxiliary Engine Brake Control: An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:</p> <ul style="list-style-type: none"> • A valid gear ratio is detected. • The driver has requested or enabled engine compression brake operation. • The throttle is at a minimum engine speed position. • The electronic controller is not presently attempting to execute an electronically controlled final drive gearshift. <p>The compression brake shall be controlled through an on/off switch and a low/medium/high selector switch.</p>		

<p>Fluid Fills: The engine oil, coolant, transmission, and power steering fluid fills shall be located under the cab. The windshield washer fill shall be accessible through the front left side mid step.</p>		
<p>Engine Drain Plug: The engine shall include an original equipment manufacturer installed oil drain plug.</p>		
<p>Electronic Engine Oil Level Indicator: The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.</p>		
<p>Engine Programming Idle Speed: The engine low idle speed will be programmed at 700 rpm.</p>		
<p>Engine Fan Drive: A fan clutch shall be provided. The fan clutch shall be automatic when the transfer case is in the “Road” position, and fully engaged in the “PTO” position.</p>		
<p>Engine Cooling System: The radiator and complete cooling system shall meet or exceed NFPA engine manufacturer cooling system standards.</p> <p>For maximum cooling performance, the radiator core shall be made of copper fins having a serpentine design, soldered to brass tubes. The tubes shall be welded to brass headers for increased strength, longer road life and solder-bloom corrosion protection. The radiator core shall have a minimum frontal area of 1396 square inches. Steel supply and return tanks shall be bolted to the core headers and steel side channels to complete the radiator assembly. The radiator shall be compatible with commercial antifreeze solutions.</p> <p>The radiator shall be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly shall be isolated from the chassis frame rails with rubber isolators.</p> <p>A drain port shall be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.</p> <p>A heavy-duty fan shall draw in fresh, cool air through the radiator. Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the radiator.</p>		
<p>Engine Cooling System Protection: The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris.</p>		
<p>Engine Coolant: The cooling package shall include Extended Life Coolant (ELC). The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees F. Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.</p>		

<p>Electronic Coolant Level Indicator: The instrument panel shall feature a low engine coolant indicator light, which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.</p>		
<p>Coolant Hoses: Silicone hose shall be used for all engine coolant lines to be installed by the chassis manufacturer.</p> <p>Hose clamps shall be stainless steel constant torque type to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the line.</p>		
<p>Engine Coolant Overflow Bottle: A remote overflow bottle shall be provided in the case of over filling the coolant system. The overflow bottle that shall be used on the system shall only be a catch bottle and not return coolant back to the surge tank.</p>		
<p>Engine Air Intake: The air intake with an ember separator shall be mounted high on the passenger side of the cab, to the front of the crew cab door. The ember separator is designed to prevent road dirt and recirculating hot air from entering the engine.</p> <p>The ember separator shall be easily accessible through a hinged stainless steel grille, with one (1) flush quarter turn latch.</p>		
<p>Engine Exhaust System: The exhaust system shall include a diesel particulate filter (DPF) and a selective catalytic reduction (SCR) device to meet current EPA standards. The exhaust system shall be stainless steel from the turbo to the inlet of the SCR device and shall be 5.00” in diameter. An insulation wrap shall be provided on all exhaust pipe between the turbo and SCR to minimize transfer of heat to the cab. The exhaust shall terminate horizontally ahead of the passenger side rear wheels. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.</p>		
<p>Nederman System Connection: The exhaust system shall terminate in a tailpipe that is configured for the Nederman Station Exhaust Removal System. A retaining magnet will be installed on the apparatus body at the appropriate height above the tailpipe. The activating transmitter shall be installed by the apparatus manufacturer.</p>		
<p>Diesel Exhaust Fluid Tank: A 4.5 gallon diesel exhaust fluid (DEF) tank shall be provided and mounted in the driver’s side body forward of the rear axle.</p> <p>A 0.50” drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the driver’s side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked “Diesel Exhaust Fluid Only.”</p> <p>The tanks shall include an integrated heater unit that utilizes engine coolant to thaw DEF in the event of freezing.</p>		

<p>Engine Exhaust Accessories: An exhaust temperature mitigation device shall be provided. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.</p>	
<p>Engine Exhaust Wrap: The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat, which can be transferred from the exhaust.</p>	
<p>Transmission: an Allison 5th generation, model EVS 4000P, electronic, torque converting, automatic transmission shall be provided.</p> <p>The transmission shall be equipped with diagnostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector’s digital display shall indicate when service is due.</p> <p>Two (2) PTO openings shall be located on the left side and top of the convertor housing (position 8 o’clock and 1 o’clock).</p> <p>A transmission temperature gauge with red light and buzzer shall be installed on the cab instrument panel.</p> <p>The transmission ratios shall be:</p> <ul style="list-style-type: none"> 1st Gear – 3.51 to 1.00 2nd Gear – 1.91 to 1.00 3rd Gear – 1.43 to 1.00 4th Gear – 1.00 to 1.00 5th Gear – 0.75 to 1.00 6th Gear – 0.64 to 1.00 Reverse – 4.80 to 1.00 	
<p>Transmission Mode Programming: The transmission, upon start-up, will select the fifth speed operation without the need to press the mode button.</p>	
<p>Transmission Feature Programming: The EVS group package number 127 shall contain the 198 vocational packages in consideration of the duty of this apparatus as a Pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override. This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide. An eight (8)-pin Delphi connector will be provided. This will contain the following input/output circuits to the transmission control module.</p>	

Function ID	Description	Wire assignment		
C	PTO Request	142		
J	Fire Truck Pump Mode (4th Lockup)	122 / 123		
C	Range Indicator	145 (4th)		
G	PTO Enable Output	130		
	Signal Return	103		
<p>Electronic Transmission Oil Level Indicator: The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.</p>				
<p>Transmission Shift Selector: A six-speed push button shift module shall be mounted to the right of the driver on the console. Shift position indicator shall be indirectly lit for after dark operation.</p>				
<p>Transmission Pre-Select with Auxiliary Brake: When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.</p>				
<p>Transmission Cooling System: A transmission cooler shall be provided that is integral to the radiator and located at the bottom of the radiator. The cooler shall use engine coolant to control the transmission oil temperature.</p>				
<p>Transmission Drain Plug: The transmission shall include an original equipment manufacturer installed oil drain plug.</p>				
<p>LH PTO: A Chassis manufacturer supplied ten (10) bolt-standard duty clutched drive PTO shall be installed on the transmission. Installation shall include mounting of the PTO and wiring the unit with a control switch.</p>				
<p>LH PTO MODEL: A ten (10) bolt Chelsea model 277-XMFJP-B5RA heavy-duty transmission driven PTO shall be installed. The clutched shifted PTO is designed specifically for the Allison world transmission and provides torque ranges from 250 to 335 lb. ft. The transmission driven power take off (PTO) shall be mounted in the 9:00 o'clock position.</p>				
<p>PTO Control: The left-hand power take-off shall be controlled by the transmission. The power take off shall be activated by a locking on/off rocker switch which contains an integral light which shall illuminate upon a positive engagement of the power take off. This switch shall be located on dash.</p> <p>Required operating conditions for enabling this function are:</p> <ul style="list-style-type: none"> • Throttle position is low • Engine speed is within customer modifiable constant limits • Output speed is within customer modifiable constant limits • Parking brake is set 				

<p>Driveline: All drivelines shall be heavy-duty metal tube and equipped with Spicer 1810 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®.</p>		
<p>Fuel Filter/Water Separator: The fuel system shall have a Fleetguard FS1003 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve. A water-in-fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator. A secondary fuel filter shall be included as approved by the engine manufacturer.</p>		
<p>Fuel Lines: The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced nylon tubing rated for diesel fuel. The fuel lines shall be brown in color and connected with brass fittings.</p>		
<p>Fuel Tank: A 65-gallon fuel tank shall be provided and mounted at the rear of the chassis. The tanks shall be constructed of 12-gauge, hot rolled steel. It shall be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank shall be mounted with stainless steel straps (no exceptions).</p> <p>A 0.75” drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the left hand side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked “Ultra Low Sulfur – Diesel Fuel Only.”</p> <p>A 0.50” diameter vent shall be provided running from the top of the tank to just below the fuel fill inlet.</p> <p>The tank shall meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.</p> <p>All fuel lines shall be provided as recommended by the engine manufacturer.</p>		
<p>Fuel Cooler: An air to fuel cooler shall be installed in the engine fuel return line.</p>		
<p>Fuel Tank Serviceability Provisions: The chassis fuel lines shall have additional length provided so the tank can be easily lowered and removed for service purposes. The additional 8 ft. of length shall be located above the fuel tank and shall be coiled and secured. The fuel line fittings shall be pointed towards the right side (curbside) of the chassis.</p>		
<p>Front Axle: The front axle shall be of the independent suspension design with a ground rating of 22,800 pounds.</p> <p>Upper and lower control arms shall be used on each side of the axle. Upper control arm castings shall be made of 100,000-psi yield strength 8630 steel and the lower control arm casting shall be made of 55,000-psi yield ductile iron.</p> <p>The center cross members and side plates shall be constructed out of 80,000-psi yield strength steel.</p>		

<p>Each control arm shall be mounted to the center section using elastomer bushings. These rubber bushings shall rotate on low friction plain bears and be lubricated for life. Each bushing shall also have a flange end to absorb longitudinal impact loads, reducing noise and vibrations.</p> <p>There shall be nine (9) grease fittings supplied, one (1) on each control arm pivot and one (1) on the steering gear extension.</p> <p>The upper control arm shall be shorter than the lower control arm so that the wheel end geometry provides positive camber when deflected below rated load and negative camber above rated load.</p> <p>Camber at load shall be zero degrees for optimum tire life.</p> <p>The ball joint bearing shall be of low friction design and be maintenance free.</p> <p>Toe links that are adjustable for alignment of the wheel to the center of the chassis shall be provided.</p> <p>The wheel ends must have little to no bump steer when the chassis encounters a hole or obstacle.</p> <p>The steering linkage shall provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase.</p> <p>The axle shall have a third party certified turning angle of 45 degrees. Front discharge, front suction or aluminum wheels shall not infringe on the crap angle.</p> <p>Independent Front Suspensions utilizing an air bag system will not be accepted.</p>	
<p>Front Oil Seals: Oil seals with viewing windows shall be provided on the front axle.</p>	
<p>Front Shock Absorbers: Heavy duty telescoping shock absorbers (KONI) shall be provided on the front suspension.</p>	
<p>Front Suspension: Front independent suspension shall be provided with a minimum ground rating of 22,800 lb.</p> <p>The independent suspension system shall be designed to provide maximum ride comfort. The design shall allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment.</p> <p>Each wheel shall have torsion bar type springs. In addition, each front wheel end shall have energy absorbing jounce bumpers to prevent bottoming of the suspension.</p> <p>The suspension design shall be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms.</p> <p>The torsion bar anchor lock system allows for simple lean adjustments, without the use of shims.</p>	

<p>On can adjust for a lean within 15 minutes per side. Anchor adjustment design is such that it allows for ride height adjustment on each side.</p> <p>The independent suspension shall be put through a durability test that has simulated a minimum of 140,000 miles of inner city driving.</p>		
<p>Steering Column/Wheel: The cab shall include a Douglas Autotech steering column, which shall include a seven (7)-position tilt, a 2.25 inch telescopic adjustment, and an 18.00 inch, two (2) spoke steering wheel located at the driver's position. The steering wheel shall be covered with black polyurethane foam padding. The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.</p>		
<p>Power Steering Pump: The hydraulic power steering pump shall be a TRW PS and shall be gear driven from the engine. The pump shall be a balanced, positive displacement, sliding vane type.</p>		
<p>Electronic Power Steering Fluid Level Indicator: The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.</p>		
<p>Front Axle Cramp Angle: The chassis shall have a minimum front axle cramp angle of 45 degrees to the left and to the right.</p>		
<p>Power Steering Gear: The power steering gear shall be a design appropriate for the independent suspension and include power assist.</p>		
<p>Chassis Alignment: The chassis frame rails shall be measured to insure the length is correct and crosschecked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.</p>		
<p>Rear Axle: The rear axle shall be a Meritor model RT-44-145 tandem axle assembly and have a rated capacity of 44,000 pounds. The axle shall include precision forged, single reduction differential gearing. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.50 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance. The axle shall have heavy-duty Hypoid gearing for longer life, greater strength, and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage shall be used. The rear axle differential shall be lubricated with oil. The rear axle ratio shall be 5.63:1.</p>		
<p>Rear Wheel Bearing Lubrication: The rear axle wheel bearings shall be lubricated with oil.</p>		
<p>Onspot Chains: Onspot brand 6-strand automatic ice chains shall be installed on the rear axle of the chassis. A switch on the Operator's side dash shall operate the chains.</p>		

<p>Rear Suspension: The rear suspension shall be a Hendrickson HN FR VariRate spring system with an equalizing beam design that distributes the load equally between the two (2) axles. The ground rating of the suspension shall be 48,000 lb.</p>		
<p>Front Tire: The front tires shall be Michelin 425/65R-22.5 18PR "J" tubeless radial XZY3 mixed service tread. The front tire stamped load capacity shall be 18,740 pounds per axle with a speed rating of 65 miles per hour when properly inflated to 120 pounds per square inch. The front tire US Fire Service Intermittent Usage load capacity shall be 20,000 pounds per axle with a speed rating of 65 miles per hour when properly inflated to 120 pounds per square inch.</p>		
<p>Rear Tire: The rear tires shall be Michelin 12R-22.5 16PR "H" tubeless radial XDS regional tread. The rear tire stamped load capacity shall be 27,120 pounds per axle with a speed rating of 65 miles per hour when properly inflated to 120 pounds per square inch. The rear tire US Fire Service Intermittent Usage load capacity shall be 28,880 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.</p>		
<p>Tire Pressure Indicator: Each tire shall be equipped with a visual indicator or monitoring system that indicates tire pressure.</p>		
<p>Front Wheels: The front wheels shall be Alcoa hub piloted, 22.50 inch X 12.25 inch LvL One™ polished aluminum wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts. The wheels shall feature one-piece forged strength and a polished finish that lasts.</p>		
<p>Rear Wheels: The outer rear wheels shall be Alcoa hub piloted, 22.50 inch X 8.25 inch LvL One™ aluminum wheels with a polished outer surface. The inner rear wheels shall be Alcoa hub piloted, 22.50 inch X 8.25 inch aluminum wheels with LvL One™ bright machine finish. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.</p>		
<p>Wheel Trim: The front wheels shall include stainless steel lug nut covers and stainless steel baby moons. The baby moons shall have cutouts for oil seal viewing when applicable. The rear wheels shall include stainless steel lug nut covers and band mounted spring clip stainless steel high hats. The lug nut covers, baby moons, and high hats shall be RealWheels® brand constructed of 304L grade, non-corrosive stainless steel with a mirror finish. Each wheel trim component shall meet D.O.T. certification.</p>		
<p>Brake System: A rapid build-up air brake system shall be provided. The air brakes shall include a two (2)-air tank, three (3) reservoir system with a total of 6,653 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service break application in the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification. The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI. A four (4) sensor, four (4) modulator anti-lock braking system (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or</p>		

<p>skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry, which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards. Additional safety shall be accommodated through Automatic Traction Control (ATC), which shall be installed on the rear axle. The ATC system shall apply the ABS when the drive wheels lose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces. A momentary rocker style switch shall be provided and properly labeled “mud/snow”. When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition, the ATC light and the light on the rocker switch shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature. The Electronic Stability Control (ESC) unit is a functional extension of the electronic braking system. It is able to detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the vehicle’s motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle’s lateral acceleration. The Controller Area Network (CAN) bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.</p>		
<p>Front Brakes: The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17" vented rotors.</p>		
<p>Rear Brakes: The rear brakes shall be Meritor 16.50 inch X 7.00 inch S-cam drum type.</p>		
<p>Park Brake: Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements</p>		
<p>Park Brake Control: A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color. The parking brake actuation valve shall be mounted on the center of the dash within easy access of the driver and the officer positions.</p>		
<p>Park Brake Slack Adjustors: The rear brakes shall include Meritor automatic slack adjusters installed on the axle. The automatic slack adjusters shall feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.</p>		
<p>All Wheel Lock-up: An additional all wheel lock-up system will be installed which applies air to the front brakes only. The standard spring brake control valve system will also be used for the rear.</p>		

<p>Air Dryer: The brake system shall include a Meritor/Wabco R955205 System Saver 1200 shall not require an extra purge tank or additional valves. The system shall include a spin-off desiccant filter with a 12-volt, 75-watt thermostatically controlled heating element. The air dryer shall feature 3.9 pounds of premium, high crush strength desiccant. It shall also offer protection against contamination and desiccant breakdown. The air dryer shall be properly mounted.</p>		
<p>Front Brake Chambers: The front brakes shall be provided brake chambers appropriate for Meritor Front Disk Brakes. Front brake chambers will have a parking brake lock that shall activate from a single park brake control.</p>		
<p>Rear Brake Chambers: The rear axle shall include TSE 30/36 brake chambers, which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.</p>		
<p>Air Compressor: The air compressor provided for the engine shall be a Wabco[®] SS318 single cylinder pass-through drive type compressor, which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head, which shall improve cooling, reduce weight, and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly increasing the system component life.</p>		
<p>Air Governor: An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air cleaner bracket on the right frame rail behind the officer step.</p>		
<p>Moisture Ejectors: An automatic moisture ejector with a manual drain provision shall be installed on the wet tank of the air supply system. Manual petcock type drain valves shall be installed on all remaining reservoirs of the air supply system.</p>		
<p>Air Supply Lines: A dual air system plumbed with color-coded reinforced nylon tubing air lines shall be installed on the chassis. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue. Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.</p>		
<p>Air Inlet / Outlet Connection: One (1) air inlet / outlet shall be installed with the female coupling located in a recessed box in the driver's side step well. This system shall tie into the "wet" tank of the chassis brake system and include a check valve in the inlet line and an 85 psi pressure protection valve in the outlet line. The air outlet shall be controlled by a needle valve.</p>		

<p>A mating male fitting shall be provided with the loose equipment.</p> <p>The air inlet shall allow a shoreline air hose to be connected to the vehicle. This shall allow station air to be supplied to the brake system of the vehicle to ensure constant air pressure.</p>		
<p>Recessed Box for Air Inlet/Outlet: One (1) air coupling shall have an aluminum treadplate recessed box provided. The box(es) shall allow the air fitting to be recessed inside the step well to prevent damage. The box shall be located in the driver side step well.</p>		
<p>Air Hose: There shall be one (1) fifty (50) foot length of air hose furnished with fittings.</p> <p>An air chuck shall be provided with the air hose. The air chuck shall fit the valve stems that are provided on the tire.</p>		
<p>Air Inlet/Outlet Fitting Type: The air connector supplied shall be a 0.25 inch size Tru-Flate Interchange style manual connection which is compatible with Milton ‘T’ style, Myers 0.25 inch Automotive style and Parker 0.25 inch 10 Series connectors.</p>		
<p>Front Bumper: The chassis shall be equipped with a severe duty front bumper constructed from structural steel channel. The bumper material shall be .38 thick ASTM A36 steel, which shall measure 12.00 inches high with a 3.05-inch flange and shall be 99.00 inches wide with angled front corners. The bumper shall be primed and painted as specified. Heavy rubber “dock” style bumpers will be installed on the front bumper. The rubber will be installed using fasteners for ease of replacement. The front bumper extension frame shall have an overall width of approximately 48.00 inches. The front bumper shall be extended a maximum of 9 inches ahead of the cab. .</p>		
<p>Front Bumper Paint: The front bumper shall be painted the same as the lower cab color. The front bumper shall have a diamond grade chevron stripe.</p>		
<p>Front Bumper Apron: The 6.00 inch extended front bumper shall include an apron constructed of embossed aluminum tread plate that is a minimum of 0.19 inches thick. The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.</p>		
<p>Mechanical Siren: The front bumper shall include an electro mechanical Federal Q2B™ siren, which shall be streamlined, chrome-plated and shall produce 123 decibels of sound at 10.00 feet. The siren shall measure 10.50 inches wide X 10.00 inches high X 14.00 inches deep. The siren shall be recess mounted on the officer side of the front fascia of the bumper, in the outboard position.</p>		
<p>Air Horns: The front bumper shall include two (2) Hadley or Grover brand E-Tone air horns which shall measure 21.00 inches long with a 6.00 inch round flare. The air horns shall be trumpet style with a chrome finish on the exterior and a painted finish deep inside the trumpet. The air horns shall be recess mounted in the front bumper face, one (1) on the right side of the bumper in the inboard position relative to the right hand frame rail, and one (1) on the left side of the bumper in the inboard position relative to the left hand frame rail.</p>		

<p>Air Horn Reservoir: One (1) air tank, with a 1,200 cubic inch reservoir, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90-PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.</p>		
<p>Electronic Siren Speaker: The bumper shall include one (1) Federal Signal model BP200-EF, 200-watt speaker that shall be recess mounted within the bumper fascia. The speaker shall measure 5.50 inches tall X 7.70 inches wide X 7.80 inches deep. The speaker shall include a Federal Signal “Electric F” style grille, which shall measure 6.61 inches tall X 6.78 inches wide. The electronic siren speaker shall be located on the front bumper face on the left side outboard of the frame rail in the far outboard position.</p>		
<p>Front Bumper Tow Eyes: The bumper shall include two (2) painted tow eyes that shall be installed through the gravel shield above the front bumper. The tow eyes shall be fabricated from 0.75-inch thick #1020 ASTM-36 hot-rolled steel. The inside diameter of the tow eye shall be 2.00 inch and have a chamfered edge. The tow eyes shall be painted to match the frame.</p>		
<p>Rear Below Body Tow Eyes: There shall be two (2) rear tow eyes below the body that will consist of a 5" steel channel attached to the rear of the chassis frame with tow eyes welded securely to the lower end of the 5" channel. A 2" steel pipe will be welded between the 5" channels for added strength.</p>		
<p>Mud Flaps: Mud flaps shall be made from black hard rubber and shall be installed behind the front and rear wheels.</p>		

Low Voltage Electrical System and Warning Devices	Compliance	
	Y	N
<p>Electrical System: The chassis shall include a single starting electrical system, which shall include a 12-volt direct current Weldon brand (or equivalent) of multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color-coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.</p>		
<p>Ignition: A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a ¼ turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A push type starter button shall be provided adjacent to the master battery and ignition switches. Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the “ON” position. The starter button shall only operate when both the master battery and ignition switches are in the “ON” position.</p>		

<p>Alternator: The charging system shall include a 420-amp Leece Neville 12 volt alternator. The alternator shall include a self-excited integral regulator.</p>		
<p>Battery: The single start electrical system shall include (6) Harris BCI 31 950 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541. The cables shall have encapsulated ends with heat shrink and sealant.</p>		
<p>Battery Tray: The batteries shall be installed within two (2) stainless steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame. The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the trays to allow for airflow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.</p>		
<p>Battery Box Cover: Each battery box shall include a stainless steel cover, which protects the top of the batteries. Each cover shall include flush latches, which shall keep the cover secure as well as a black powder coated handle for convenience when opening.</p>		
<p>Battery Cables: The starting system shall include cables, which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed, and encapsulated at the ends with heat shrink and sealant.</p>		
<p>Battery Jumper Stud: The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.</p>		
<p>Battery Conditioner: A Kussmaul 1200 battery conditioner shall be supplied. The battery conditioner shall be mounted in the cab behind the driver's seat. A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be mounted in the cab, viewable through the cab mid side window behind the left front door.</p>		
<p>Auxiliary Air Compressor: A Kussmaul Auto Pump 120V air compressor shall be supplied. The air compressor shall be installed behind the officer's seat. The air compressor shall be plumbed to the air brake system to maintain air pressure.</p>		
<p>Electrical Inlet: A Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed. A single item or an addition of multiple items must not exceed the rating of the electric inlet that which it is connected.</p> <p>Amp Draw Reference List: <i>Kussmaul 1000 Charger - 3.5 Amps</i> <i>Kussmaul 1200 Charger - 10 Amps</i> <i>Kussmaul 35/10 Charger - 10 Amps</i> <i>1000W Engine Heater - 8.33 Amps</i> <i>1500W Engine Heater - 12.5 Amps</i> <i>120V Air Compressor - 4.2 Amps</i></p>		

<p>An electrical inlet shall be installed on the left hand side of cab over the wheel well. The electrical inlet shall be connected to the battery conditioner and the air pump. The Kussmaul electrical inlet connection shall include a yellow cover.</p>		
<p>LED Lighting: Except where specifically noted in this specification, all LED lighting shall be Whelen Brand.</p>		
<p>Interior Overhead Lights: The cab shall include a two-section Weldon LED dome lamps with a red and clear lens located over each door. The dome lamps shall be rectangular, and shall measure approximately 9.50 inches in length X 5.00 inches in width with a black colored bezel. The clear portion of each lamp shall be activated by opening the respective door and both the red and clear portions can be activated by individual switches on each lamp. An additional LED three (3) light module with dual map lights shall be located over the engine tunnel, which can be activated by individual switches on the lamp.</p>		
<p>Do Not Move Apparatus: The front headliner of the cab shall include a flashing red light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated. The flashing red light shall be 6.00 inches long X 2.50 inches wide X 1.75 inches high and shall be located centered left to right for greatest visibility. The light and alarm shall be interlocked for activation when either a cab door is not firmly closed or an apparatus compartment door is not closed, and the parking brake is released.</p>		
<p>Data Recording System: The chassis shall have a Weldon Vehicle Data Recorder system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon Multiplex electrical system. The following information shall be recorded:</p> <ul style="list-style-type: none"> • Vehicle Speed • Acceleration • Deceleration • Engine Speed • Engine Throttle Position • ABS Event • Seat Occupied Status • Seat Belt Status • Master Optical Warning Device Switch Position • Time • Date <p>Each portion of the data shall be recorded at the specified intervals, stored for the specified length of time to meet NFPA 1901 guidelines, and shall be retrievable by connecting a laptop computer to the VDR system.</p>		
<p>Power & Ground Stud: The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40-amp battery</p>		

<p>direct load. One (1) power stud shall be capable of carrying up to a 15-amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud that shall be 0.38-inch diameter.</p>		
<p>Exterior Electrical Terminal Coating: All terminals exposed to the elements will be sprayed with a yellow protective rubberized coating to prevent corrosion.</p>		
<p>Headlights: The cab front shall include four (4) rectangular LED headlamps with separate high and low beams.</p>		
<p>Front Turn Signals: The front fascia shall include two (2) Whelen model 600 4.00 inch X 6.00 inch programmable LED amber turn signals, which shall be installed outboard of the front warning and headlamps.</p>		
<p>Headlight Location: The headlights shall be located on the front fascia of the cab directly below the front warning lights.</p>		
<p>Side Turn/Marker Lights: The sides of the cab shall include (2) LED round side marker lights which shall be provided just behind the front cab radius corners.</p>		
<p>Marker and ICC Lights: In accordance with FMVSS, there shall be five (5) cab LED marker lamps designating identification, center, and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level.</p>		
<p>Headlight and Marker Light Activation: The headlights and marker lights shall be controlled through a rocker switch within easy reach of the driver. There shall be a dimmer switch within easy reach of the driver to adjust the brightness of the dash lights.</p>		
<p>Ground Lights: There shall be a total of fourteen (14) perimeter under body lights installed. These lights shall be Amdor Luma Bar H2O, Model AY-9500-020, 20-inch LED weatherproof strip- lights. The lights shall be installed in the following locations:</p> <ul style="list-style-type: none"> • 2 under the front bumper – come on with parking brake • 1 under each cab exit door – come on when door is opened and with parking brake. • 3 under each side of the apparatus body – come on with the parking brake • 2 under the rear step – come on with the parking brake <p>Ground lights will also come on when the turn signals or reverse lights are activated.</p>		
<p>Step Lights: The middle step located at each door shall include a recess mounted, 4.00 inch round LED light, which shall activate with the opening of the respective door.</p>		
<p>Engine Compartment Light: There shall be a LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing that is vibration welded, and a bulb, which shall be shock, mounted for extended life. The light shall activate automatically when the cab is tilted.</p>		
<p>Front Scene Lights: The front of the cab shall include two (2) Whelen model Pioneer PFP1 contour roof mount light installed centered over each windshield on the brow of the cab. The</p>		

<p>lamp head shall have two (2) 12-volt high intensity LED panels. The lamp head will be adjustable up to 20-degrees. The lamp head and brackets shall be powder coated white. The front scene light shall be activated by a rocker switch.</p>	
<p>Side Scene Lights: The cab and body shall include eight (8) Whelen model Pioneer PSP1 radius mount lights installed one (1) on each side of the cab and three (3) each side of the apparatus body. Each lamp head shall have one (1) 12-volt high intensity LED panel. Each lamp head shall be adjustable up to 20 degrees. The lamp heads shall be powder coated white. One light shall be mounted on the driver's side of the cab, and one light shall be mounted on the officer's side of the cab. The lights shall be mounted on the upper side radius of the cab and centered above the rear crew doors. Three lights shall be mounted on the upper edge of each side of the apparatus body.</p> <p>The scene lights shall be activated by two (2) rocker switches located in the switch panel, one (1) for each side of the vehicle. The scene lights over the cab doors shall also activate by opening the respective side cab doors.</p>	
<p>Rear Scene Lights: The rear of the apparatus shall include two (2) Whelen model Pioneer PSP1 recessed mount lights installed one (1) on each side of the rear body panel. Each lamp head shall have one (1) 12-volt high intensity LED panel. The lamp heads shall be powder coated white. Lamps shall be recessed into the upper rear face of the body.</p> <p>The scene lights shall be activated by a rocker switch located in the switch panel.</p>	
<p>Adjustable Scene Lights: There shall be four (4) adjustable scene lights installed on the apparatus. These lights shall be Whelen model Pioneer PFP2, 12-volt LED scene lights. The lights shall be mounted on Whelen Pedestal Swivel Mounts. Lights will be mounted two (2) on the rear corners of the cab and two (2) over the rear-most axle on the apparatus body.</p> <p>The scene lights shall be activated by two (2) rocker switches located in the switch panel, one (1) for each side of the vehicle. These shall be the same switches for the fixed scene lights.</p>	
<p>Apparatus Body Electrical: All electrical equipment installed by the apparatus builder shall conform to current automotive electrical system standards and the latest standards as outlined in NFPA #1901. All electrical wire installed by the apparatus builder shall be rated to carry 125 percent of the maximum current for which the circuit is protected. A high-temp automotive primary wire that is insulated with chemically cross-linked Polyethylene and withstands prolonged temperatures of up to 350 degrees F without melting or fusing shall be used. Wire shall be highly resistant to grease, oil, acids, brake fluid, and abrasion. Wire shall meet or exceed S.A.E. specifications J1127. All exterior wiring shall have wire protection guards installed. Electrical connections in exposed areas outside of the cab shall be made using heat shrink, or weatherproof connections. All connections shall have a corrosion preventative compound applied to them. All weather-exposed lights shall have the sockets coated with this same compound. Wire shall be individually color-coded and be labeled every six (6") inches on the insulation. Wiring installed by body builder shall be run in a heat protective loom that is held in place with a rubber-coated bracket that is fastened in place with stainless steel screws. There will be two (2) wire terminal points that will be used as test points and for service. The location of these points will be in the apparatus cab and in an enclosed box recessed into the sidewall of a rear</p>	

<p>compartment. All wire connections shall be protected to promote a lasting, corrosion-free connection. All exterior terminal blocks will be installed in a weather resistant box. All wire harnesses will be easily accessible and replaceable.</p>	
<p>Multiplex: Weldon V-Mux (or equivalent) full digital system shall be installed. This system shall contain multiple node switching system. The apparatus shall be equipped with the V-MUX® Multiplex System.. The manufacturer/supplier of the Multiplex system shall provide at a minimum three cities of reference; each city should have at least ten vehicles operational with the specified multiplex system, for a period of two or more years. The Multiplex system hardware that is being put into the apparatus of this bid should be field proven for a minimum of seven years. There are several key benefits to multiplexing; one is to reduce the number of connectors and splices in a vehicle’s electrical system. To achieve this it is important to integrate many of the stand-alone components and modules listed below into the node or nodes. Wherever it is stated that an “add-on” module will not be acceptable, there shall be no exceptions. The Manufacturer shall design from the ground up, the wiring harnesses needed to interface with the modules. Cut up or modification of existing hardwired harnesses is not acceptable.</p>	
<p>Outputs: The Node outputs shall perform all the following items without add-on modules to perform any of the tasks.</p> <ol style="list-style-type: none"> 1. Load Shedding: The System shall have the capability to Load Shed with eight (8) levels any output. This means you can specify which outputs (barring NFPA restrictions) that can be Load Shed. Level 1 – 12.9v, Level 2 – 12.5V, Level 3 - 12.1V, Level 4 - 11.7V, Level 5 – 11.3V, Level 6 – 10.9V, Level 7 – 10.5, Level 8 – 10.1. No add-on modules will be acceptable; the module with the outputs must perform this function. 2. Load Sequencing: The System shall be able to sequence from 0 – 8 levels any output. With 0 being no delay and 1 being a 1-second delay, 2 being a 2 second delay and so on. No add-on modules will be acceptable; the module with the outputs must perform this function. 3. Output Device: The System shall have solid-state output devices. Each solid-state output shall be a MOS-FET (Metal Oxide Semiconductor - Field Effect Transistors). No add-on modules will be acceptable; the module with the outputs must perform this function. 4. Flashing Outputs: The System shall be able to flash any output in A and B phase, and logic is used to shut down needed outputs in park, or any one of several combined interlocks. The system shall keep the A light in phase with each other – even on different nodes, and the ‘A’ lights shall be 180° out of sync with the ‘B’ lights. The system should be capable of flash rates from 75 to 1200 Flashes a minute. No add-on modules will be acceptable; the module with the outputs must perform this function. 5. PWM: The modules shall have the ability to PWM (Pulse Width Modulate) outputs. This feature is used to PWM a Headlamp to provide a lower duty cycle for daytime running lights. Running your headlamps at a lower duty cycle for daytime use will extend the life of the lamp over normal 100% duty for daytime use. No add-on modules will be acceptable; the module with the outputs must perform this function. <p>Diagnostics: Outputs shall be able to detect either a short or an open circuit. The System should be able report in “real time” a text-based message that points the maintenance person to a specific output.</p>	

<p>Inputs: The inputs shall have the ability to switch by a ground or battery signal. The inputs shall be filtered for noise suppression via hardware and software so that RF or dirty power will not “trick” an input into changing its status.</p>		
<p>System Network: The Multiplex system shall contain a Peer-to-Peer network.</p>		
<p>System Reliability: The Multiplex system shall be able to perform in extreme temperature conditions, from -40° to $+85^{\circ}$ C (-40° to $+185^{\circ}$ F). The system shall be sealed against the environment, moisture, humidity, salt, or fluids such as diesel fuel, motor oil, or brake fluid. The enclosures shall be rugged to withstand being mounted in various locations or compartments around the vehicle. The modules shall be protected from over voltage and reverse polarity. All electrical equipment installed by the apparatus builder shall conform to current automotive electrical system standards and the latest Standards as outlined in NFPA #1901.</p>		
<p>Special Cab Accessories and Wiring Installation: A radio and MDT installation will be provided with the completed unit. The cab shall be wired for 3 roof antennae. One for the radio, one for the mobile data terminal (MDT), and a third shall be in place for any accessories. The radio shall be wired to come on when the battery switch is in the on position. Two (2) 15A power and ground circuit shall be run to the overhead panel on the officer's side of the cab. A 4" deep x 14" x 10" brushed aluminum tray will be installed on top of the engine tunnel. It will have access from two sides and two Velcro straps to retain materials. A Thermal Imaging Camera (as described in equipment section) shall be installed on top of the engine tunnel.</p>		
<p>Stop/Tail/Backup Lights: A Whelen M-6 Series LED quad light package with bezel shall be supplied on the apparatus. The package shall include the following stop/tail, directional and backup lights:</p> <ul style="list-style-type: none"> • Two (2) Whelen M-6 LED rectangular red stop/tail lights shall be provided and mounted at the rear of the body, one on each side. • Two (2) Whelen Model M-6 amber arrow directional signal LED lights shall be provided and mounted at the rear of the body, one on each side below the stop/tail lights. • Two (2) Whelen Model M-6 rectangular clear LED backup lights shall be provided and mounted, one on each side at the rear of the body. The backup lights shall be mounted below the rear stop/tail and directional lights. <p>Mid mounted body LED turn signals shall be surface mounted in the rear wheel-well area of the apparatus body.</p>		
<p>Clearance Lights and Reflectors: Clearance lights and reflectors shall be installed to meet current DOT standards and include:</p> <ul style="list-style-type: none"> • Two (2) red LED marker lights • Four (4) red rectangular reflectors • Two (2) amber rectangular reflectors • One (1) red LED three-light cluster in the tailboard • Install [2] Britax 425.500 rubber mounted marker lights on rear body. The lights will extend 9 inches at a 60 degree downward angle. Lights will be mounted [1] on each rear body corner and wired to chassis marker lights. The forward light will be Amber LED. The rear facing will be red LED. 		

<p>License Plate Bracket: A license plate mounting bracket shall be provided complete with a chrome-plated shielded indirect type light. Bracket shall be mounted at the rear of the apparatus body.</p>		
<p>Compartment Light Switch: All apparatus roll up doors will contain a magnetic type auto-door switch. The switch shall be a four-pole unit installed, in the latch block in the roll up door track. These switches shall operate the compartment interior lights individually.</p>		
<p>LED Compartment Lights: One (1) LED corner strip/rope style light with a clear Lexan cover shall be installed in each door side opening. Strip light shall be installed in a vertical position next to one of the door tracks. Compartments over 24 inches wide shall have two (2) LED corner strip/rope style lights with a clear Lexan cover. Sufficient LED lighting shall be installed in the generator compartment to improve nighttime visibility.</p>		
<p>Rear Step Light: Chrome plated Whelen LED lights shall be furnished and installed on the rear face of the body to illuminate the rear step area. Lights shall be wired to the parking brake.</p>		
<p>Fold-Down Step Lighting: An LED light shall be recessed in all fold-down steps.</p>		
<p>Electronic Siren: A Whelen, Model #295SLSA1 will be provided and installed. The control head will be remote mounted in the electrical console. The microphone will be wired to a bulkhead receptacle in the officer's side dash. A backlit rocker switch, labeled "PA", will be installed adjacent to the microphone-mounting clip. The PA will be wired into the siren speaker.</p>		
<p>Mechanical Siren Activation: The mechanical siren shall be actuated by a switch mounted in the right side dash panel. In addition, the mechanical siren shall be actuated by two (2) Linemaster model SP491-S81 foot switches mounted in the front section of the cab for use by the driver and officer. A red momentary siren-brake rocker switch shall be provided in the switch panel on the dash. The siren shall only be active when master warning switch is on to prevent accidental engagement.</p>		
<p>Master Warning Switch: A master switch shall be included in the main rocker switch panel. The switch shall be a rocker type, red in color and labeled "Master" for identification. The switch shall feature control over all devices wired through it. Any warning device switch left in the "ON" position shall automatically power up, when the master switch is activated.</p>		
<p>Warning Lights (Cab Face): Four (4) Whelen Model M6*C LED flashing warning lights shall be installed on the cab face, above the headlights, mounted in a common bezel. All four (4) lights shall include a clear lens. All four (4) lights shall be controlled by a lighted switch in the cab on the switch panel. The inside lights may be load managed if red or disabled if white, when the parking brake is set.</p> <p>The driver's side front outside warning light to be red. The driver's side front inside warning light to be red. The passenger's side front outside warning light to be red. The passenger's side front inside warning light to be red.</p>		

<p>Intersection Warning Lights: The chassis shall include two (2) Whelen M6 series Super LED intersection warning lights, one (1) each side, which shall offer multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. Lights to be mounted in rubber flange. The intersection lights shall be red. The lens shall be clear. The intersection lights shall be mounted in the rear position recessed into the side of the front bumper. The side warning lights shall be controlled through the master warning switch.</p>		
<p>Light Bar Provision: There shall be two (2) 24.00” Whelen LED lightbars mounted on the cab roof, one (1) on each side, above the driver’s and passenger’s door, facing forward.</p> <p>Each lightbar shall include the following:</p> <ul style="list-style-type: none"> • Two (2) red flashing LED module facing forward • Four (4) red flashing corner LED modules, one (1) in each front corner • One (1) red flashing LED module on the end facing to the side <p>All lightbar lenses shall be clear.</p> <p>There shall be one (1) switch, located in the cab to control the lightbars.</p>		
<p>Horn Ring Selector Switch: A rocker switch shall be installed in the switch panel between the driver and officer to allow control to either the air horn or the electric horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position, which is in accordance with FMVSS requirement.</p>		
<p>Air Horn Activation: The air horn actuation shall be accomplished by the steering wheel horn button and a right side officer's switch on dash panel. An air-horn activation circuit shall be provided to the chassis harness pump panel harness connector. An additional air-horn switch shall be installed on the pump panel. This will enable the apparatus operator to initiate the evacuation alert without leaving the pump panel.</p>		
<p>Back-Up Alarm: An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.</p>		
<p>Rear Warning Zone C Upper: Two (2) Whelen model B6 Super LED beacons with Super LED scene light lower, shall be mounted on the rear of the apparatus body to meet the NFPA Zone B, C, D upper level lighting requirement. The rear beacon and scene lights shall be mounted on an aluminum mounting structure that keeps the scene light in the outboard position. The rear scene lights shall come on when the transmission is in reverse, as well as when activated by a switch on the dash. The lights shall be activated through the master emergency light switch located on the electrical console. Each light shall have the following equipment: Two (2) Super LED light modules, and clear Lens. The rear beacon lights shall be wired to serve as DOT marker lights when not in emergency mode.</p>		
<p>Zone B & D Side Lights: Six (6) Whelen Model M6*C LED flashing warning lights with bezels and clear lenses shall be located in the following locations:</p> <ul style="list-style-type: none"> • Two (2) lights, red flashing, one (1) each side mounted in the bumper extension. • Two (2) lights, red flashing, behind crew cab door, one (1) each side of apparatus • Two (2) lights, red flashing, on rear body fender panel, between tandem axles, one (1) 		

each side of apparatus.		
All six (6) lights shall be control by a lighted switch on the cab switch panel.		
<p>Zone C Rear Lights: There shall be two (2) Whelen M6 series Super LED flashing lights furnished on the rear of the apparatus to meet the NFPA Zone C lower level lighting requirement.</p> <p>There shall be an additional two (2) Whelen M-6 warning lights to the rear of the apparatus. Lights will be mounted mid level on each side of the rear body panel.</p> <p>Lights will be wired to rear warning circuit. Lights will be Amber with clear lens. A chrome bezel will be mounted as a trim ring.</p>		
<p>Intercom System: A "Firecom" 106-1310-10 intercom system with single radio capability shall be furnished in the chassis cab. The intercom system shall be wireless. The intercom system shall be installed and have all wiring and components to render the system operational. The system shall be capable of accepting up to six positions, plus exterior positions. A single radio interface shall be provided. The customer is responsible to render the 2-way radio capable of accepting an intercom system. Final radio and intercom tuning and adjustments are the responsibility of the customer's radio vendor. Four Firecom headsets shall be supplied with the intercom system. This includes two (2) UHW-54 and two (2) UHW-51 headsets. The headsets shall be an under helmet design with voice activated noise-canceling microphone for the intercom. A hanger hook for each headset shall be installed adjacent to the plug.</p>		

Cab and Crew Areas	Compliance	
	Y	N
<p>Cab: The cab will be designed specifically for the fire service . The crew cab will be of the totally enclosed design. The cab will be a full tilt style. The engine will be easily accessible and capable of being removed with the cab tilted. The cab will be capable of tilting 45 degree and 90 degrees with crane assist.</p> <p>Constructions of the cab will consist of 5052-H32 0.125" aluminum welded to extruded aluminum framing. The cab will be 96.00" wide, with an interior width of 87.50" the overall height (from cab roof to ground) will be approximately 103.00". The overall height listed will be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, a no personnel weight. Larger tires, wheels and suspension will increase the overall height listed.</p> <p>The floor to ceiling height inside the crew cab will be approximately 60". The crew cab will measure 44.50" from rear wall to the back side of the engine tunnel. The engine tunnel, at the rearward highest point (knee level), will measure approximately 50.00" to the back wall.</p> <p>The cab will have three (3)-point rubber mounting and will be tilted by a hydraulic pump</p>		

<p>connected to two (2) cab lift cylinders. The cab will then be locked down by a two(2)-point automatic locking mechanism that actuates after the cab has been lowered.</p> <p>The cab access steps will be approximately 24.00” wide, the crew cab steps will approximately 22.00” wide. Cab steps will be a minimum of 8.00” depth and will be the half-height style door, blistered inward at the bottom.</p> <p>The lower exposed step area at each door location will be trimmed with aluminum treadplate and has grip strut insert in the bottom step. The inside cab steps will not exceed 18.00” high.</p>		
<p>Cab Front Fascia: The front cab fascia shall be constructed of 5052-H32 Marine Grade, one hundred percent primary aluminum plate that shall be an integral part of the cab. The aluminum plate shall be a minimum of 0.125 of an inch thick. The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab. The front cab fascia shall include Hi/Low beam headlights and two (2) turn signal lights and up to four (4) warning lights.</p>		
<p>Front Grille: The front fascia shall include a box style, stainless steel front grille that is approximately 44.45 inches wide X 33.50 inches high X 1.50 inches deep. The grille shall include a minimum free air intake of 632.00 square inches.</p>		
<p>Cab Undercoat: There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening, and corrosion protection.</p>		
<p>Cab Side Drip Rail: There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.</p>		
<p>Cab Paint Exterior: The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces. All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris, which may hinder the paint adhesion. Once the surface is machine ground, a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils. The entire cab shall then be coated with an intermediate solid or epoxy-surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper, the seams shall be sealed with SEM brand seam sealer and painted with two (2) to four (4) coats of an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene. The cab shall then be painted with the upper and lower colors specifically designated by the customer with a minimum thickness of two 2.00 mils of paint, followed by a clear top coat not to exceed 2.00 mils.</p>		
<p>Cab Paint Primary/Lower Color: The primary/lower paint color shall be PPG FBCH 907317 Red or equivalent.</p>		

<p>Cab Paint Secondary/Upper Color: The secondary/upper paint color shall be PPG FBCH 91327 white or equivalent .</p>		
<p>Cab Paint Exterior Break Line: The upper and lower paint shall meet at a break line on the cab, which shall be located approximately 1.00 inch below the door windows on each side of the cab. The break line shall curve down at the front cab corners to approximately 5.00 inches below the windshields on the front of the cab.</p>		
<p>Cab Paint Pinstripe: Where the upper and lower paint colors meet, a temporary 0.50-inch black pinstripe shall be applied over this break line to offer a more finished look prior to the final pinstripe being installed by the OEM.</p>		
<p>Cab Exterior Rear Wall: The rear exterior cab wall shall be covered with bright finish aluminum tread plate. Stainless steel caps on outside edges shall be installed. The appropriate insulation that prevents a reaction between the dissimilar metals shall meet industry standards.</p>		
<p>Grab Handles: The cab shall include one (1) 20.00 inch knurled, anti-slip, exterior assist handle behind each cab door. The grab handle shall be made of 14 gauge 304- stainless steel, and be 1.25-inch diameter to enable non-slip assistance with a gloved hand. The cab shall include one (1) 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of 14 gauge 304- stainless steel and be 1.25-inch diameter to enable non-slip assistance with a gloved hand.</p>		
<p>Fenders: Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 3.50 inches wide made of 12 gauge polished aluminum.</p>		
<p>Rear View Mirrors: Retractable Aerodynamic West Coast style single vision mirror heads model 613275 shall be provided and installed on each of the front cab doors. The mirrors shall be mounted via 1.00-inch diameter tubular stainless steel arms to provide a rigid mounting to reduce mirror vibration. The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include an 8.00-inch convex mirrors with a stainless steel back, model 980-4, installed below the flat glass to provide a wider field of vision. The flat mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The convex mirrors shall be manually adjustable. The flat mirror glass shall be heated for defrosting in severe cold weather conditions. The mirrors shall be constructed of a vacuum formed chrome plated ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.</p>		
<p>Rear View Mirror Heat Switch: The heat for the rearview mirrors shall be controlled through a rocker switch on the dash in the switch panel.</p>		
<p>Auxiliary Exterior Mirrors: The cab exterior shall include one (1) Retractable 10.00 inch diameter convex look down mirror with a black plastic back. The mirror shall be located above the right side front windshield using a Retractable model 612665 stainless steel arm assembly to provide a stable three-point mount to reduce mirror vibration. The mirror shall provide additional visibility</p>		

<p>to the right front corner of the vehicle.</p>		
<p>Cab Paint Interior: The visible cab structure surfaces shall be painted with black Lynex-Liner spray on bed liner product, which shall mold to each surface of the cab interior. The Lynex-Liner shall be environmentally friendly and chemically resistant.</p>		
<p>Cab Entry Doors: The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13-inch aluminum plate. The doors shall include a double rolled style automotive rubber seal around the perimeter of each doorframe and door edge, which ensures a weather tight fit. All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38-inch pin and shall be constructed of stainless steel. All cab entry doors shall be barrier clear design resulting in exposed lower cab steps. The doors shall provide approximately 32.00 inches of clearance from the ground to the bottom of the door so cab doors may be opened un-hindered by most obstacles encountered, such as guardrails along interstate highways.</p>		
<p>Cab Tilt System: The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control, which shall illuminate when holding the “Down” button to indicate safe road operation. It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution, the ignition switch must be turned off to complete the cab tilt interlock safety circuit. Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks. Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90-inch ball and be anchored to frame brackets with 1.25-inch diameter studs. A steel safety channel assembly shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab. The cab tilt control shall be mounted in a Cast Products weather proof sealed compartment in the transverse compartment on the officer’s side.</p>		
<p>Cab Tilt Lock Down Indicator: The cab dash shall include a message located within the dual air pressure gauge, which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts. In addition to the alert message, an audible alarm shall sound when the cab is unlocked and ajar and the parking brake is released.</p>		
<p>Cab Windshield: The cab windshield shall have a surface area of approximately 2825.00 square inches, and be of a two (2) piece wraparound design. The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable. Each windshield shall be installed using black self-locking window rubber.</p>		

<p>Front Door Glass: The front cab doors shall include a window, which is approximately 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use. There shall be an irregular shaped fixed window which shall measure approximately 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as “cozy glass” ahead of the front door roll down windows. The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.</p>		
<p>Rear Door Glass: The rear right hand side door shall include a window, which is approximately 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.</p>		
<p>Door Glass Tint: The window located in the cab doors shall include a standard green automotive tint, which shall allow seventy-five percent (75%) light transmittance.</p>		
<p>Additional Cab windows: The cab shall include a window on the officer’s side and driver’s side behind the front and ahead of the crew doors, which shall measure approximately 26.00 inches wide X 16.00 inches high. These windows shall be fixed within this space and shall be rectangular in shape. The windows shall be mounted in a black rubberized frame. The glass utilized for this window shall include a green automotive tint, which shall allow seventy-five percent (75%) light transmittance.</p>		
<p>Climate Control: The cab shall include a 57,500 BTU @ 425 CFM front overhead heater/defroster, which shall be provided and installed above the windshield between the sun visors. The cab shall also include a combination heater air-conditioning unit mounted on the engine tunnel. This unit shall offer eight (8) adjustable louvers, (4 forward facing, four rearward facing) a temperature control valve and two (2) blowers offering three (3) speeds which shall be capable of circulating 550 cubic feet of air per minute. The unit shall be rated for 42,500 BTU/Hr of cooling and 36,000 BTU/Hr of heating. The temperature and blower controls shall be located on the heater/air conditioning unit. All defrost/heating systems shall be plumbed with one (1) seasonal shut-off valve at the front corner on the right side of the cab. The air conditioner lines shall be a mixture of custom bend zinc coated steel fittings and Aero-quip GH 134 flexible hose with Aero-quip EZ clip fittings. The climate control system shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance. The heating and defrosting controls shall be located on the front overhead climate control unit. There shall be additional heating and air conditioning controls located on the engine tunnel mounted climate control unit.</p>		
<p>Location of the A/C Condenser: A roof mounted A/C condenser shall be installed. Condenser shall be mounted to the driver’s side of the aerial device.</p>		
<p>A/C Compressor: The air-conditioning compressor shall be a belt driven, engine mounted, open type compressor that shall be capable of producing a minimum of 32000 BTU at 1500 engine RPMs. The compressor shall utilize R-134A refrigerant and PAG oil.</p>		

<p>Cab Insulation: The cab ceiling and walls shall include 1.00-inch thick foam insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.</p>		
<p>Under Cab Insulation: The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments. The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior. The engine tunnel insulation shall measure approximately .75 inch thick including a vertically lapped polyester fiber layer, a 1.0 lb/ft² PVC barrier layer, an open cell foam layer, and a moisture and heat reflective foil facing reinforced with a woven fiberglass layer. The foil surface acts as protection against moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test. The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by 3 mils of acrylic pressure sensitive adhesive and aluminum pins with hard-hat, hold in place fastening heads.</p>		
<p>Cab Floor: The floor of the cab shall be covered with a multi-layer mat consisting of 0.25-inch thick sound absorbing closed cell foam with approximately 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive. The floor shall have an overlay of 3003-H22 aluminum embossed tread plate, which is approximately 0.084 inches thick. The tread plate shall be held down with screws and aluminum trim molding with a Mebac[®] grit surface finish. A 1"x1"x.125" angle shall be installed on the cab floor and engine "dog house". The angle must be installed with extra screws and painted with anti-skid paint. The door edge of the cab flooring shall not be held in place by aluminum angle but shall be comprised on a right angle fold of the flooring material. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention. Proposals offering any floor trim molding other than with the Mebac[®] brand surface shall not be considered. The cab floor, as well as the back half of the "dog house" shall be painted with Mebac Grit that is black in color.</p>		
<p>Cab Ceiling and Side Walls: The cab interior shall include trim on the front ceiling, rear crew ceiling, and the side cab walls. It shall be easily removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing. The front ceiling, rear crew ceiling, and the side cab walls shall be black in color.</p>		
<p>Cab Rear Wall: The rear wall of the cab shall be trimmed with bright finish aluminum tread plate.</p>		
<p>Header: The cab interior shall include a header over the driver and officer dash, which shall be constructed of 5052-H32 Marine Grade, 0.13-inch thick aluminum.</p>		
<p>Sun visor: The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.</p>		

<p>Center Dash: The main center dash area shall be constructed of 5052-H32 Marine Grade that is a minimum 0.13-inch thick aluminum plate. There shall be four (4) holes located on the top of the dash near each outer edge of the electrical access cover for ventilation.</p>		
<p>Left Hand Dash: The left hand dash shall be constructed of 5052-H32 Marine Grade aluminum plate that is a minimum 0.13-inch thick for a perfect fit around the instrument panel and the lower control panels to the left and right of the steering column.</p>		
<p>Right Hand Dash: The right hand dash trim shall be constructed of 5052-H32 Marine Grade aluminum plate that is a minimum 0.13 of an inch thick, and shall include a Mobile Data Terminal (MDT) provision.</p>		
<p>Right Hand Dash Accessories: The Mobile Data Terminal (MDT) provision on the right hand dash shall be provided with a slide-out tray. The MDT slide-out tray shall be constructed of 5052-H32 Marine Grade, aluminum plate that is a minimum 0.13-inch thick. The mounting surface of the tray measures 12.50 inches wide X 10.75 inches deep which shall allow for the mounting of a MDT with the added luxury of sliding it toward the officer as much as 11.00 inches.</p>		
<p>Engine Tunnel: The cab engine tunnel shall be covered with a multi-layer mat consisting of 0.25 inch closed cell foam with a 0.06-inch thick non-slip vinyl surface with a pebble grain finish. The mat shall be held in place by pressure sensitive adhesive. The engine tunnel mat shall be trimmed with aluminum trim molding with a Mebac[®] grit surface finish.</p>		
<p>Step: Each cab entry door shall include a three-step entry. The first step closest to the ground shall be constructed of polished 5032 H32 aluminum Grip Strut[®] grating with angled outer corners. The step shall feature a splashguard to reduce water and debris from splashing in to the step. The splashguard shall have an opening on the outer edge to allow debris and water to flow through rather than becoming trapped within the stepping surface. The lower step shall be mounted to a frame, which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed with a Flex-Tred[®] adhesive grit surface material.</p>		
<p>Under Cab Access Door: The cab shall include an aluminum access door in the left crew step riser painted to match the cab interior paint with a push and turn latch. The under cab access door shall provide access to the diesel exhaust fluid fill.</p>		
<p>Interior Cab Door: The doors of the cab shall include an aluminum plate the same weight and grade as the cab on the interior of the door. The aluminum shall be then painted. The inner door panels shall include a DA sanded kick plate, which shall be fastened to the lower portion of the door panels.</p>		
<p>Cab Door Reflective Trim: The interior of each door shall include high visibility reflective tape. A white reflective tape that measures 1.00 inch in width shall be provided vertically along the rear outer edge of the door. The lowest portion of each door skin shall include a reflective tape chevron with red and white stripes and a Chassis manufacturer logo. The chevron tape shall measure 6.00 inches in height.</p>		
<p>“A” Post Grab Handle: There shall be two (2) rubber covered 11.00 inch grab handles installed inside the cab, one on each “A” post at the left and right door openings. The left handle shall be located 7.88 inches above the bottom of the door window opening and the right handle shall be</p>		

<p>located 2.88 inches above the bottom of the door window opening. The handles shall assist personnel in entering and exiting the cab.</p>		
<p>Front Door Grab Handle: Each front door shall include one (1) ergonomically contoured 9.00-inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish to assist personnel entering and exiting the cab.</p>		
<p>Rear Door Grab Handle: A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00-inch long handle shall extend horizontally the width of the window just above the windowsill. The handle shall assist personnel in exiting and entering the cab.</p>		
<p>Cab Interior Paint: The cab interior shall be painted with Lynex-Liner black pebble-grain texture finish. This will include the following:</p> <ul style="list-style-type: none"> The inner door panel surfaces The metal surfaces in the header area The entire center dash The left hand dash The right hand dash The right hand dash accessories The engine tunnel <p>The cab rear wall shall not be painted</p>		
<p>Dash Panel Group: The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer. A “U” shaped bracket made of ¾” aluminum shall be installed over the parking brake control. “Pittsburgh FD” shall be engraved on the bracket.</p>		
<p>Instrumentation: An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.</p> <p>The instrument panel shall contain the following gauges:</p> <ul style="list-style-type: none"> • One (1) electronic speedometer shall be included. The primary scale on the speedometer shall read from 0 to 100 MPH, and the secondary scale on the speedometer shall read from 0 to 160 KM/H. • One (1) electronic tachometer shall be included. The scale on the tachometer shall read from 0 to 3000 RPM. • One (1) two-movement gauge displaying primary system, and secondary system air volumes and integral LCD odometer/trip odometer shall be included on the lower portion of the LCD. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI). The air pressure scales shall be linear to operate with an accuracy 		

of 1 degree of the measured data with a red indication zone on the gauge showing critical levels of air pressure. A red indicator light in the gauge shall indicate a low air pressure, as well as a message on the LCD screen. The odometer shall display up to 9,999,999.9 miles. The trip odometer shall display 9,999.9 miles. The LCD shall display Transmission Temperature in degrees Fahrenheit on the upper portion of the LCD. The LCD screen shall also be capable of displaying certain diagnostic functions.

- One (1) four-movement gauge displaying engine oil pressure, coolant temperature, fuel level, voltmeter, and an indicator bar displaying Diesel Exhaust Fluid (DEF) LED bar shall be included. The scale on the engine oil pressure gauge shall read from 0 to 120 pounds per square inch (PSI). The engine oil pressure scale shall be linear to operate with an accuracy of 1 degree of the measured data with a red indication zone on the gauge showing critical level of engine oil pressure. A red indicator light in the gauge shall indicate a low engine oil pressure, as well as a message on the LCD screen. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (F). The coolant temperature scale shall be linear to operate with an accuracy of 1 degree of the measured data with a red indication zone on the gauge showing critical levels of coolant temperature. A red indicator light in the gauge shall indicate high coolant temperature, as well as a message on the LCD screen. The scale on the fuel level gauge shall read from empty to full as a percentage of fuel remaining. An amber indicator light shall indicate low fuel at 25% tank level. The scale on the voltmeter shall read from 10 to 16 volts with a red indication zone on the gauge showing critical levels of battery voltage. A red indicator light shall indicate high or low system voltage, as well as a message on the LCD screen. The scale on the DEF LED bar will consist of four (4) LEDs displaying levels in increments of 25% of useable DEF in green. Upon decreasing levels, the indicator bar will change colors to notify the driver of decreasing levels of DEF and action will be required. An amber indicator light shall indicate low levels of DEF, as well as a message on the LCD screen and an audible alarm.

The instrument panel shall include a light bar that will contain the following LED indicator lights:

RED LAMPS

Low Primary Air Pressure (located in gauge)

Low Secondary Air Pressure (located in gauge)

Stop Engine-indicates critical engine fault

Air Filter Restricted-indicates excessive engine air intake restriction

Park Brake-indicates parking brake is set

Seat Belt Indicator-indicates when a seat is occupied and corresponding seat belt remains unfastened

Volts-indicates high or low system voltage (located in gauge)

Low Oil Pressure-indicates low engine oil pressure (located in gauge)

High Coolant Temperature-indicates excessive engine coolant temperature (located in gauge)

DEF Level Bar-DEF level is at critically low level (located in gauge)

AMBER LAMPS

MIL-indicates an engine emission control system fault
Check Engine-indicates engine fault
Check Trans-indicates transmission fault
High Transmission Temperature-indicates excessive transmission oil temperature
ABS-indicates anti-lock brake system fault
Wait to Start-indicates active engine air preheat cycle
HEST-indicates a high exhaust system temperature
Water in Fuel-indicates presence of water in fuel filter
DPF-indicates a restriction of the diesel particulate filter
Regent Inhibit-indicates regeneration has been postponed due to user interaction
Range Inhibit-indicates a transmission operation is prevented and requested shift request may not occur.
SRS-indicates a problem in the RollTek supplemental restraint system
Low Fuel-indicates low fuel, (located in gauge)
DEF-indicates a low level of DEF fluid (located in gauge)
DEF Level Bar-DEF level is at a low level (located in gauge)

GREEN LAMPS

Left and Right turn signal indicators
ATC-indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system
High Idle-indicates engine high idle is active.
Cruise Control-indicates cruise control is active
OK to Pump-indicates the pump engage conditions have been met
Pump Engaged-indicates the pump is currently in use
Auxiliary Brake-indicates secondary braking device is active
DEF Level Bar-indicates useable levels of DEF: 25%, 50%, 75%, 100% (located in gauge)

BLUE LAMPS

High Beam Indicator

CONSTANT AUDIBLE ALARMS FROM GAUGE PACKAGE

High Trans Temp
High or Low Voltage
Seatbelt
Check Engine
Check Transmission
Stop Engine
Low Air Pressure
Fuel Low
Water in Fuel
ESC
High Coolant Temperature
Low Engine Oil Pressure
Low Coolant Level
Low DEF Level

<p>OSCILLATING AUDIBLE ALARMS FROM GAUGE PACKAGE Air Filter Extended Left and Right Turn remaining on Cab Ajar Door Ajar Low Oil Level</p>		
<p>Auxiliary Speedometer: The dash shall include an analog speedometer.</p>		
<p>Backlighting Color: The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting.</p>		
<p>Center Panel Switches: The center dash panel shall include twelve (12) rocker switch positions in a six (6) over six (6)-switch configuration in the left portion of the panel. A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.</p>		
<p>Left Panel Switches: The left dash panel shall include eight (8) switches in a single row configuration. Five (5) of the switches shall be rocker type and the left three (3) shall be the headlight switch, the instrument lamp dimmer switch and the windshield wiper/washer control switch. A rocker switch with a blank legend installed directly above shall be provided for any position not designated by a specific option. The non-designated switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.</p>		
<p>Right Panel Switches: The right dash panel shall include three (3) rocker switch positions in the upper left hand portion of the panel. A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have red backlighting provided.</p>		
<p>Seat Belt Warning: A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall activate an indicator light in the instrument panel, a digital seat position indicator with a seat position legend in the switch panel, and an audible alarm. The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and audible alarm shall remain active until all occupied seats have the seat belts fastened.</p> <p>The seatbelt audible alarm shall be separate from the engine diagnostics alarm to allow the operator to easily distinguish the reason for the audible alarm.</p>		

<p>Seat Material: The seats shall include a covering of high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the backside of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids, common trade names for this material are Imperial 1200, and Durawear. All seats supplied with the chassis shall be black in color. All seats shall include red seat belts.</p>	
<p>Driver's Seat: The driver's seat shall be an H.O. Bostrom Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment, and seat rake adjustment. The seat shall feature integral springs to isolate shock. The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly. The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches measured with the seat height adjusted to the lowest position of travel. This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles. The driver's seat shall include a standard seatback incorporating ABTS. The seat back shall feature a contoured headrest. The driver's seat shall be installed in an ergonomic position in relation to the cab dash.</p>	
<p>Officer's Seat: The officer's seat shall be an H.O. Bostrom Firefighter model seat. The seat shall feature two-way manual adjustment and shall include a tapered and padded seat cushion. The seat shall also feature integral springs to isolate shock. The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly. The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches. This model of seat shall have successfully completed the static load tests by FMVSS 207, 209, 210 and 302 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles. The officer's seat shall feature a SecureAll™ SCBA locking system, which shall be one bracket model and store most U.S. and International SCBA brands and sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool. The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically. The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the SCBA tank in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions. The SecureAll™ shall include a release handle, which shall be</p>	

<p>integrated into the seat cushion for quick and easy release. This shall eliminate the need for straps or pull cords to interfere with other SCBA equipment. The seat back shall include a removable padded cover, which shall be provided over the SCBA cavity.</p>	
<p>Rear Facing Crew Seats: The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the driver seat and one (1) located directly behind the officer seat. Each of these seats shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat, and cushion. The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches. This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles. The rear facing outboard seat shall feature a Bostrom SecureAll™ self-contained breathing apparatus (SCBA) locking system which shall store most U.S. and International SCBA brands and bottle sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool. The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically. The bracket system shall be free of straps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the SCBA tank in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions. The SecureAll™ shall include a release handle, which shall be integrated into the center of the bottom seat cushion for easy access, and to eliminate hooking the release handle with clothing, or other equipment. The seat back shall include a removable padded cover, which shall be provided over the SCBA cavity. The rear facing outer seats shall offer special mounting positions, which shall be 2.00 inches towards the rear wall offering additional space between the front seats and the outer rear facing seats.</p>	
<p>Forward Facing Crew Seats: The crew area shall include two (2) forward facing crew seats with both located at the outboard section of the rear wall. These seats shall be in the forward facing center position, and consist of flip-down seats. The padded rear wall trim shall act as the backrest for the seats. In addition, these seats shall have padded head protection. The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches. This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This</p>	

<p>model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles. The seats shall have a 3-point restraining device for each occupant.</p>	
<p>Forward Facing EMS Compartment: An EMS compartment, 36.00” high x 36.00” wide x 24.00” deep shall be installed against the rear wall of the crew cab, centered. The compartment shall have two (2) roll-up doors. There shall be a roll-up door at each side facing outward. There shall be two (2) drop down doors facing forward. The bottom edge of the lower drop down door shall be 5.00” from the floor. The bottom edge of the top drop down door shall be 19.00” from the floor.</p> <p>Each compartment shall have a minimum clear door opening of 31.00” high by 21.00” wide at each side. The drop down doors shall be 12.00” high x 28.00” wide.</p> <p>The compartment shall be constructed of aluminum and painted to match the cab interior.</p> <p>The compartment shall have two (2) adjustable shelves.</p> <p>The compartment shall be illuminated by LED light strips each side of the roll-up doors. Lights shall be controlled by automatic door switch.</p> <p>This storage compartment shall be compliant per NFPA standard for automotive fire apparatus.</p>	
<p>Front Under Seat Storage Access: The left and right under seat storage areas shall have a solid aluminum hinged door with non-locking latch. All under seat storage compartment access doors shall have a protective coating of black Lynex-Liner.</p>	
<p>Helmet Storage: The helmet storage location will be discussed at the pre-paint inspection. The helmet storage brackets will be placed as agreed upon by manufacturer and Fire Department. The vendor shall supply three (3) helmet brackets.</p>	
<p>Windshield Wiper System: The cab shall include a dual arm wiper system, which shall clear the windshield of water, ice, and debris. There shall be two (2) windshield wipers, which shall be affixed to a radial wet arm. The system shall include a single motor which shall initiate the arm in which both the left hand and right hand windshield wipers are attached, initiating a back and forth motion for each wiper. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver’s position.</p>	
<p>Windshield Washer Fluid Level Indicator: The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low, the yellow “Check Message Center” indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a “Check Washer Fluid Level” message.</p>	

Cab Door Hardware: The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of a fiber reinforced plastic composite with a black matt finish. The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel.		
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Aerial Body and Compartmentation	Compliance	
	Y	N
The body will be constructed of .190” aluminum or 12 gauge 304L stainless steel. The body, pump enclosure, compartments, hose bed, sub frame, and superstructure must be constructed of the same material. This is minimum thickness and there will be No Exceptions to these standards. A polycarbonate body is acceptable.		
<p>MINIMUM SPECIFICATIONS FOR ALUMINUM APPARATUS BODY SUPERSTRUCTURE</p> <p>The body sub frame is to be entirely welded, constructed of 6061-T6 extruded aluminum tubing with minimum dimensions of 3"x3"x3/8", 2"x3"x1/4" and 1"x3" solid. All vertical components are to be reinforced to the substructure with 2"x3"x1/4" 6061-T6 TUBULAR gussets at strategic points to assure structural integrity. The body sides are to be constructed from 2"x3"x1/4" 6061-T6 structural aluminum tubing welded to form a continuous support matrix for the hose body and compartments. All compartments are to be framed with the interior components welded along perimeter and along each side for additional support. The tank cradle will be designed to support the bottom of the water tank to prevent movement and structural damage when the unit is loaded and under motion. Reinforced rubber pads with a 60# rating will be installed in the cradle and at the corner angles to cushion the tank; no mechanical attaching devices will protrude through the rubber. Running boards are to be constructed from 1-1/2" extruded aluminum with "gator strut" inserts. Extrusion shall be overlaid with NFPA compliant diamond plate aluminum. Fender liners will be independent from the compartment sides to provide maximum corrosion and impact protection. Rubber fenderettes are to be easily removable. The apparatus body shall be entirely independent from the chassis frame. It is to be attached to the frame over 1/2"x 3" 60# rubber pads running the full length of body and fastened by 3/4" steel U-bolts with 3/4" plates, lock washers and steel nuts. There shall be enough room between the apparatus body and the rear tires of the apparatus so that tire chains can be easily placed on the apparatus. The apparatus body and pump panel modules are to be independent structures to allow body flex and to prevent fatigue from normal chassis movement. A 1" wide body gasket shall be installed between body and pump modules. The unit is to be designed to be removable from the chassis in the event of future chassis replacement.</p>		
<p>MINIMUM SPECIFICATIONS FOR STAINLESS STEEL BODY AND HOSEBED</p> <p>The body and hose bed of the apparatus may be constructed of formed stainless steel. The material must be 304 L grade stainless steel with a minimum of 12-gauge thickness.</p>		

<p>Compartments: Because of operational considerations and consistency between all aerials in the fleet, the compartment sizes are extremely critical. Vendors must adhere as closely as possible to the requested compartmentation design. Significant deviation in compartment size and layout may cause rejection of any proposal.</p>		
<p>Compartment Interiors: All exterior compartments shall be constructed from 3/16" aluminum diamond plate material. <u>This does not apply to stainless steel or polycarbonate construction.</u> Floors shall have a reinforcement hat section welded to the underside for additional support. All seams will be welded and caulked. Compartments designated to have shelves shall have DOT red/white reflective striping on the shelves for visibility when compartments are open. In addition, all compartments shall have "Turtle Tile" on the floors and any included shelves.</p>		
<p>Rear Wheel Well Openings: The area around the rear wheel openings shall be constructed from aluminum diamond plate. The wheel well openings will be a bolt on type allowing easily removable and replacing. <u>This does not apply to stainless steel or polycarbonate construction.</u></p>		
<p>Inner Fender Wells: The inner fender wells shall be .250" polypropylene material bolted in place allowing easy replacement if necessary. <u>This does not apply to polycarbonate construction.</u></p>		
<p>Aerial Body and Compartmentation: The apparatus body is to be constructed from aluminum alloy that is a minimum of 3/16" thick. Compartment floors are to be fitted with hat section supports to allow for loading of heavy equipment. All compartment tops are to be constructed from 3003 H-14-diamond plate aluminum tread plate material that is a minimum of 1/8" (.125) thick. The diamond plate will overlap the edge of the body one half inch and break down 30 degrees to serve as drip rails for the compartment below. <u>This does not apply to stainless steel or polycarbonate construction.</u></p>		
<p>Compartment in Place of Pump: A transverse compartment will be installed in place of the pump and pump panel.</p> <p>Compartment will be 48.25" wide x 64.00" high x 24.50" deep in the lower area and transverse in the top portion of the compartment. The transverse area will be 40.50" wide x 47.00" high.</p> <p>The door opening will be 46.50" wide by 60.50" high.</p> <p>The forward wall will be notched for the boom support.</p>		
<p>Left Side Compartmentation: The compartments shall be divided as follows:</p> <ul style="list-style-type: none"> • There shall be one (1) compartment ahead of the rear wheels, with a roll-up door. The compartment shall be at a minimum 41.75" wide x 64" high x 24.25" deep with a clear door opening that is a minimum of 40.00" wide x 60.50" high. The compartment will be lighted and vented. • A compartment with a single pan stainless steel door will be located above the front stabilizer. The compartment shall be a minimum of 23.00" high x 18.00" wide x 24.25" deep with a clear door opening of 15.75" high x 12.00" wide. The compartment will be lighted and vented. 		

<ul style="list-style-type: none"> • There shall be one (1) compartment over the rear wheels with a roll-up door. The compartment shall be a minimum of 72.13" wide x 33.25" high x 24.25" deep with a clear door opening that is a minimum of 65" wide x 29.62" high. The compartment will be lighted and vented. • There shall be one (1) compartment below the turntable and over the rear wheels, with a roll-up door. The compartment will shall be a minimum of 39.38" wide x 18.38" high x 21.25" deep with a clear door opening of 35.00" wide x 14.88" high. The compartment will be lighted and vented. • There shall be one (1) compartment behind the rear wheels, with a roll-up door. The compartment shall be a minimum of 43.75" wide x 49.25" high x 21.25" deep with a clear door opening that is a minimum of 42" wide x 45.75" high. The compartment will be lighted and vented. Two (2) shelves shall be installed in this compartment. 		
<p>Right Side Compartmentation: The compartments shall be divided as follows:</p> <ul style="list-style-type: none"> • There shall be one (1) compartment ahead of the rear wheels, with a roll-up door. The compartment shall be at a minimum 41.75" wide x 64" high x 24.25" deep with a clear door opening that is a minimum of 40.00" wide x 60.50" high. The compartment will be lighted and vented. • A compartment with a single pan stainless steel door will be located above the front stabilizer. The compartment shall be a minimum of 23.00" high x 18.00" wide x 24.25" deep with a clear door opening of 15.75" high x 12.00" wide. The compartment will be lighted and vented. • There shall be one (1) compartment over the rear wheels with a roll-up door. The compartment shall be a minimum of 72.13" wide x 33.25" high x 24.25" deep with a clear door opening that is a minimum of 65" wide x 29.62" high. The compartment will be lighted and vented. • There shall be one (1) compartment below the turntable and over the rear wheels, with a roll-up door. The compartment will shall be a minimum of 39.38" wide x 18.38" high x 21.25" deep with a clear door opening of 35.00" wide x 14.88" high. The compartment will be lighted and vented. • There shall be one (1) compartment behind the rear wheels, with a roll-up door. The compartment shall be a minimum of 43.75" wide x 49.25" high x 21.25" deep with a clear door opening that is a minimum of 42" wide x 45.75" high. The compartment will be lighted and vented. Two (2) shelves shall be installed in this compartment. 		
<p>Rear Compartmentation: There will be a ladder storage compartment furnished in the rear of the apparatus body. The ladders shall be stored within the torque box and removable from the rear of the apparatus. The ladders will rest in full length stainless steel slides and are arranged in such a manner that any one ladder can be removed without having to move or remove any other ladder. Ladders will be enclosed to prevent road dirt and debris from fouling or damaging the ladders. Ladders slides will be lined with a material to reduce friction. A roll-up door shall be provided for the ladder compartment. The compartment shall have a clear door opening of a minimum of 42.00" wide x 33.00" high.</p> <p>A stainless plate with a two bend flange and a stainless steel hinge will be provided to secure the ladders in the compartment and prevent the ladders from contacting the roll-up door. The plate</p>		

<p>assembly will be mounted to the bottom of the entrance of the torque box ladder storage area. When the plate is down to allow removal of the ladders, the roll-up door cannot close, which will activate the “Open Door Indicator Light” within the cab.</p> <p>The following Duo-Safety ladders will be furnished and must meet or exceed the latest NFPA standards. No Exceptions to this section. Because of stocking of spare parts and spare ladders, proposal providing anything but Duo-Safety ladders will be rejected:</p> <ul style="list-style-type: none"> • Two (2) 35’, two (2) section, aluminum, Series 1200-A • One (1) 28’, two (2) section, aluminum, Series 1200-A • One (1) 24’, two (2) section, aluminum, Series 900-A • One (1) 20’, roof, aluminum, Series 875-A • One (1) 16’, roof, aluminum, Series 875-A • One (1) 14’, roof, aluminum, Series 775-A • One (1) 10’, folding, aluminum, Series 585-A • All ladders shall be equipped with the Pittsburgh Halyard <p>Additionally, the following pike poles will be furnished and stored in tubular holders located in the ladder storage compartment:</p> <ul style="list-style-type: none"> • Two (2) 12’ pike poles; fiberglass handles • Two (2) 8’ pike poles; fiberglass handles • Two (2) 6’ pike poles; fiberglass handles 		
<p>Rear Body: The back wall shall be smooth aluminum with surface prepared for application of reflective chevrons. The rear body corners shall be cut at 45 degree angle to allow for better clearance when turning the apparatus in close clearances.</p>		
<p>Bumper: A 3” square tubing heavy wall .375” thickness bumper will be installed on the rear body compartmentation. This bolt on bumper will be constructed to resist body damage in the event of an accident. Heavy rubber “dock” style bumpers will be installed on the rear bumper. The rubber will be installed using fasteners for ease of replacement.</p>		
<p>Turntable Steps: Access to the turntable will be provided by a total of five (5) steps on each side, a combination of fixed and swing-down , located in the 45 degree angle portion of the rear body corners. All steps will have a height not greater than 14.00” from top surface to top surface. Fixed steps will be constructed of bright aluminum treadplate with anti-slip inserts. The bottom step on each side shall be of a swing down design constructed of bright aluminum treadplate with anti-slip inserts. The step well will have bright aluminum treadplate furnished on each side to act as scruff plates. The bottom steep shall have a height not exceeding 24.00” from the ground to the top surface of the step at any time. Handrails are to be provided on each side of each set of steps.</p>		
<p>Body Trim: Body trim shall include the following:</p> <ul style="list-style-type: none"> • Extruded aluminum drip rail shall be located over the compartment doors. This drip rail shall have a bright or polished finish. 		

<ul style="list-style-type: none"> • Rub rails will run the full length and width of the apparatus compartments and will be constructed from black 1.00" thick x 2.50" high plastic "UPF" rub rail. The rails will be held out from the main body further than door hardware. They will be easily removable for replacement should it become necessary. The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage. • Rubber fender crowns will be provided around the rear wheel openings. 		
<p>Roll Up Doors: Robinson Shutter (ROM Corp) roll-up doors will be installed on all compartments specified. The shutters will be constructed from extruded aluminum with a brushed finish, interlocked, and internally sealed for weather resistance and quiet operation. Rubber seals will be installed on the vertical components. The door will close/lock with a combination handle/locking bar on the exterior at the bottom. The doors will roll-up in the top of the compartment to allow for maximum use of the compartment interior. Lighting will be located on the vertical compartment walls for maximum effectiveness. The roll-up doors shall have a brushed aluminum finish. An extruded aluminum doorsill shall be provided. The roll-up door shall be equipped with a pull strap.</p>		
<p>Dunnage: There shall be a dunnage compartment furnished ahead of the turntable. The dunnage compartment shall be as wide as possible from side to side, and be a minimum of 12" deep. The sides shall not form any portion of the fender compartments. The upper and rear edges of the side panels will have a double break for rigidity. The dunnage shall be lined with aluminum treadplate.</p> <p>Aluminum Uni-strut style tracking shall be installed the length of each side of the dunnage to allow for future mounting of equipment.</p>		
<p>Adjustable Shelf Track: There shall be ten (10) sets of Uni-strut style aluminum tracking installed for future installation of adjustable shelves. The tracks shall be installed vertically on the walls of all compartments.</p>		
<p>Compartment Shelves and Toolboards: There shall be the following installed in the body compartments:</p> <ul style="list-style-type: none"> • Two (2) Roll-out Trays (500#) capacity • Ten (10) Fixed Shelves • Two (2) Slide-out Tool Boards • Two (2) swing-out Tool Boards <p>Location of each will be determined at pre-build.</p>		
<p>Rear Wheel Well Compartments: There shall be a storage compartments located in the rear wheel wells. The compartments shall be fabricated from aluminum tube. The tube will be supported at the opening by seam welding the tube to the wheel well. The bottom of the tube is also to be supported to eliminate breakage from vibration. The tube is also to be vented to facilitate moisture drainage. The compartment door shall be a cast products aluminum door secured by a positive latch. The compartment shall be lined with a material to protect the air bottle finish. There shall be compartment space to accommodate four (4) SCBA bottles and two (2) pressurized water extinguishers.</p>		

<p>Compartmentation cannot reduce the maximum wheel well to tire clearance needed for the use of tire chains. (NO EXCEPTIONS)</p>		
<p>Vehicle Station Number: The vehicle station number shall be included with the stripping package on the rear roll-up door, the roof of the cab, and the front corners of the cab.</p>		

Aerial Device	Compliance	
	Y	N
<p>Aerial Device Type: The aerial device shall be a minimum of a four (4) section 100 foot heavy duty fire service aerial ladder.</p>		
<p>Construction Standards: The ladder will be constructed to meet all the requirements as described in the current NFPA 1901 standards.</p> <p>The aerial device will be a true ladder type device; therefore ladders attached to booms will not be considered.</p> <p>These capabilities will be established in an unsupported configuration.</p> <p>All structural load supporting elements of the aerial device that are made of a ductile material will have a design stress of not more than 50% of the minimum yield strength of the material based on the combination of the live load and the dead load. This 2:1 structural safety factor meets the current NFPA 1901 standard.</p> <p>All structural load supporting elements of the aerial device that are made of non-ductile materials will have a design stress of not more than 20% of the minimum ultimate strength of the material, based on the combination of the rated capacity and the dead load. This 5:1 safety factor meets the current NFPA 1901 standard.</p> <p>Wire ropes, and attaching systems used to extend and retract the fly sections will have a 5:1 safety factor based upon the ultimate strength under all operating conditions. The factor of safety for the wire rope will remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to diameter of the sheave will be 1:12. Wire ropes shall be constructed of seven (7) strands over an inner wire core for increased flexibility. The wire rope shall be galvanized to reduce corrosion.</p> <p>The aerial device pivot bearings shall be maintenance free type bearings and require no external lubrication.</p> <p>The aerial device will be capable of sustaining a static load one and one-half times its rated tip load capacity (live load) in every position in which the aerial device can be placed when the vehicle is on a firm level surface.</p>		

The aerial device will be capable of sustaining a static load one and one-third times its rated tip load capacity (live load) in every position the aerial device can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.

With the aerial device out of the cradle in the fully extended position at zero degrees elevation, a test load will be applied in a horizontal direction normal to the centerline of the ladder. The turntable will not rotate and the ladder will not deflect beyond what the product specification allows.

All welding of aerial components, including the aerial ladder sections, turntable, pedestal, and outriggers, will be in compliance with the American Welding Society standards. All welding personnel will be certified, as qualified under AWS welding codes.

The aerial device will be capable of operating with the maximum tip load in either of the two (2) following conditions:

- Conditions of high wind up to 50 mph
- Conditions of icing, up to a coating of 0.25” over the entire aerial structure

All of the design criteria must be supported by the following test data **NO EXCEPTIONS:**

- Strain gage testing of the complete aerial device
- Analysis of deflection data taken while the aerial device was under test load

The following standards for materials are to be used in the design of the aerial device:

- Materials are to be certified by the mill that manufactured the material
- Materials that are certified or recertified by vendors other than the mill will not be acceptable
- Material testing that is performed after the mill test will be for verification only and not with the intent of changing the classification
- All welded structural components for the ladder will be traceable to their mill lots

Ladder Construction: The ladder will be comprised of four (4) sections and will extend to a minimum of 105 feet above the ground at full extension and elevation. The measurement of height shall be consistent with NFPA standards.

The aerial device will have a horizontal reach of no less than 100 feet. The measurement of horizontal reach shall be consistent with NFPA standards.

The ladder will have the capacity to support a minimum of 500 pounds at the tip in the unsupported configuration, based upon 360 degree rotation, up to full extension and from minus 8 degrees to plus 75 degrees.

The ladder (handrails, baserails, trusses, K-braces and rungs) will be constructed of high strength low alloy steel, minimum 70,000 pounds per square inch yield, with full traceability on all structural members. Each section will be trussed diagonally, vertically and horizontally using welded steel tubing. All critical points will be reinforced for extra rigidity and to provide a high strength-to-weight ratio. All ladder rungs will be round and welded to each section using “K”

bracing for torsional rigidity.

The inside width dimensions of the ladder will be:

- Base Section – 39.00”
- Inner-Mid Section – 32.25”
- Outer-Mid Section – 26.62”
- Fly Section – 21.38”

The height of the handrails above the centerline of the rungs will be:

- Base Section – 26.75”
- Inner-Mid Section – 22.87”
- Outer-Mid Section – 20.25”
- Fly Section – 17.50”

The ladder will be designed to provide continuous egress for firefighters and civilians from an elevated position to the ground. The end of the fly section will be constructed in a manner that aids personnel who are climbing off the ladder. The egress section will be designed to maintain the rated load of the aerial device. It will be bolted on for easy replacement.

Each rung will be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, no-slip coating. The rung covers will be glued to each rung, and will be easily replaceable should the rung cover become damaged. The center portion of each rung cover shall be black and the outside 2.00” edge at each side shall be safety yellow.

Under no circumstances shall the rung covers be fastened to the rungs by screws or rivets. **NO EXCEPTION**

The rung covers will have a 10-year, limited warranty.

Turntable: The upper turntable assembly will connect the aerial ladder to the turntable bearing. The steel structure will have a mounting position for the aerial elevation cylinders, ladder connecting pins and upper turntable operator’s position.

The turntable will be a 1.00” thick steel deck, coated with a non-skid, chemical resistant material in the walking areas. The stepping surfaces will meet the skid resistance requirements of NFPA 1901. The turntable platform will be rectangular-shaped, approximately 95.00” wide by 84.50” long.

The turntable will be lit to meet current NFPA 1901 requirements. Lights shall be activated by the aerial master switch.

The turntable handrails will be a minimum 42” high and will not increase the overall travel height of the vehicle. The handrails will be constructed from 1.25” diameter extruded 6063-T6 aluminum with a slip resistant knurled surface. The handrails will be anodized to resist corrosion. Handrail posts and horizontal members shall be placed so as not to interfere with the passage of a stokes basket from the aerial device to the ground.

<p>Elevation System: Two (2) double acting lift cylinders will be utilized to provide smooth precise elevation from 8 degrees below horizontal to 75 degrees above horizontal. The lift cylinders will have a 6.00” internal diameter (bore), 0.50” wall thickness, 4.50” diameter cylinder rod and a 34.84” stroke. The lift cylinders will be equipped with integral holding valves located on the cylinder to prevent the unit from failing should the charged lines be severed at any point within the hydraulic system. The cylinders shall also have spherical bushings at each end to reduce pin wear.</p> <p>Both raising and lowering functions shall be influenced by flow compensation, which maintains ladder tip speed within approximately 10% regardless of load, angle or extension. Ladder tip speed is automatically decelerated when the angle is above 60 degrees, reducing “tip-lash”.</p> <p>The pivot pins will be stainless steel with greaseless bushings and will be 2.25” in diameter. All elevation pins will be stainless steel with greaseless ladder pivot pins.</p>	
<p>Extension / Retraction System: A full hydraulic powered extension and retraction system will be provided using two (2) hydraulic cylinders and wire ropes. Each cylinder shall be capable of operating the ladder in the event of a failure to the other. The extension cylinder will have a 3.00” internal diameter (bore), 1.75” diameter rod and a 134.0” stroke. Extension and retraction will be internally limited within the cylinders, eliminating excess strain on wire ropes, sheaves and the ladder structure.</p> <p>Each of the cylinders, wire ropes and sheave assemblies will be completely independent of the other, so as to provide a safety factor wherein a failure of one assembly will not affect the function and operation of the other. The extension cylinders will be equipped with integral holding valves to prevent the ladder from retracting should the charged lines be severed at any point within the hydraulic system. The cylinders will also have internal deceleration valves to cushion the movement of the cylinder when approaching full extension or retraction. The extension cylinders shall be mounted utilizing maintenance free spherical bearings.</p> <p>The reeling of cable will be such as to provide synchronized, simultaneous movement of all sections to full extension.</p> <p>The extension / retraction cables will be: 7-flex galvanized wire rope with stainless steel threaded ends and will have the following characteristics:</p> <ul style="list-style-type: none"> • Lower-Mid Section – 0.50” diameter with 26,200# nominal design strength • Mid Section – 0.38” diameter with 14,880# nominal design strength • Fly Section – 0.31” diameter with 10,380# nominal design strength <p>Wear pads that are made of polymer material will be used between the telescoping sections for maximum weight distribution, strength and smoothness of operation. Adjustment screws will be provided on the wear pads to permit proper side adjustment.</p> <p>All sheaves will be plastic and greaseless and all sheave pins and pivot pins will be polished stainless steel.</p>	

<p>Rotation System: A 46.00” diameter, external tooth, monorace, slewing ring bearing will be used for the rotation system. The gear teeth will be a stub tooth design. The bearing will provide 360 degree continuous rotation.</p> <p>The turntable will be bolted to the bearing using 36 SAE Grade 8, 0.875” diameter bolts. To secure the bearing to the torque box, 36 Grade 8, 0.875” diameter bolts will be used. The turntable base and the torque box bearing plate will be machined flat, within 0.007” thereby providing even distribution of forces.</p> <p>Two (2) hydraulically driven planetary gear boxes will be used to provide infinite and minute rotation control throughout the entire rotational travel. Each planetary gearbox will have a torque rating of 130,000 pounds per inch. Each planetary gearbox will have a spring applied, hydraulically released disc type swing brake to provide positive braking of the turntable assembly. An aluminum treadplate cover shall be fitted over the aerial rotation motors. The cover shall be removable. NO EXCEPTIONS</p>	
<p>Rotation Interlock: A permanently installed prevention mechanism will be provided as part of the rotation system to prevent the rotation of the aerial device to the side in which the stabilizers have not been fully deployed or are short-jacked. The mechanism will allow full and unrestricted use of the aerial device in the 180 degree area on the side(s) where the stabilizers have been fully deployed.</p> <p>The system will have a manual override to comply with NFPA 1901. This will consist of a switch located in the lower control station so that activation will require two (2) persons (one at the aerial device control location and one at the lower control station).</p> <p>Systems that permit the aerial to rotate to the short-jacked side without automatically stopping the rotation and/or without actuation of the manual override shall not be accepted. Systems only including an alarm are not considered an interlock and shall not be accepted. NO EXCEPTIONS</p>	
<p>Torque Box: A “torsion box” subframe will be installed between the two (2) sets of stabilizers. The torque box will be constructed of 0.312” thick (minimum) steel plate (50,000 pounds per square inch yield) with steel tubing reinforcement on each side of the box in the turntable area.</p> <p>The torque box subframe assembly shall be capable of withstanding all torsional and horizontal loads when the apparatus is on the stabilizers. The torque box will be bolted to the chassis frame rails using 20 SAE Grade 8, 0.75” bolts with nuts.</p>	
<p>Modification, Torque Box: The torque box shall be modified to accommodate the raised rear substructure.</p>	
<p>Load Capacities: The following load capacities will be established, with the stabilizers at full horizontal extension and placed in the down position, to level the truck and to relieve weight from the tires and axles.</p> <p>Capacities will be based upon full extension and 360 degree rotation of the aerial device.</p>	

A load chart, visible at the operator's station, will be provided. The load chart will show the recommended safe load at any condition of the aerial device's elevation and extension.

50 MPH Wind Conditions / Waterway Dry

Degrees of Elevation	-5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 75
Egress	500	500	500	500	500	500	500	500
Fly	-	-	-	-	250	250	750	1000
UpperMid	-	-	-	250	250	500	1000	1000
Lower Mid	-	-	250	250	500	750	1000	1000
Base	-	250	500	500	750	1000	1000	1000

Reduced loads at the tip can be redistributed in 250lb. increments to the fly, mid, or base sections as needed.

50 MPH Wind Conditions / Waterway Charged

Degrees of Elevation	-5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 75
Egress	500	500	500	500	500	500	500	500
Fly	-	-	-	-	-	250	500	750
UpperMid	-	-	-	-	250	500	750	1000
Lower Mid	-	-	-	250	500	750	1000	1000
Base	-	-	250	500	750	1000	1000	1000

Reduced loads at the tip can be redistributed in 250lb. increments to the fly, mid or base sections as needed.

The tip capacity shall be reduced to zero (0) when flowing water with the nozzle above the waterway centerline.

Boom Support: A heavy duty boom support will be provided for the ladder in the travel position. On the base section of the ladder, a stainless steel scuffplate will be provided where the ladder comes into contact with the boom support.

The boom support will be located just to the rear of the chassis cab, recessed into the transverse compartment in place of a pump.

Extension Indicator: Extension markings and corresponding numerical indicators shall be provided along each inside and outside top rail of the base section of the aerial every ten (10) feet. They shall indicate various positions of extension up to full extension. Markings and indicators shall be clearly visible to the console operator. To aid in visibility during hours of darkness, the markings and numerical indicators shall be of red reflective material.

<p>Folding Steps: One (1) set of folding steps will be provided at the tip of the ladder. An additional set of folding steps shall be provided at the base of the fly section. The steps shall be bright finished, non-skid with a black coating. Each step shall incorporate an LED light to illuminate the stepping surface.</p>		
<p>Lifting Eye – Rope Rescue Attachment: Two (2) eyes shall be welded, one (1) to each ladder beam, at the ladder egress with a spreader bar to mount between the eyes. This design shall distribute a load evenly across the ladder beams because of the single lifting eye on the spreader bar. The bar is retained by two (2) locking pins, one (1) at each end outboard of each eye. Leveling is maintained by the bar rotating in the eyes.</p>		
<p>Rope Tie Bar at Base Section – Rescue Lifting System: A removable bracket shall be supplied at the rear of the base section, attached between the left hand and right hand rear hand rails. The bracket shall provide Lyfe Pulley rope tie off and/or guide points spaced 5.75” apart, centered between the rear handrails. The bracket shall be designed to be easily removable and not interfere with a fully retracted ladder assembly when attached to the base section. A storage box for the bracket shall be provided on the outside rear of the base section.</p>		
<p>Axe Mounting Brackets: Brackets shall be provided near the end of the fly section of the aerial ladder for mounting a fire axe (see loose equipment list). Required mounting plates for this installation shall be D/A finished aluminum.</p>		
<p>Pike Pole Mounting Brackets: Brackets shall be provided near the end of the fly section of the aerial ladder for mounting a pike pole (New York Roof Hook, 8 foot long – Fire Hooks Unlimited, Model RH-8). Required mounting plates for this installation shall be D/A finished aluminum. There shall be a s/s scuffplate for the pike pole that shall prevent the head of the pike pole from damaging the aerial paint.</p>		
<p>Pike Pole Mounting Brackets: Brackets shall be provided behind the aerial sign board for mounting a pike pole (LA Trash Hook, 8 foot long – Fire Hooks Unlimited). Required mounting plates for this installation shall be D/A finished aluminum. There shall be a s/s scuffplate for the pike pole that shall prevent the head of the pike pole from damaging the aerial paint.</p>		
<p>Roof Ladder Mounting Brackets: Provision shall be made for the mounting of a roof ladder behind the aerial sign board. Required mounting plates for this installation shall be D/A finished aluminum. There shall be s/s scuff plates that shall prevent the roof ladder from damaging the aerial paint.</p>		
<p>Aerial Electrical System: The aerial electrical system will be designed and manufactured in such a way that the power and signal protection and control compartments will contain circuit protection devices and power control devices. The power and signal protection and control components will be protected against corrosion, excessive heat, excessive vibration, physical damage, and water spray.</p> <p>The aerial electrical system will be designed and manufactured to allow the following:</p> <ul style="list-style-type: none"> • All of the serviceable components will be readily accessible. • Circuit protection devices will be utilized to protect each circuit. 		

<ul style="list-style-type: none"> • All circuit protection devices will be sized to prevent wire and component damage when subjected to extreme current overload. • General protection circuit breakers will be Type-I automatic reset (continuously resetting) or Type-II (manual resetting) and conform to SAE requirements. When required, automotive type fuses conforming to SAE requirements will be utilized to protect electronic components. • Power control relays and solenoids, when utilized, will have a direct current (dc) rating of 125% of the maximum current for which the circuit is protected. <p>The aerial electrical system will be designed and manufactured to allow the following:</p> <ul style="list-style-type: none"> • Toggle switches will be utilized that are certified for the outside conditions that fire apparatus experience. • All wiring will be protected by conduit or loom. • All wiring harnesses will be properly supported to eliminate harness damage through rubbing. • An inductive proximity switch and illumination light will be incorporated into the boom support. • The aerial master and aerial PTO can be engaged without bringing the engine RPM back to idle. • Standard cabling to the tip of the aerial will consist of one (1) 16/20 cable and one (1) 12/8 cable. 		
<p>Spotlights: There shall be four (4) Whelen bail mount Micro Pioneer, Model MPB*, 12 volt DC LED lights furnished. The painted parts of this light assembly to be white.</p> <p>Two (2) “tracking lights” will be mounted to the base section of the ladder, one (1) on each side.</p> <p>Two (2) “tip lights” will be mounted on the fly section of the ladder, one (1) on each side.</p> <p>The lights will be mounted below the handrail height so as not to increase the overall height of the apparatus.</p> <p>An individual master switch with appropriate identification labels will be provided for the “tracking lights” and “tip lights” in addition to the on/off switch located on the light itself.</p>		
<p>Aerial Locator Lights, Strobe: Two (2) lights shall be installed, one (1) each side at the aerial tip for the purpose of locating the aerial device while in operation. The lights shall be Whelen, Model 800D, strobe beacons. The lights shall activate whenever the aerial device is raised from the cradle. The color of the lights shall be blue.</p>		
<p>Driver’s Side Torque Box Power Distribution Panel: A fuse and relay panel, located behind the driver side stabilizer, will include the following:</p> <ul style="list-style-type: none"> • NEMA 4x rated weatherproof enclosure • Relays, fuses, and circuit breakers for aerial and stabilizer interlocks and control switches. 		

<p>Turntable Control Station: There will be a turntable control station located on the left hand side of the turntable so the operator will be able to easily observe the ladder tip while operating the controls. The controls will permit the operator to regulate the speed of the aerial functions within safe limits (as determined by the manufacturer and NFPA standards). The controls will be clearly marked and lighted for nighttime operation. A hinged aluminum cover will be provided. The momentary foot switch located at the turntable control station will activate the aerial function controls. All controls shall be capable of being operated independently or simultaneously.</p> <p>A foot switch will be located at the turntable control position to allow hydraulic flow to the aerial device. The foot switch will be protected by a cover to prevent accidental activation. Activation of the foot switch is necessary for aerial device operation.</p> <p>The turntable shall be lit for nighttime operations with a minimum of two (2) work lights activated by the aerial master switch.</p> <p>The following controls and indicator lights will be clearly identified, illuminated, and conveniently located for ease of operation and viewing:</p> <ul style="list-style-type: none"> • Elevation, extension/retraction, and rotation controls • High idle on/off switch • Tip/Tracking light switch • Indicator and alarm test switch • Emergency hydraulic power switch • Stabilizers not fully extended amber indicator light • Rung alignment green indicator light • Monitor control switches • Hydraulic system pressure gauge • Aerial waterway flow meter • Operator’s load chart <p>The turntable console will be lighted for nighttime operation with a minimum of one (1)one 12-volt work lights activated by the aerial master switch. A fuse panel will be located in the turntable control console.</p>		
<p>Airhorn Control at Aerial Turntable: An air horn control button shall be provided at the aerial turntable. This button shall be red in color and properly labeled “Evacuation”.</p>		
<p>Aerial Access & Turntable Walkway Lights: There shall be seven (7) Whelen, Model 0Ac)EDCR, 1.00” wide x 1.87” long white 12 volt DC LED lights with 45 degree chrome housing provided.</p> <p>There shall be two (2) Whelen, Model 0SC0EDCR, 1.00” wide x 1.50” long white 12 volt DC LED lights with chrome housing, recessed into the rotation motor housing tops.</p>		
<p>Chain, Aerial Turntable: A chain shall be installed at the aerial turntable.</p>		
<p>Stabilizer Control Station: There will be two (2) easily accessible control stations, one (1) for driver side stabilizers and one (1) for passenger side stabilizers, located at the rear of the</p>		

<p>apparatus.</p> <p>The following controls and indicator lights will be clearly identified, illuminated, and conveniently located for ease of operation and viewing at each of the control stations except where otherwise noted:</p> <ul style="list-style-type: none"> • Left Rear Stabilizer Firm on Ground indicator light (driver side panel only) • Left Rear Stabilizer Fully Extended indicator light (driver side panel only) • Left Rear Stabilizer In/Out switch (driver side panel only) • Left Rear Stabilizer Up/Down switch (driver side panel only) • Left Front Stabilizer Firm on Ground indicator light (driver side panel only) • Left Front Stabilizer Fully Extended indicator light (driver side panel only) • Left Front Stabilizer In/Out switch (driver side panel only) • Left Front Stabilizer Up/Down switch (driver side panel only) • Right Rear Stabilizer Firm on Ground indicator light (passenger side panel only) • Right Rear Stabilizer Fully Extended indicator light (passenger side panel only) • Right Rear Stabilizer In/Out switch (passenger side panel only) • Right Rear Stabilizer Up/Down switch (passenger side panel only) • Right Front Stabilizer Firm on Ground indicator light (passenger side panel only) • Right Front Stabilizer Fully Extended indicator light (passenger side panel only) • Right Front Stabilizer In/Out switch (passenger side panel only) • Right Front Stabilizer Up/Down switch (passenger side panel only) • Hydraulic emergency power switch • High idle switch 		
<p>Turntable Override Controls: The aerial manual override controls will be located in the turntable control console.</p>		
<p>Master Override Controls: An emergency power switch will be located at the rear of the apparatus. The switch will activate the emergency power unit and allow control of the aerial or stabilizers based on the direction the switch is toggled.</p> <p>A work light will be provided to illuminate the master override controls when the battery switch is active and the master override door is open.</p> <p>Override controls shall be enclosed to protect the control as much as possible from road grime and de-icing materials.</p> <p>Override controls shall be labeled for easy identification during emergency operations.</p>		
<p>Boom Support: A Turck inductive proximity switch will be provided on the boom support to detect if the aerial device is fully stowed within the boom support.</p>		
<p>Stabilizer Indicator: A “Stabilizers not Stowed” indicator will be provided in the driver’s compartment. It will illuminate automatically whenever the stabilizers are not fully stowed, to prevent damage to the apparatus if moved. The stabilizer system will also be wired to the “Do Not Move” indicator light, which will flash whenever the apparatus parking brake is not fully engaged and the stabilizers are not fully stowed.</p>		

<p>Cradle Interlock System: A cradle interlock system will be provided to prevent the lifting of the aerial from the nested position until the operator has positioned all the stabilizers in a load supporting configuration. A switch will be installed at the cradle to prevent operation of the stabilizers once the aerial has been elevated from the nested position.</p>		
<p>Stabilizer Alarm: An electronic warning device will be provided at each stabilizer to warn personnel that the stabilizers are being deployed. Each alarm will produce a fast pulsing 90 DBA signal and will cancel only when the stabilizer is put into a load bearing configuration.</p>		
<p>Stabilizers: The vehicle will come equipped with a stabilization system consisting of four (4) hydraulically operated out and down style stabilizers. This system will meet or exceed all requirements of the NFPA specifications related to stabilization and setup on sloped surfaces.</p> <p>The stabilizer/leveling jacks will have a maximum spread of 14 feet measured from the centerline of the jack footpads when the beams are fully extended. The beams will be 6.88” wide by 9.00” high with 3/4” thick top and bottom plates and 1/2” thick sides of 100,000-PSI minimum yield strength steel. The cylinders will have pilot-operated check valves with thermal relief designed to insure that the beams will not drift out of the stowed position during travel. Wear pads will guide the stabilizers.</p> <p>The horizontal extension cylinders will be totally enclosed within the beams and will incorporate telescoping hydraulic tubing to supply jack cylinder hydraulic power. Stabilizer hydraulic hoses will remain stationary during operation of the stabilizers to prevent hose wear and potential failure. The cylinders will be equipped with decelerators to reduce the speed of extension and retraction when the beams are near the fully extended and retracted positions. The stabilizer extension hydraulic cylinders will have the following dimensions: 2.25” bore, 1.38” rod, and 39.25” stroke.</p> <p>The vertical jack cylinders will be capable of 18.00” ground penetration. The cylinders will be supplied with pilot operated check valves on each jack cylinder to hold cylinder in the stowed or working position, should a charged line be severed at any point in the hydraulic system. For safety, the integral holding valves will be located in the cylinder base, NOT in the transfer tube. Vertical jack cylinder rods will be fully enclosed by a telescoping inner box to protect the cylinder rods from damage. Each vertical jack cylinder will be equipped with a 1.25” mechanical pin lock, to hold it in a working position. The stabilizer jack hydraulic cylinders will have the following dimensions: 4.25” bore, 3.00” rod, and 34.88” stroke. NO EXCEPTIONS TO THIS SECTION.</p> <p>Each stabilizer jack will have a polished stainless steel shield. The stainless steel shield will be a maximum of 14.00” wide so as to allow the extension of the stabilizer between parked cars or other obstacles. This plate will serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges will be flanged back 90 degrees for added strength. A reflective stripe will be provided on the horizontal and vertical beams of each stabilizer. Stabilizer striping shall match the chevron striping on the rear of the apparatus body.</p>		

<p>Stabilizer Pads: The stabilizer footpad will be 12” in diameter. The footpad will be attached to the jack cylinder rod by means of a machined ball at the end of the jack cylinder rod which mates to a socket machined into the footpad. The footpad will have the ability to pivot 20 degrees from horizontal in any direction to allow setup on uneven terrain.</p>	
<p>Auxiliary Stabilizer Pads: An auxiliary ground pad will be provided for each stabilizer to provide additional load distribution on soft surfaces. The pads will be square and made from a lightweight composite material. The ground pressure will not exceed 75 pounds per square inch when the ground pads are used and the apparatus is fully loaded and the aerial device is carrying its rated capacity in any position. The Pads shall be stored in a location to be determined at pre-build.</p>	
<p>Stabilizer Controls: An electrically controlled hydraulic valve will power stabilizer movement. The valve can also be manually controlled in the event of electrical malfunction. Hydraulic power override controls will be incorporated into the valve. The manual override mechanism will be completely sealed within the valve assembly to prevent any possibility of corrosion.</p> <p>The stabilizer controls will be located to provide the operator with a full view of each stabilizer being positioned. Each stabilizer control panel will include the following:</p> <ul style="list-style-type: none"> • In/Out stabilizer beam control switch • Up/Down stabilizer jack control switch • Emergency Hydraulic Power Unit (EPU) control toggle switch • High Idle control toggle switch • Stabilizer fully extended LED indicator lights • Stabilizer planted LED indicator lights <p>As a safety device, an electrically actuated diverter valve will be provided. The hydraulic power will be diverted to the aerial ladder controls automatically the instant all stabilizer jacks are firmly planted on the ground. Once the aerial ladder is raised from the bedded position, the stabilizer hydraulic power is cut off so the stabilizers will not accidentally be moved while the aerial is being operated.</p> <p>To aid in leveling the unit, two (2) bubble type angle indicators will be located near the stabilizer controls. One indicator will show the angle of the truck from the front to rear and the other will show the side angle of the truck. The indicators will be color coded green to show when the truck has been properly leveled allowing the aerial device to be operated at full capacity.</p> <p>A stabilizer deployment audible warning alarm will be provided at each side of the body, activated by the stabilizer movement.</p> <p>A “Stabilizers Not Stowed” indicator light will be provided in the cab within view of the driver. It will illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the vehicle if it is moved. The stabilizer system will also be wired to the “Do Not Move Truck” indicator light. This light will flash whenever the apparatus parking brake is not engaged and the stabilizers are not fully stowed.</p>	

<p>Stabilizer Pins: The stabilizer jacks shall have holes for the stabilizer pins.</p>		
<p>Stabilizer Scene Lights: There shall be one (1) Amdor Lumabar H20, Model AY-9500-012, 12.00" LED weatherproof strip light installed on each stabilizer to illuminate the surrounding area. These lights shall be in place on the standard lights. A total of four (4) lights shall be provided. The light shall be actuated by the aerial master switch.</p>		
<p>Stabilizer Warning Lights: Four (4) Whelen, Model M6*C LED flashing warning lights with bezels will be mounted on the stabilizer cover panel, one (1) for each panel.</p> <p>Front stabilizer pan light shall be red.</p> <p>Rear stabilizer pan light shall be red.</p> <p>Each light shall include a clear lens.</p> <p>These warning lights will be activated by the NFPA side zone switch.</p>		
<p>Stabilizer Beam Warning Lights: Two (2) 4.00" diameter red LED flashing lights will be mounted on each stabilizer, one (1) facing forward and one (1) facing rearward. The lights shall be Grote Supernova 40 series LED lights. The lights will be recessed in the horizontal beam of the stabilizer. These warning lights will be activated by the aerial master switch.</p>		
<p>Hydraulic System: All hose assemblies will be assembled and crimped by the hose manufacturer's certified technician. An assembly cell will be located on the premises where the technician can perform audits of the final aerial assembly for proper fitting torque and hose routing.</p> <p>All manufacturing employees responsible for the installation of hydraulic components will be properly trained. Training will include: proper handling, installation, torque requirements, cleanliness and quality control procedures for hydraulic components.</p> <p>Hoses used in the aerial hydraulic system will be of a premium quality hose with a high abrasion resistant cover. All pressure hoses will have a working pressure of 4000 psi, and a burst pressure rating of 16,000 psi.</p> <p>The hydraulic oil will be a premium Multi-Vis product having a leading edge additive package, provide oxidation stability, be extremely shear stable and have maximum anti-wear properties. All oil delivered to the manufacturing facility will have a minimum ISO cleanliness level of 18/15/13.</p> <p>Each aerial will be evaluated as to the region and climate where it will be used to determine the optimum viscosity and proper oil grade. Oil viscosity will be based on an optimum range of 80 to 1000 SUS during normal aerial use. Before shipment of the unit, an oil sample will be taken and analyzed to confirm the oil is within allowable ISO grade tolerance.</p> <p>The aerial hydraulic system will have a minimum oil cleanliness level of ISO 18/15/13 based on</p>		

<p>the ISO 4406:1999 cleanliness standard. A certificate of actual cleanliness test result shall be provided along with an explanation of the rating system.</p> <p>Aerial system will include and oil sample port, identified with yellow dust cap and a label, for subsequent customer testing.</p> <p>Ball valves will be provided in the hydraulic suction and return lines to permit component servicing without draining the oil reservoir.</p> <p>The system hydraulic pressure will be displayed on a 2.5” liquid filled gauge, located on the control console.</p> <p>The hydraulic system will be additionally protected from excessive pressure by a secondary pressure relief valve set at 3150 psi. In the event the main hydraulic pump compensator malfunctions, the secondary relief valve will prevent system damage.</p>	
<p>Hydraulic Cylinders: All cylinders used on the aerial device will be produced by a manufacturer that specializes in the manufacture of hydraulic cylinders.</p> <p>Each cylinder will include integral safety holding cartridges. No manifold or transfer tube mounted cartridges will be acceptable.</p> <p>Each cylinder will be designed to a minimum safety factor of 4:1 failure.</p> <p>All safety holding cartridges will be installed at the cylinder manufacturer, in a controlled clean environment to avoid possible contamination and or failure.</p>	
<p>Hydraulic Pump: The hydraulic system will be supplied by a variable displacement, load and pressure compensating piston pump. The pump will meet the demands of all three (3) simultaneous aerial functions. The pump will provide proper flow for a single aerial function with the engine at idle speed. A switch will be provided on the control console to increase the engine speed for multiple function operation.</p>	
<p>Emergency Pump: The aerial will be equipped with an emergency hydraulic pump, electrically driven from the truck batteries. The pump will be capable of running for 30 minutes for limited aerial functions to stow the aerial device in case of main pump or truck system failure. A momentary switch will be located at the stabilizer and aerial control locations to activate the emergency pump.</p>	
<p>Aerial Control Valve: The aerial hydraulic control valve will be designed with special flows, limiting the oil flow for the designed function speed. The valve will be manually controlled and be located in the control console with the handles protruding through the operating surface for operation. The activation handles will be spaced a minimum of 3.5” for ease of operation.</p>	
<p>Oil Reservoir: The oil reservoir will have a minimum capacity of 38 gallons. The oil fill location will be easily accessible and be labeled “Hydraulic Oil Only” and also indicate the grade of oil that is installed in the reservoir. The fill will have a desiccant breather filter with a water capacity of 4 fluid ounces and a 5 micron rating. A drain hose will be included and will terminate with a quarter turn ball valve. Two suction ports will be provided, one for the main hydraulic</p>	

<p>pump and one for the emergency pump. The main suction will be slightly elevated off the bottom of the reservoir and include a 100 mesh suction strainer. The emergency suction port will be closer to the bottom of the reservoir to provide some reserve oil for emergency operation. A six (6) disc type magnetic drain shall also be provided to collect any ferrous contaminants. A float type sending unit in the reservoir will provide an indication of the oil level on an electric gauge mounted adjacent to the fill location.</p>		
<p>Hydraulic Tank Location: The hydraulic tank shall be located in the forward cargo area in place of the standard torque box location.</p>		
<p>High Pressure Filter: The pressure filter will be rated for 6,000 psi working pressure and generously sized for efficiency and capacity. A 90 psi bypass spring will be included to protect the element and hydraulic system during lower than normal system operating temperatures.</p> <p>The 5Q filter element will be constructed of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic. The nominal rating will be 5 micron and have an efficiency rating of 99.3% for 5 micron sized particles. The element will have a dirt holding capacity of not less than 35 grams.</p>		
<p>Return Filter: The return filter will be rated for 800 psi working pressure and generously sized for efficiency and capacity. A 25 psi bypass spring will be included to protect the element and hydraulic system during lower than normal system operating temperatures.</p> <p>The 5Q filter element will be constructed of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic. The nominal rating will be 5 microns and have an efficiency rating of 99.6% for 5 micron sized particles. The element will have a dirt holding capacity of not less than 40 grams.</p>		
<p>Hydraulic Fluid Sample: An aerial hydraulic fluid sample shall be provided after the initial run period. The sample shall be shipped loose.</p>		
<p>Hydraulic Swivel: The aerial ladder will be equipped with a three (3) port, high pressure hydraulic swivel which will connect the hydraulic lines from the hydraulic pump and reservoir, through the rotation point, to the aerial control bank. The hydraulic swivel will allow for 360-degree continuous rotation of the aerial.</p>		
<p>Electric Swivel: The ladder will be equipped with an electric swivel to allow 360-degree rotation of the aerial while maintaining connections in all electrical circuits through the rotation point. A minimum of 32 collector rings that are capable of supplying 20-amp continuous service will be provided. All collector rings will be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone shall be used.</p>		
<p>Communications System: An Atkinson communications system will be furnished between the aerial tip and the turntable operator's position. The communication system will be a two-way system with the communication speaker at the tip requiring no operator attention to transmit or receive. The transmitting and receiving volume controls will be located at the turntable operator's position.</p>		

<p>Raised Aerial Pedestal: The aerial pedestal will be raised 1.00” to accommodate the aerial waterway plumbing on the exterior of the torque box.</p>	
<p>Collision Avoidance System: The aerial device shall be equipped with a collision avoidance control system. The collision avoidance control system shall be calibrated so that the aerial device does not make contact with any part of the apparatus during normal operation. The collision avoidance control system shall also prevent the aerial device from being lowered into the cradle if the aerial monitor is not in the stowed position. Once the aerial device is in the bedded position, the system shall disable the monitor system so that the monitor cannot be operated.</p> <p>The collision avoidance system shall consist of the following sensors:</p> <ul style="list-style-type: none"> • Single axis sensor to determine aerial device elevation • Angle sensors to determine turntable angle with reference to aerial device position • 13-bit absolute encoder integral to the swivel to determine aerial device rotation <p>The aerial ladder shall be equipped with a 13-bit absolute encoder, which provides 8192 counts per shaft turn for position and direction reference. The 13-bit absolute encoder shall provide a unique binary word to reference each position and direction for all 360 degrees of rotation.</p> <p>If power is interrupted for any reason, the 13-bit absolute encoder shall allow power to be returned to the system without having to re-zero the settings.</p> <p>The 13-bit absolute encoder shall be an integral part of a microprocessor based control system.</p> <p>The collision avoidance control system shall be divided up to a maximum of nine (9) control zones. Each zone shall have its own independent rotation and elevation parameters.</p> <p>The collision avoidance control system shall be equipped with a warning system that alerts the operator when the aerial device has reached the limits of each control zone. The warning system shall sound when either the rotation or elevation movements reach the limits of the control zone. The warning system alarm and red light shall be active whenever the ladder is in a restricted area and shall then prevent aerial device movement.</p> <p>A green light shall activate when the aerial device is in a position to be safely stowed.</p> <p>No Exceptions to this specification.</p>	
<p>Water System: A waterway system will be provided consisting of the following components and features:</p> <ul style="list-style-type: none"> • A 5.00” pipe connected to the water supply on one end and the water swivel at the rotation point of the turntable. The water swivel will allow the ladder to rotate 360-degrees continuously while flowing water. • A 4.00” waterway swivel that is routed through the rotation point swivel up to the heel pin swivel. The heel pin swivel will allow the water to flow to the ladder pipe while elevating the aerial ladder from -8 degrees to 75 degrees. The heel pivot pin is not integral with the waterway swivel at any point. The design of the waterway will allow complete servicing 	

<p>of the waterway swivel without disturbing the heel pivot pin.</p> <ul style="list-style-type: none"> • The integral telescopic water system will consist of a 4.50” diameter tube in the base section, a 4.00” diameter tube in the inner mid-section, a 3.50” diameter tube in the outer mid-section, and a 3.00” diameter tube in the fly section. The telescopic water pipes will be anodized aluminum. • The rotational torque will have adequate power to rotate the ladder into a full 1000 gallon per minute water stream directed at 90 degrees to the side while maintaining the 500 pound tip load. • The aerial will be capable of discharging up to 1000 gallons per minute at 100 pounds per square inch parallel to the ladder and 90 degrees to each side of center while maintaining the fully rated tip load. • An adjustable intake relief valve will be furnished to protect the aerial waterway from a pressure surge. • A 1.50” drain valve will be located at the lowest point of the waterway system. 		
<p>Waterway Seals: The waterway seals will be of type-B PolyPAk design, composed of nitrile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal will be capable of withstanding pressures up to 2,000 psi, temperatures in excess of 250 degree Fahrenheit and have resistance to all foam solutions. The seals will be internally lubricated.</p> <p>The waterway seals will have automatic centering guides constructed of synthetic thermalpolymer. The guides will provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.</p>		
<p>Aerial Monitor: An Akron Model 3578 monitor w/ stow and deploy, and a 5177, 1250 gallon per minute variable stream nozzle with built-in stream shaper will be provided. The monitor will be capable of delivering flows up to 1000 gallons per minute. The actuators will allow for vertical travel of 135 degrees below the centerline of the aerial and 90 degrees on either side of center. The unit will be equipped with two (2) control boxes: one (1) at the aerial tip and one (1) on the turntable control console. The monitor controls will include “one touch” stow and deploy function at the turntable location. There will be a courtesy light at the tip of the aerial to illuminate the controls.</p>		
<p>Flow Meter (Aerial Waterway): A Fire Research Corporation (FRC), Model DF430, digital flow indicator with a four (4) digit LED display shall be provided for the aerial waterway at the turntable control station. The display shall have a flow totalizer, programmable high and low flow warnings, and automatically adjust LED brightness for day/night viewing.</p>		
<p>Rear Inlet: A 5.00” NST inlet to the aerial waterway will be provided at the rear of the apparatus. The rear inlet plumbing shall be 10 ga. Stainless steel. It will be furnished with a 5.00” chrome plated adaptor and a 5.00” chrome plated, long handle cap. The outlet shall be located to the driver’s side of the torque box, as low on the rear wall as possible.</p>		
<p>Waterway Locking System: The aerial ladder waterway monitor shall be capable of being positioned at either the fly section or at the next lower section of the ladder. The monitor location shall be changeable by the use of a single handle, located at the side of the ladder. The handle,</p>		

<p>attached to a cam bracket, shall simply be moved forward to lock the monitor at the fly section and back to lock it to the previous section. There shall be no pins to remove and reinstall.</p> <p>The monitor shall be operational at all times, regardless of its position, without connecting or disconnecting electrical lines.</p>	
<p>2.50" Auxiliary Outlet at Aerial Tip: An auxiliary hose connection outlet shall be supplied at the tip of the aerial ladder. It shall be on the left-hand side of the waterway.</p> <p>Flow to the auxiliary outlet shall be supplied by 2.50" piping. A 2.50" gate valve with a non-rising stem and crank handle shall be supplied. A cap and chain shall be provided.</p> <p>Flow to the aerial waterway monitor shall be controlled by a 4.00" aluminum butterfly valve with a non-rising stem and crank handle. The valve shall be located at the monitor inlet.</p> <p>A 200psi relief valve and a 0.75" automatic drain valve shall be supplied in the waterway at the tip.</p>	
<p>Clean Tip: The aerial shall be designed so that the first thirty inches (30") of the aerial device are clear of all obstructions. This includes but is not limited to spot or flood lights, waterway nozzle, auxiliary outlets, etc.</p>	

Line Voltage System	Compliance	
	Y	N
<p>PTO For Generator: A Chelsea PTO shall be installed on the side of chassis transmission for powering a hydraulic generator. The PTO shall be supplied with an output flange compatible with direct mount hydraulic pumps.</p>		
<p>Generator: Smart Power, model HR-8, fully enclosed 8,000-watt hydraulic generator shall be provided. The generator may be installed in a compartment or on top of the vehicle, as per the customer-specified location. The generator system shall come with a standard 5 year/1,000 hour fully transferable warranty from the manufacturer. The unit shall come equipped with: generator tray assembly (which includes the generator, generator enclosure, hydraulic motor, detachable oil cooler/fan enclosure assembly, electronics package, 10 micron spin-on fluid filter and detachable reservoir), axial piston hydraulic pump with pressure compensated control, and Command and Control Center (CCC) display with all required wiring harnesses. The CCC shall be an interactive operator control center, equipped with smart touch solid-state buttons, with displays for voltage, frequency, amperage, hour meter, service reminders, operator warnings, system faults, and diagnostics. Standard electronics package shall include smart start engagement to reduce mechanical stress, precise voltage and frequency control, cold start system, automatic load and temperature compensation, integrated diagnostics system, and other automated control features to protect system, vehicle, and operator. The generator cover, the generator electrical enclosure, the oil cooler/fan enclosure, the hydraulic fluid reservoir and other steel structural components will be protected with a white powder coat finish. An aluminum grate will be attached over top of the assembly to provide a non-slip walking surface. The body of the</p>		

<p>generator tray assembly shall be 34.5" long x 19.0" wide x 22" high with cooler/fan enclosure and grate mounted on top of the assembly. The body of the generator tray assembly shall be 34.5" long x 22.5" wide x 19.0" high if the cooler/fan enclosure is moved to the side of the assembly. The approximate weight of the system is 530 pounds. The hydraulic pump shall be driven by a chassis transmission mounted power take off (PTO).</p> <p>No Exceptions.</p>		
<p>120/240-V NFPA TEST The following tests shall be performed on the 110-Volt line voltage system.</p> <ul style="list-style-type: none"> • A dielectric voltage withstand test of 900-volts for 1minute shall be performed on the wiring and permanently connected devices. • Electrical polarity verification shall be made of all permanently wired equipment and receptacles. <p>The following shall be recorded:</p> <ul style="list-style-type: none"> • Cranking time until the prime mover starts and runs, if applicable • Voltage, frequency, and amperes at continuous full rated load • Prime mover oil pressure, water temp., transmission temp., hydraulic temp., and the battery charge rate, as applicable • Ambient temperature and altitude <p>OPERATIONS TEST The power source shall be operated at 100% of its nameplate voltage for a minimum of two (2) hours. This test can be performed during the pump test if applicable.</p>		
<p>Circuit Breaker Panel: A 12 position Square D circuit breaker panel shall be provided and mounted. The breaker panel shall include a main disconnect. Breakers shall be installed as required and labeled accordingly. The circuit breaker panel shall be located in a compartment as close to the generator as practical and mounted not to interfere with shelves or trays if specified. Location to be determined at pre-build meeting.</p>		
<p>Receptacle: 120 Volt / 15 Amp Twist-Lock receptacles shall be installed on the apparatus. The receptacles shall be wired to a 15-amp ground fault circuit breaker in the breaker panel. External mounted receptacles shall be protected with a hinged weatherproof cover.</p> <p>There shall be four (4) receptacles installed on the apparatus body. Location of the receptacles shall be determined at pre-build meeting.</p>		
<p>Electric Cord Reel: Two (2) electric rewind cord reel(s) shall be supplied and installed in the transverse compartment on the apparatus body. The reels shall be mounted to the ceiling in the compartment. The cable reel(s) shall be a 12-volt electric rewind type complete with a push button rewind switch, properly labeled. The cord reel shall be wired to a 120-volt / 30-amp ground fault circuit breaker in the breaker panel. 150-Feet of yellow 10/3 SO cord shall be installed on each reel complete with an HS-3 ball stop and 30 Amp twist-lock female receptacle. There shall be a captive roller system furnished for the compartment mounted cord reel. The roller shall be installed to guide the cord on and off the reel assembly.</p>		

Lighted Junction Box: There shall be two (2) Circle D four (4)-outlet junction boxes. Each box will contain one (1) GFI household receptacle and three (3) L5-15 twist lock receptacles attached to each cord reel. The junction box shall attach to the cord reel by a male 30-amp twist-lock receptacle.		
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Portable Equipment	Compliance	
	Y	N
<p>Portable Equipment: The vehicle shall be delivered equipped with the portable equipment listed in the attached spreadsheet. Exact part numbers will be determined at pre-construction review. Proposals shall include the cost of all equipment on the list.</p> <p>No Exceptions.</p>		
<p>Portable Equipment Mounting: Proposals shall include the cost of mounting and installing the portable equipment included as part of these specifications. Mounting locations and methods shall be determined at pre-construction review.</p> <p>No Exceptions.</p>		

PORTABLE EQUIPMENT

8 lb. Flat Head Axe	3
Pick Head Axe	2
30-inch Pro Bar style Halligan Tool	2
10 lb Sledgehammer	2
36-inch bolt cutters	1
24-inch bolt cutter	1
24-inch cable cutter	1
6-foot FDNY style roof hooks	3
8-foot FDNY style roof hook	1
6-foot pike pole	1
8-foot pike pole	2
12-foot pike pole	2
4-ft closet hook	1
36-inch pry bar	1
Rex style tool	1
hydra-ram style hydraulic door opener	1
K-Tool Set	1
10-foot LA Style Trash Hook w/ D-handle	1

Battering RAM with extensions	1
24-inch gasoline powered positive pressure fan, Tempest	1
18-inch gasoline powered positive pressure fan, Tempest	1
Ventilation Chain Saw, Cutter's Edge	2
Rotary Rescue Saw, Cutter's Edge	1
Set Pneumatic Lifting Bags	1 set
Set Cordless Tools - Drill, Cutoff Saw, Trim Saw, Saws-All	1 set
RIT Tarp	1
Chicago Style Large Area Search Bag (Bag, Rope, Tag Lines)	1 set
RIT Lowerings System (Bag, Rope, 3 Ladder Carabiners, 2	1 set
MSA M7 Firehawk RIT Pack	1
Set of Cribbing	1 set
Hand-pumped Combination Tool, Holmatro	1
20-inch Electric Positive Pressure Fan	1
18-inch smoke ejector	1
Electric Submersible Pump w/ 100-foot collapsable hose	1 set
Portable LED lights	4
100-foot extension cord	1
50-foot extension cord	4
Spade Shovel	2
Flat Shovel	2
Coal Shovel	1
Squeegees	2
Roll Visquene Plastic	1
Steel Wash Tubs	4
Wisk Brooms	2
Street Push Broom	1
Garage Push Broom	1
Corn Broom	1
Roll Tar Paper	1
1 set hand tools w/ tool bag (NFPA list)	1 set

Set spanner wrenches	2 sets
5-inch set spanner wrenches	2 sets
Locking hydrant wrench	1
Collapsible DOT compliant traffic cones	1 set
DOT compliant traffic vest	4
6-foot section 5-inch hose w/ Storz couplings	1
Piercing Nozzle with extension	1
Stokes Basket with Backboard	1
Bridle for Stokes Basket	1
Haul System for Stokes (rope, pulleys, prussiks, descent device)	1
Tag Lines for Stokes	2
Little Giant Ladder	1
Truck Belts - assorted sizes	4
Edge Hose Roller	1
Stacked Tips for aerial master stream	1 set
Roll Caution Tape	1
2 1/2x2 1/2 Pgh 6 Gated wye	1
50-foot Utility Rope in Bag	1
75-foot Utility Rope in Bag	1
100-foot Utility Rope in Bag	1
2 1/2 gallon pressurized water extinguishers	2
Carbon Dioxide extnguisher	1
20 lb Ansul Dry Chemical Extinguisher - Purple K	1
Personal Floatation Devices - 2 Adult Large, 2 Adult X-Large	4
Throw Bag with Water Rescue Rope	2
Evolution Thermal Imaging Camera w/ Charging Base, MSA	1
Altaire 4-Gas Meter w/ Charging Base, MSA Brand	1
Vulcan Handlights w/ Chargers, Streamlight	4
Toughbook, Panasonic CF31	1
MDT Docking Station w/ Power Supply, Havis	1
APX Mobile Radio, Motorola	1

CITY OF PITTSBURGH MBE / WBE / VETERAN OWNED SOLICITATION AND COMMITMENT FORM

SPECIFICATION NO.	DATE:	IS YOUR OWN BUSINESS ANY OF THE FOLLOWING? <input type="checkbox"/> MINORITY OWNED <input type="checkbox"/> WOMAN OWNED <input type="checkbox"/> VETERAN OWNED (CHECK ALL THAT APPLY)
COMPANY NAME:		
ADDRESS:		
CITY, STATE AND ZIP CODE:		
FAX NUMBER AND E-MAIL ADDRESS		
FOR ASSISTANCE REGARDING MBE / WBE BUSINESSES, CALL THE EQUAL OPPORTUNITY REVIEW COMMISSION AT 412-255-8804. FOR ASSISTANCE REGARDING VETERAN OWNED BUSINESSES, CALL THE BUREAU OF PROCUREMENT, FLEET AND ASSET SERVICES AT 412-255-2485		FAILURE TO COMPLETE FORM MAY BE SUFFICIENT CAUSE FOR BID REJECTION

PLEASE LIST ALL MBE / WBE / VETERAN OWNED BUSINESSES SOLICITED FOR PARTICIPATION

SOLICITATED COMPANY'S NAME AND ADDRESS	PHONE FAX NO E-MAIL	MBE OR WBE OR VETERAN (CHECK ALL THAT APPLY)	EST \$	EST \$
1.		<input type="checkbox"/>	EST \$ _____	<input type="checkbox"/> EST \$ _____
2.		<input type="checkbox"/>	EST \$ _____	<input type="checkbox"/> EST \$ _____
3.		<input type="checkbox"/>	EST \$ _____	<input type="checkbox"/> EST \$ _____
4.		<input type="checkbox"/>	EST \$ _____	<input type="checkbox"/> EST \$ _____

MBE / WBE / VETERAN HISTORY	CONTRACT NO.	DESCRIPTION	MBE USED	WBE USED	VETERAN OWNED USED

CITY OF PITTSBURGH MBE / WBE / VETERAN OWNED SOLICITATION AND COMMITMENT FORM – WAIVER REQUEST

COMPANY NAME:	
ADDRESS:	
CITY AND STATE:	
TELEPHONE, FAX NUMBER, E-MAIL ADDRESS:	

PLEASE EXPLAIN IN DETAIL WHY A WAIVER IS REQUESTED:

CITY OF PITTSBURGH MBE / WBE / VETERAN SOLICITATION AND COMMITMENT FORMS - TRADES				
NAME AND ADDRESS	PHONE	FAX	CIRCLE: MM MF NMF VETERAN	WORK PERFORMED: _____ EST. PAYMENT: _____ PAYMENT % OF CONTRACT: _____ DATE STARTED: _____
NAME AND ADDRESS	PHONE	FAX	CIRCLE: MM MF NMF VETERAN	WORK PERFORMED: _____ EST. PAYMENT: _____ PAYMENT % OF CONTRACT: _____ DATE STARTED: _____
NAME AND ADDRESS	PHONE	FAX	CIRCLE: MM MF NMF VETERAN	WORK PERFORMED: _____ EST. PAYMENT: _____ PAYMENT % OF CONTRACT: _____ DATE STARTED: _____
NAME AND ADDRESS	PHONE	FAX	CIRCLE: MM MF NMF VETERAN	WORK PERFORMED: _____ EST. PAYMENT: _____ PAYMENT % OF CONTRACT: _____ DATE STARTED: _____

I HEREBY ATTEST THAT ALL THE ABOVE FORMS HAVE BEEN FILLED OUT TO THE BEST OF MY KNOWLEDGE AND I ACKNOWLEDGE THAT THE DOCUMENTS SUBMITTED ARE THE MBE / WBE / VETERAN PARTICIPATION PLAN AS REQUIRED BY THE CITY OF PITTSBURGH.
(TYPE NAME AND SS NO.):

SIGNED: _____ DATE: _____

**CITY OF PITTSBURGH
EQUIPMENT LEASING AUTHORITY
No Bid Questionnaire**

COMPANY NAME:						
ADDRESS:						
CITY:		STATE:		ZIP CODE:		
PHONE #:		FAX#:		E-MAIL ADDRESS:		
Please circle the appropriate response						
1) My company can not bid on this proposal due to the following reason(s):						
A. Can not supply commodity/services as specified.		Yes	<input type="checkbox"/>	<i>No</i>	<input type="checkbox"/>	
B. Can not hold prices firm for the specified period.		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
C. Other (please state)		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
2) My company chooses not bid due to the following reason(s):						
A. Not enough time to submit a bid		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
B. The City does not pay in a timely manner.		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
C. The bid process is too confusing		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
D. Other (please state)		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	
3) Please eliminate my company from this proposal mailing list			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
4) Please list any other comments you may have						

Signature: _____ Title _____ Date _____

ELA Questionnaire