Health and Public Safety Committee of the Common Council
June 25, 2020 at 7:00 PM
Meeting Agenda
Via Teleconference

To allow public access, anyone may access a meeting by telephone, Zoom, and/or the City of Norwalk YouTube channel. Specific instructions and links can be found at www.norwalkct.org/meetings.

Members of the public can call in and listen to a meeting. They will not be able to speak or see any of the meeting participants. Each meeting will use a unique Meeting/Webinar ID. Please find the information using the link above.

Members of the public who wish to provide "live comments" will need to register in advance and use the Zoom meeting platform. All participants will be muted upon entering the meeting. To speak, click the “raise your hand indicator” and you will called on by the host of the meeting during the public comment section. Please find the information using the link above.

Members of the public who wish to view the meeting, but are not participating, can view a live stream on the City of Norwalk YouTube channel. This stream is delayed by approximately 20 seconds. Please find the information using the link above. The meeting recording and minutes will be posted on the City of Norwalk website within seven (7) days after the meeting.

Members of the public who wish to provide public comment are encouraged to submit those via email in advance of the meeting. For these comments to be read into the record, they should be submitted at least three hours in advance of the meeting start time. Please email Deanna D’Amore at ddamore@norwalkct.org to provide written public comment prior to the meeting.

Agenda

I. Welcome and Roll Call

II. Approval of the May 28, 2020 Meeting Minutes

III. Public Participation

IV. New Business

Action Items

Fire Department

1. Authorize the Mayor, Harry W. Rilling, to execute an agreement on behalf of the Fire Department to Seagrave Fire Apparatus LLC for the purchase of a 100 foot ladder truck. Not to exceed $1,350,000. Account number 0920310 5777 C0437

Police Department

2a. Authorize the Mayor, Harry W. Rilling, to execute an agreement with Motorola Solutions, Inc. for the supply, installation, and service of radio system dispatch console equipment for the Police and Fire radio system, pricing as per State of Connecticut Master Contract #A-99-001 and # 967-A-23-0338C, for an amount not to exceed $895,184; from Account # 09203620 5777 C0638 and remainder from Account #01013071 5262.

2b. Authorize Chief Thomas Kulhawik to execute change order(s) to the above agreement for the amount not to exceed $32,743. Account #09203620 5777 C0638 and 01013071 5262.

V. Old Business

a. COVID-19 Updates

To allow public access, anyone may access a meeting by telephone, Zoom, and/or the City of Norwalk YouTube channel. Specific instructions and links can be found at : norwalkct.org/meetings

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HEALTH AND PUBLIC SAFETY COMMITTEE OF THE COMMON COUNCIL
MAY 28, 2020 AT 7:00PM.
VIA TELECONFERENCE

ATTENDANCE: Nick Sacchinelli, Chairman; Dominique Johnson; Thomas Keegan; Lisa Shanahan; George Tsiranides; Manny Langella; David Heuvelman

STAFF: Deanna D’Amore, Director of Health; Chief Thomas Kulhawik, Norwalk Police Department; Chief Gino Gatto, Norwalk Fire Department; Asst. Chief Chris King, Norwalk Fire Department; Michelle Deluca, Deputy

Director, Emergency Management; Nick Roberts, Director of Recreation and Parks

I. WELCOME

Mr. Sacchinelli called the meeting to order at 7:00PM

II. APPROVAL OF THE FEBRUARY 27, 2020 MEETING MINUTES

**** MS. SHANNAHAN MOVED TO APPROVE THE MINUTES AS SUBMITTED.**
**** THE MOTION PASSED UNANIMOUSLY.**

III. PUBLIC PARTICIPATION

There was no public participation this evening.

IV. NEW BUSINESS

a. City of Norwalk Reopen Plan

Ms. D'Amore said that Mayor Rilling has a reopening plan that has several different phases and they coincide with the Governors reopening plan and his phases. Our reopening of phase I started on May 20, 2020, and a big component of that plan is related to Recreation and Parks.

Mr. Roberts said he is happy to report with the exception of Cranbury Park the rest of the park system remained open to residents for passive activities from the very beginning of the outbreak. Considering the importance of physical and more importantly the mental wellness during these times he thinks it was the right decision to make and it was positive for residents to be able to get out and have a place to go and find some peace. He said they are continuing to restrict the use of certain amenities which will increase issues and concerns with regard to social distancing and protocols. That conservative approach is in the city's reopening plan which is available online and emphasized this is a slow and phased reopening plan which was strategically put in place to limit all day visits and overcrowding at some of our facilities.

Mr. Roberts said that during phase I they have since reopened all of the facilities to both pedestrian and vehicular access including the beach and the boat ramps at Veterans Park with limited hours, the gardens at Fodor Farm, and Oak Hills Golf Course. He said that non-resident parking at the beach has been restricted and they have also reduced the capacity of the overall parking lots at a lot of the facilities during this first phase. He said that bathrooms, playgrounds, picnic tables and athletic fields etc. are still restricted in these phases as many of

these amenities are high touch and high usage areas and we want to reduce the places where people are congregating. All concerts, events and programs and reservations have been postponed indefinitely to ensure compliance with the Governors executive order that limits gathering to no more than five people. There have been some residents that have been complaining because we have reopened and they expect everything to be back at its normal condition and it's not so. This is a slow approach and we will eventually get there but we are trying to put measures in place to safely do that.

Mr. Roberts said Phase II which potentially will go into effect on or around June 20, 2020, the following restrictions will be lifted: lifeguards will be on duty on the weekends at the beach; parking capacity will increase to 75% in some areas but does not include the beach at this time; athletic courts and fields will be reopened to individual sports and activities. We did not want to open certain things because it makes it hard for us to do enforcement and did not want to overcomplicate things so are holding off opening all athletic courts and fields until later in the reopening plan. Summer camps are still to be determined but should have an answer with another week or so.

Mr. Roberts said phase III includes a majority of system being open and as we enter phases three and four we will get back up to the normal operating level. Mr. Roberts said they have also added measures to protect staff and the workforce and have not had a staff member become ill during the duration of this event. He said the biggest part of this plan is having communication with the public and with staff and enforcement is key. He said it has been a group effort to get everything in place and everything has worked well so far.

Ms. Johnson said that she saw during the Mayors briefing that there have been some issues with folks taking the tape down on the playgrounds and asked if there is anything the committee to do as far as information to share with residents. Mr. Roberts said just to continue to push the messaging out that those amenities are closed and that there is a reason why they are closed, and to remind people that although those things are currently off limits in a couple of weeks will slowly open as we continue progress through the reopening plan.

Mr. Heuvelman asked if the opening of summer camps hinge on the decision of the public schools or is it possible that some of the camps will be able to open. Mr. Roberts said since the parks programs operate in the school space we want to be consistent in our approach as a city.

The committee members thanked Mr. Roberts for all the work he and his team have done.

Ms. D'Amore said that city hall will remain closed to the public until phase three and will be open by appointment only and are still encouraging remote work and staggered shifts.

b. COVID-19- Updates

Ms. D'Amore said that they continue to monitor the cases and report the positive cases as well as the deaths. The latest number is 1997 positive cases and there were 10 more cases reported today than yesterday, and 130 residents who have passed away. She said they continue to look at the data and do see the cases now trending down but will be following it closely especially since we are staring the reopening process.

Ms. D'Amore highlighted on the work that staff has been doing and said she first wanted to begin with the Emergency Response Team and said they are incredible people who volunteer their time and are an incredible resource for our community. She said they have been working with Glenn

Iannaccone who is our Emergency Preparedness Coordinator and Donna Schlegel who is our volunteer coordinator as well as Lamond Daniels, the Chief of Community Service. They have been supporting a range of needs is the community during this crisis.

Ms. D'Amore said another big piece of this has been related to enforcement and the Governor has created a public health facility designation so Health Directors have the authority to enforce the rules related to any of the public health facilities, so the sanitarians have been working very closely with Planning and Zoning and Economic and Community Development and others as they have been reviewing all of the applications for outdoor dining and also going out and inspecting and helping them through this whole process. She said the public school nurses have also been an incredible resource and dedicating their skills and knowledge to help us.

Ms. D'Amore said a big thing for us moving forward is thinking about vaccination and although we don't have a vaccine yet we are planning for it, but the big thing they are planning for now is the flu vaccination and are planning for a drive though model.

II. Emergency Management

Ms. Deluca said they are still having regular EOC calls as well as strategic meetings on Thursdays with a lot of the health providers. She said they EOC calls have been on a weekly basis for March and April but that for May and June will do the call every other week and focus more on the reentry and recovery mode. She said the big part for the past several weeks has been providing the PPE to our nonprofit partners so that they can continue to do the work that they are doing in the community, and the State of Connecticut has launched a small business program for PPE and last week approximately 700 small businesses and sites that requested PPE, but this week has dropped down to approximately 200 and she expects it to continue over the next few weeks. She said another big piece is the long term recovery committee and the Governor has been focusing on the long term recovery in each of the five planning regions. She said she has set up a steering committee and she will also set up some working groups and will hopefully continue through the next few months if not longer, and will look at some of the resources and what additional assistance we can provide both to the residents and the businesses that have been impacted.

Ms. DeLuca said the Hurricane season begins June 1, 2020, and will begin to look at what the impact of Covid-19 will have on some of the shelter operations.

Mr. Sacchinelli thanked Ms. DeLuca on behalf of the committee for all that she has been doing.

III. Fire

Chief Gatto said that Ms. DeLuca has been doing a tremendous job. He said from the very beginning the Fire Department has been proactive and started to acquire as much PPE as they could and Asst. Chief King has been doing a great job in obtaining PPE. He said they had modified their operations plan completely for Covid-19 and the Fire Department has only had one positive case of Covid-19.

IV. Police

Chief Kulhawik provided an overview and said they have basically been following on best practices which have been changing almost daily, and as they have been changing their approach both with the officers and also combined dispatch. He said that Norwalk EMS has done a tremendous job and have taken the brunt of the Covid-19 calls and have protected the officers and the firefighters from being exposed unnecessarily and have been great to work with. As a result of the pandemic the call rate had dropped dramatically over the past two months and similar to the Fire Department Covid-19 had little effect on their staff, and most of the civilian staff has worked remotely. He said at the last Common Council meeting a federal grant was approved that was obtained for police which is paying for most of the things that had to be put in place due to Covid-19, so there will not be a lot of expenses from the police department. The biggest issue they are now facing is the enforcement and some civilians don't know what the rules are and if you are outside of 6' you do not have to wear a mask but if you are inside 6' in public you do. The one thing that has concerned him is that the community relationships have been one of the focus points and he has been trying to impress on the officers and staff and he is afraid they are losing a lot of the community involvement and policing because the police are now only enforcing violations, because due to social distancing and other restrictions are not able to be out in the community like they used to be. He said the biggest thing that he took away from all of this is cooperation amount all of the department heads in the city and everyone has been willing to work together and that is what makes Norwalk very different then other municipalities.

Ms. Shannahan said the community officers have been making a very good impression with their community and she thanked him.

Mr. Sacchinelli thanked Chief Kulhawik for acknowledging the EMS teams and also thanked them on behalf of the committee.

Ms. Johnson said she has heard from a very small amount of the businesses that some people are going into stores refusing to abide by the stores decision to require them to wear masks and asked Chief Kulhawik what he would suggest small business owners do if they encounter that. Chief Kulhawik said although the Governors order is to wear a mask if someone feels that due to a medical issue that they should not be wearing a mask because it would be a negative impact on their medical condition then they don't have to and they do not have to prove that they have one. He said as a private e business they can make rules to limit to whomever they don't want to serve if they don't want to follow the protocols that have been put in place.

ADJOURNMENT

**** MS. SHANNAHAN MOVED TO ADJOURN**
**** THE MOTION PASSED UNANIMOUSLY**

The meeting adjourned at 7:50PM

Respectfully submitted,

Dilene Byrd
Telesco Secretarial Services

June 3, 2020

NORWALK PURCHASING DEPARTMENT RESPONSE SUMMARY –

PROJECT #4021 NORWALK FIRE DEPARTMENT – LADDER TRUCK

Thank you for your response to our Request for Bid Submissions. The following is a summary of the submitted bids for this project.

	Firm	Year	Manufacturer/Model	Total Cost
1.	New England Fire Equipment & Apparatus Corporation	2021	Spartan/LTC 100' TDA Aerial Ladder	$1,289,724.00
2.	Seagrave Fire Apparatus, LLC	2021	Marauder TDA with 100' Force Ladder Model #TT05CT	$1,346,244.00

CITY OF NORWALK
PURCHASING DEPARTMENT

SEALED BIDS MUST BE RECEIVED BY THE OFFICE OF THE PURCHASING AGENT, 125 EAST AVENUE NORWALK, CT 06856 BY THE DATE AND TIME OF BID OPENING

PROJECT NUMBER:	**4021**
REQUESTING DEPARTMENT:	**Fire Department**
DATE OF BID ISSUANCE:	**April 30, 2020**
TITLE OF BID:	**Norwalk Fire Department - Ladder Truck**
DATE OF BID OPENING:	**May 20, 2020**
MANDATORY WALKTHROUGH: **DATE, TIME AND LOCATION OF WALKTHROUGH**	**YES ( ) NO ( )** **N/A**
TIME OF BID OPENING:	**2:00 PM**
BID DEPOSIT REQUIRED: **IF YES, AMOUNT REQUIRED**	**YES (X) NO ( )** **10%**
SUCCESSFUL BIDDERS ONLY: **PERFORMANCE & PAYMENT BOND REQUIRED:** **IF YES, AMOUNT REQUIRED**	**YES (X) NO ( )** **100%**
SUCCESSFUL BIDDERS ONLY: **MAINTENANCE BOND REQUIRED:**	**YES (X) NO ( )**

ALL TERMS AND CONDITIONS, SPECIFICATIONS AND BID FORMS ARE ATTACHED HERETO.

NOTE: THE FOLLOWING DOCUMENTS WILL BE REQUIRED FOR A BID TO BE COMPLIANT

1. **BIDDER'S INFORMATION AND ACKNOWLEDGEMENT FORM**
2. **BID FORMS, INCLUDING PRICING SHEETS AND ADDENDA ACKNOWLEDGMENT FORMS (ONE ORIGINAL PLUS FIVE (5) COPIES)**
3. **EXCEPTIONS (IF ANY)**

CITY OF NORWALK
PURCHASING DEPARTMENT

NOTICE TO BIDDERS

1. **ALL BIDS WILL BE OPENED PROMPTLY AT THE ADVERTISED TIME OF OPENING. THERE WILL BE NO DELAYS OR POSTPONEMENTS WHICH ARE NOT PUBLICLY ADVERTISED. ANY BID RECEIVED AFTER THE ADVERTISED TIME OF OPENING WILL NOT BE ACCEPTED.**

2. **IF A BIDDER USES A COURIER SERVICE FOR BID DELIVERY, IT SHALL BE THE BIDDER'S RESPONSIBILITY THAT THE BID REACHES THE PURCHASING DEPARTMENT BY THE DATE AND TIME SPECIFIED HEREIN.**

3. **ALL BIDS SUBMITTED TO THE CITY MUST BE IN A CLEARLY MARKED AND SEALED ENVELOPE.**

4. **OBLIGATION OF BIDDERS:**

    a. **AT THE TIME OF OPENING BIDS, EACH BIDDER SHALL BE PRESUMED TO HAVE INSPECTED THE SITES AND TO HAVE MADE HIM/HERSELF THOROUGHLY FAMILIAR WITH THE PLANS AND CONTRACT DOCUMENTS, INCLUDING ALL ADDENDA. THE FAILURE OR OMISSION OF ANY BIDDER TO RECEIVE OR EXAMINE ANY FORM, INSTRUMENT OR DOCUMENT SHALL IN NO WAY RELIEVE ANY BIDDER FROM ANY OBLIGATION IN RESPECT TO THEIR BID.**

    b. **EACH BIDDER MUST FULLY INFORM HIM/HERSELF OF THE CONDITIONS RELATING TO THE WORK WHICH WILL BE PERFORMED. FAILURE TO DO SO WILL NOT RELIEVE THE SUCCESSFUL BIDDER OF HIS/HER OBLIGATION TO FURNISH ALL LABOR AND MATERIALS NECESSARY TO CARRY OUT THE PROVISIONS OF THE CONTRACT DOCUMENTS AND TO COMPLETE THE CONTEMPLATED WORK. IN AS MUCH AS POSSIBLE, THE CONTRACTOR MUST, IN CARRYING OUT HIS/HER WORK, EMPLOY SUCH MEANS AND METHODS AS WILL NOT CAUSE ANY INTERRUPTIONS OR INTERFERENCE WITH THE WORK OF ANY OTHER CONTRACTOR.**

5. **TIME IS OF THE ESSENCE (IF APPLICABLE):**

    a. **IF THE PROJECT IS NOT COMPLETED BY THE DATE SPECIFIED AS THE SUBSTANTIAL COMPLETION DATE IN THE CONTRACT ENTERED INTO BY THE CITY AND THE CONTRACTOR, THE CONTRACTOR WILL BE SUBJECT TO CONSEQUENTIAL AND/OR LIQUIDATED DAMAGES.**

CITY OF NORWALK
PURCHASING DEPARTMENT

GENERAL INFORMATION

1.1 INTRODUCTION

The City of Norwalk is requesting bids for a Ladder Truck for the Norwalk Fire Department on 90 New Canaan Ave., Norwalk, CT 06850. The requirements of this project are outlined in greater detail under Section 2 Scope of Work/Project Specifications.

1.2 BID DOCUMENTS

All Bid documents for this invitation are available over the internet at http://www.norwalkct.org. Adobe Acrobat reader is required to view this document. If you do not have this software you may download it for free from Adobe.

1.3 ADDENDA

All addenda, if issued will be available over the internet at http://www.norwalkct.org. We strongly suggest that you check for any addenda a minimum of forty-eight hours in advance of the bid deadline. It is the responsibility of the bidder to check for issuance of any addenda.

1.4 BIDDER'S LIST

Bidder's list for this solicitation will not be published.

1.5 QUESTIONS CONCERNING THIS BID

All questions concerning this solicitation must be directed, via e-mail, to Carleen Megaro, Buyer at cmegaro@norwalkct.org. The deadline for the submission of questions is 2:00 pm May 13, 2020.

1.6 SUBMISSION OF BID

All sealed Bids should be submitted to the City of Norwalk's Purchasing Department no later than May 20, 2020 at 2:00 pm at the address listed below:

City of Norwalk Purchasing Department
125 East Avenue, Room 202
Norwalk, CT 06856-5125

1.7 SUMMARIES

A list of the proposing firms will be available any time after 5:00 pm on the day of the opening at http://www.norwalkct.org. Results will not be provided over the phone.

CITY OF NORWALK
PURCHASING DEPARTMENT

SPECIAL NOTES:

1.) Pricing should be valid for 120 days.
2.) Copies of current certifications as applicable to this solicitation.
3.) Bids shall only be considered from single source apparatus manufacturers. A single source manufacturer shall be defined as a manufacturer who designs, engineers and manufactures the entire apparatus in the factory of the bidder. The use of commonly incorporated components such as the diesel engine, the transmission, the pump, lighting fixtures, etc. is acceptable. However, calling the cab/chassis/drivetrain or the outriggers/torque box/aerial device a "component" shall not be acceptable. Single source warranty and service provision from one manufacturer is mandatory to insure parts availability and undivided warranty responsibility. The purchaser shall be the sole judge in determining if a bidder meets the purchaser's definition of "single source manufacturer". There shall be no exceptions to these conditions.
4.) All bidders shall submit only one (1) bid, which meets or exceeds the specifications. Bids on alternate, stock or demonstrator units are <u>not</u> being solicited. Any such bids shall be considered non-responsive and shall not be considered. <u>Total exception to the bid specifications will be cause for immediate rejection.</u> There shall be no exceptions to these conditions.
5.) Bids shall only be considered from companies which have an established reputation in the field of fire apparatus construction and have been building fire apparatus for a minimum of 30 years. Bids shall only be considered from manufacturers who are full time fire apparatus manufacturers and who are current members of the Fire Apparatus Manufacturers Association (FAMA). Each bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified and shall state the location of the factory where the apparatus is to be manufactured. Each bidder shall also show that they are in a position to render prompt service and to furnish replacement parts for said apparatus.
6.) The total price on the bidder's proposal sheet must include all items in the purchaser's specifications. Listing any requirement contained in the specifications as an option at additional cost shall automatically be cause for bid rejection.
7.) The purchaser reserves the right to reject any or all proposals, or to accept such proposal that, in the purchaser's sole opinion, is in the best interest of the purchaser. The purchaser does not, in any way, obligate itself to accept the lowest bid. The selection of the successful bidder will be based on a combination of factors which, in the purchaser's sole opinion, will best serve the purchaser's interest in obtaining the desired service levels. Factors that will be considered, but shall not be limited to, are: - Experience - Capability - Prices - Past performance - References - Responsiveness to the bid document - Delivery time - Quality of item(s) bid - Warranty Coverages - Service ability and location.
8.) All NFPA required documentation and certifications shall be supplied with the apparatus at the time of delivery.

9.) **Submission:** As of 03/16/2020, the Norwalk City Hall is closed to the public. Please use a courier service to deliver the submission to the above address by the due date and time. Also, please upload an electronic copy to Bonfire by the due date and time. Thank you for your consideration and we apologize for the inconvenience.

10.) **Public Opening:** Per the City of Norwalk Purchasing Guidelines (https://www.norwalkct.org/DocumentCenter/View/334/City-Procurement-Guidelines?bidId=). Bids shall be opened publicly by the Purchasing Agent or his designee, in the presence of one or more witnesses at the time and place designated in the Invitation for Bids. The amount of each bid, and such other relevant information as may be specified by the bid, together with the name of each bidder shall be recorded; the record and each bid shall be open to public inspection. Due to Norwalk City Hall being closed to the public as of 03/16/2020 and you wish to hear the bid/RFP opening, please join us through a teleconference.

Access Number: (866) 640-4044 or (678) 302-3554

Participant Code: 968 704

The City of Norwalk is an Affirmative Action/Equal Opportunity Employer; Minority/Women's Business Enterprises are encouraged to apply

CITY OF NORWALK
PURCHASING DEPARTMENT

SECTION 1 – FORMS OF PROPOSAL

CITY OF NORWALK
PURCHASING DEPARTMENT

BIDDER'S INFORMATION AND ACKNOWLEDGMENT FORM

Bidder's Name

Street Address

City	State	Zip

Business Telephone:

Email Address:

Printed Name and Title of Individual Submitting Bid

The undersigned acknowledges that the terms, conditions and specifications of this bid are understood and unconditionally accepted.	
Signature	Date

Exceptions: Note any vendor(s) responding to this proposal shall indicate any/all exceptions (if any) taken to language in this proposal. Exceptions must be declared below in order to be considered by the City:

CITY OF NORWALK
PURCHASING DEPARTMENT

1.1 RESPONSE FORM – BID #4021 Norwalk Fire Department - Ladder Truck

Vendor Name -		
Address -		
Phone -	**Fax -**	**Email -**
Manager -		**Fed ID#**

The undersigned hereby declares that he has or they have carefully examined the plans, specifications and project site and has satisfied himself as to all the quantities and conditions, and understands that in signing this proposal he waives all right to plead any misunderstanding regarding the same.

The undersigned further understands and agrees that he will furnish and provide all the necessary material, machinery, implements, tools, labor, services, and other items of whatever nature, and to do and perform all the work necessary under the aforesaid conditions, to carry out the contract and to accept in full compensation therefore the amount of the contract as agreed to by the Contractor and the City.

The undersigned further agrees, in case of variations of quantities from those shown or specified, the following unit prices will be used in adjusting the contract price. If quantities are authorized by the City, the following amount will be added to the contract as required. Unless otherwise noted, each UNIT PRICE shall include all equipment, tools, labor, permits, fees, etc., incidental to the installation and completion of the work involved.

It is further understood and agreed that all the information included in, and attached to, or required by the Request for Bid shall become public record upon delivery to the City.

Qty	Year	Manufacturer/Model	Total Cost
1			

*Shipping & delivery cost to be included in Total Cost above

Delivery – _____calendar days after receipt of contract

Warranty: Parts _____months, Labor-_____months, (attach statement detailing coverage for parts and labor (Note Section 3.22))

CITY OF NORWALK
PURCHASING DEPARTMENT

PROJECT:	**4021 Norwalk Fire Department - Ladder Truck**
VENDOR NAME:	

Bid Security in the form of a (check one) is attached.		Bond		Certified Check	
Cost for performance bond <u>included in lump sum</u>	$		per thousand dollars		
Insurance Agency Name -			Tel.-		
Agency Address -					

Submitted by:

Print Name of Authorized Agent of Company	
Signature of Authorized Agent of Company	
Date	

The above signatory acknowledges receipt of the following addenda issued during the bidding period and understands that they are a part of the bidding documents (if applicable):

Addendum #		Dated		Addendum #		Dated	
Addendum #		Dated		Addendum #		Dated	
Addendum #		Dated		Addendum #		Dated	

CITY OF NORWALK
PURCHASING DEPARTMENT

1.2 STATEMENT OF BIDDERS QUALIFICATIONS

Please answer the following questions regarding your company's past performance. Attach a financial statement or other supportive documentation. Failure to reply to this instruction may be regarded as justification for rejecting a bid.

1.	**Number of years in business:**		
2.	**Number of personnel employed:**	**Part Time**	**Full Time**

3. List projects of this type/size your firm has completed within the last three (3) years:

Project	Date	Contact Person	Phone No.

4. SUBCONTRACTORS: If subcontractors are to be used, please list firm name, address, name of principal, and phone number below or on a separate sheet. Also, indicate the portion or section of work a subcontractor will be performing.

COMPANY NAME	ADDRESS	PRINCIPAL	PHONE	PORTION/SECTION OF WORK

CITY OF NORWALK
PURCHASING DEPARTMENT

5. ORGANIZATIONAL STRUCTURE OF BIDDER (check which applies)		general partnership
		limited partnership
		limited liability corporation
		limited liability partnership,
		corporation doing business under a trade name
		individual doing business under a trade name
		other (specify)

6. STATUS OF THE BUSINESS AND ITS CURRENT STANDING WITH THE SECRETARY OF STATE'S OFFICE; e.g., are all required filings current and in good standing or has the entity been withdrawn or canceled	<u>Connecticut corporations</u> - Will the Secretary of State be able to issue a Certificate of Good Standing within 30 days of the bid opening?	Yes	No
	<u>Out-of-State corporations</u> - Do you have a valid license to do business in the State of Connecticut? (Evidence in the form of a Certificate of Authority from the Connecticut Secretary of State will be required within 30 days of the bid opening.)	Yes	No

7. CT LICENSE/REGISTRATION NUMBER	

8. Is your local organization an affiliate of a parent company? If so, indicate the principal place of business of your company and the name of the agent for service if different from what has been indicated on the response form:

Business Name					
Address					
City		State		Zip	
Name of Agent					

NOTE: In the case of a Limited Liability Corporation or a Limited Liability Partnership a certified copy of the Articles of Organization certified as valid and in effect as of the date of the bid opening will be required within 30 days of the bid opening.

A listing of the corporate officers, in the case of a corporation; the general or managing partners, in the case of a partnership; or the managers and members in the case of either a limited liability partnership or company will be required within 30 days of the bid opening.

9. The awarded contractor may be required to submit one copy of the following information relative to its company's financial statements prior to contract signing. This information must represent the current circumstance which surrounds the financial position of the bidding organization. Note: This information will be kept confidential if provided in a separate envelop from your bid pricing.

All information should be supported with appropriate audited financials.

a. Book Value (Total Assets (-) Total Liabilities)

b. Working Capital (Current Assets (-) Current Liabilities

c. Current Ratio (Current Assets/Current Liabilities)

d. Debt to Equity Ratio (Long Term Debt/Shareholder's Equity)

e. Return on Assets (Net Income/Total Assets)

f. Return on Equity (Net Income/Shareholder's Equity)

g. Return on Invested Capital (Net Income/Long Term Debt = Shareholders' Equity)

10. a.) Location of Manufacturer of the Ladder truck:

Firm's Name: _____

Address: _____

City/State/Zip _____

b.) Location of service center-

_____

c.) Size of service center (sq. ft.) - _____

d.) Dollar value of parts relating to this bid in inventory $ _____

e.) Number of full time mechanics employed qualified to handle this equipment:

_____

Attach any additional information that demonstrates your qualification for this work including appropriate certifications.

All responses to this questionnaire are understood to be proprietary to the vendor, and will be considered confidential. Additional information may be requested subsequent to your responding to this bid request.

1.3 CITY OF NORWALK VENDOR RECORDS

If you have not done business with the City of Norwalk as a vendor, your business information needs updating or your vendor record has not been updated over three (3) years. Please complete and include the latest Internal Revenue Service (IRS) W-9 Form with your submission. Here is the URL to the IRS website: https://www.irs.gov/forms-pubs/about-form-w-9

END OF SECTION

1.4 SAMPLE CONTRACT

The following document is the City's standard Independent Contractor contract. Please be advised that the substantive terms and requirements outlined therein may be revised only with the approval of Norwalk's Corporation Counsel. Additionally, the terms of the final contract may vary at the City's option and, this sample agreement has been included to provide you with the general contract terms and conditions typically utilized by the City in the hiring of an independent contractor for consultant services

AGREEMENT WITH INDEPENDENT CONTRACTOR
BY AND BETWEEN
CITY OF NORWALK
AND
«VendorName»
FOR «Project»

THIS AGREEMENT made and entered into this _____ day of _____, 2019, by and between the **CITY OF NORWALK**, a municipal corporation organized and existing under the laws of the State of Connecticut (the "City"), acting herein by «ContractAuthorizer», its «ContractAuthorizerTitle», and **«VendorName»,** a corporation authorized and licensed to do business in the State of «LicenseState», having a principal place of business at «VendorAddress1», «VendorAddress2», «VendorCity», «VendorState» «VendorZip», acting herein by «VendorAuthorizer», its «VendorAuthorizerTitle», duly authorized (the "Contractor").

W I T N E S S E T H:

WHEREAS, the City is in need of «Notes» (the "Project"); and

WHEREAS, the City desires to retain the services of the Contractor based on the Contractor's representations that it is qualified and capable of performing the needed services in a professional and timely manner and in accordance with the goals and requirements of the Project;

WHEREAS, Contractor has agreed to perform the services described herein for the compensation and in compliance with the terms and conditions set forth in this Agreement;

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the parties agree as follows:

1. **ENGAGEMENT OF CONTRACTOR**

A. Based on the representations of the Contractor set out in its proposal dated

«ProposedDate», a copy of which is annexed hereto and incorporated herein as **Exhibit 3**, the City hereby retains the Contractor to perform the services described herein in accordance with the terms and conditions and for the consideration set out in this Agreement.

B. The person in charge of administering this Agreement on behalf of the City shall be «DepartmentHead», Department of «Department», or such other person as may be designated in writing.

C. The person responsible for the services to be performed by the Contractor hereunder shall be «VendorAuthorizer», «VendorAuthorizerTitle».

2. SERVICES TO BE PERFORMED

A. The scope and details of the Services to be performed by the Contractor and the specifications to which such Services should conform are described in the City's Bid Invitation dated _____, annexed hereto and incorporated herein as **Exhibit 1**, Addendum No. 1 dated _____, annexed hereto and incorporated herein as **Exhibit 2**. The Contractor shall perform such Services as may be required by the Director in a professional and timely manner in accordance with the terms and requirements of this Agreement, in order to meet the City's needs. Services will be requested on an as needed basis with no minimum or maximum scope.

B. The parties understand that Contractor is retained on an on-call, as needed basis, solely for the purposes of performing the Services described herein. The Contractor's relationship to the City and its agencies shall, during the period(s) of this Agreement, be that of an independent contractor. The Contractor shall not be considered, under the provisions of this Agreement or for any purposes hereunder, as having an "employee" status or as being entitled to participate in any benefits accrued by or given to City employees.

C. In performing the Services and otherwise meeting its duties and obligations hereunder, Contractor shall ensure that its employees and subcontractors observe high standards of professional and business ethics observed by like professionals in the same or similar business, including, but not limited to, following the requirements, rules and regulations of the City, acting with integrity, and creating a workplace atmosphere free of discrimination and harassment.

D. The City may, from time to time, request changes in the Services to be performed hereunder. Such changes, including any increase or decrease in the amount of the Contractor's compensation, which are mutually agreed upon by and between the City and the Contractor, shall be valid only when incorporated in written amendments signed by both parties to this Agreement.

3. COMPENSATION

A. The Contractor shall be compensated for its performance of this Agreement, a maximum amount not to exceed the sum of **«ContractBudgetInEnglish»($«ContractBudget»)** payable in accordance with the terms of the Contractor's bid.

B. The compensation provided under this Agreement constitutes full and complete payment for all costs and expenses assumed by the Contractor in performing this Agreement including but not limited to labor, materials, product, tools and machinery, salaries, meetings, and all similar expenses. No costs in excess of this stated amount shall be paid or reimbursed by the City without specific prior written approval of the Director.

C. Payments to the Contractor under this Agreement shall be made by the City on approval of payment requisitions certified by the Contractor and submitted not more often than once a week. Each requisition shall be in a form acceptable to the City and shall set forth the hours of work performed and the tasks completed. The City may, prior to making any payment under this Agreement, require the Contractor to submit to it such additional information and/or documentation as it may deem necessary.

D. The acceptance by the Contractor, its successors or assigns, of any payment made on the final requisition under this Agreement, or of any final payment due on termination of this Agreement, shall constitute a full and complete release of the City from any and all claims, demands and causes of action whatsoever which the Contractor, its successors or assigns have or may have against the City under the provisions of this Agreement.

4. **TIME PROVISIONS**

A. The term of this Agreement shall commence effective _____ and conclude on _____. The Contractor shall perform its Services throughout this period.

B. This Agreement shall remain in effect until the services required hereunder are fully completed to the satisfaction of the City, unless otherwise terminated by the parties hereto.

5**.** **TERMINATION AND SUSPENSION**

A. The City may at any time and for any reason, with or without cause, terminate this Agreement by written notice specifying the termination date, which shall be not less than fifteen (15) days from the date such notice is given. In the event of such termination, the Contractor's Services shall be paid for in such amount as shall compensate the Contractor for the Services satisfactorily completed prior to termination. Such amount shall be fixed by the City after consultation with the Contractor, and shall be subject to audit by the City's Comptroller. Termination under this section shall not give rise to any claim against the City for damages or for compensation in addition to that provided hereunder.

B. The Contractor may at any time and for any reason terminate this Agreement by written notice specifying the termination date, which shall be not less than thirty (30) days from the date such notice is given.

6. INSURANCE AND INDEMNIFICATION

The Contractor agrees to obtain at its own cost and expense all insurance required by the attached Insurance Rider and to keep the same in continuous effect for a period of two (2) years following the date on which the Director indicates the termination of the Contractor's responsibilities hereunder. Before commencing performance of its Services hereunder, the Contractor shall furnish the City's Corporation Counsel a certificate of insurance, and shall thereafter provide renewal certificates, as appropriate, evidencing such coverage written by a company or companies acceptable to the City. Each insurance certificate shall be endorsed to name the City of Norwalk as an additional insured party and shall provide that the insurance company providing coverage shall notify the City by certified mail at least thirty (30) days prior to the effective termination of or any change in the policy or policies coverage. No change in the coverage provided hereunder shall be made without the prior written approval of the Director.

The Contractor shall indemnify, defend and save harmless the City, its officers, agents and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgments, losses, costs or damages, including attorneys' fees, on account of any injury or damage to or destruction of property, or any loss, cost, expense or other aggrievement, which is due, related to or in any way connected with the negligent, willful or wanton performance of this Agreement by the Contractor, its employees, representatives, agents, or subcontractors. This provision shall include all losses, costs, and damages which the City may suffer as a result of a defect in any plan, drawing, design, or specification prepared, acquired, or used by the Contractor, or as a result of any negligent supervision of its services by the Contractor. The Contractor shall and does hereby assume and agree to pay for the defense of all such claims, demands, suits, and proceedings. The provisions of this section shall survive the expiration or early termination of this Agreement; shall be separate and independent of any term or requirement hereof; and shall not be limited by reason of any insurance coverage.

7. GENERAL PROVISIONS

A. By this Agreement the City intends to secure the professional services of qualified, experienced employees of the Contractor. Failure of the Contractor for any reason to make a sufficient number of such employees available to the City to the extent necessary to perform the services required in a skillful, professional and prompt manner shall be cause for termination of this Agreement.

B. This Agreement, being intended to secure the Services of the Contractor, shall not be assigned, delegated, transferred or subcontracted in any manner or to any extent without the prior consent of the City in writing.

C. When the City shall have reasonable grounds for believing that:

(1) The Contractor will be unable to perform this Agreement fully, professionally, and satisfactorily within the time fixed for performance or in accordance with the terms and requirements set forth herein; or

(2) A meritorious claim exists or will exist against the Contractor or the City arising out of the negligent, willful or wanton acts, errors or omissions of the Contractor, its agents, servants or employees, or the Contractor's breach of any provision of this Agreement; then the City may withhold payment of any amount otherwise due and payable to the Contractor hereunder. Any amount so withheld may be retained by the City for such period as it may deem advisable to protect the City against any loss, expense or damage and may, after written notice to the Contractor, be applied in satisfaction of any claim herein described. This provision is intended solely for the benefit of the City, and no person shall have any right or claim against the City by reason of the City's failure or refusal to withhold monies. No interest shall be payable by the City on any amounts withheld under this provision. This provision is not intended to limit or in any way prejudice any other right of the City.

D. The Contractor shall not assert any claim arising out of any act or omission by any agent, officer or employee of the City in the execution or performance of this Agreement against any such agent, officer or employee. Such claims may be made against the City.

E. No member of the governing body of the City, and no other officer, employee, or agent of the City shall have any personal interest, direct or indirect, in this Agreement, except as permitted by the Code of Ethics of the City of Norwalk; and the Contractor covenants that no person having such interest shall be employed in the performance of this Agreement. The Contractor further covenants that he has no prior personal or business relationship with the City's architect, general contractor, or their consultants, subcontractors, agents, or employees.

F. The Contractor shall indemnify, defend and save harmless the City, its officers, agents, servants and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgments, losses, costs or damages, including attorneys' fees, which are claimed to be due in any way to the actions or omissions of the Contractor, its agents, servants, representatives or employees arising out of the services to be performed under this Agreement. This provision shall include all losses, costs, and damages which the City may suffer as a result of any negligent, willful or wanton action or omission by the Contractor or anyone in its employ or under its control, including any agent, employee or representative. The Contractor hereby assumes and agrees to pay for the defense of all such claims, damages, demands, suits and proceedings. The provisions of this paragraph shall survive the expiration or early termination of this Agreement, shall be separate and independent of any other requirement hereof, and shall not be limited by reason of any insurance coverage provided.

G. This Agreement shall be construed in accordance with the laws of the State of Connecticut, and any action or suit at law in connection herewith shall be brought in the Superior Court of the State of Connecticut, Judicial District Stamford/Norwalk.

H. The Contractor shall comply with all applicable laws, ordinances and codes of any governmental body having jurisdiction over any matter related to this Agreement or the services to be performed hereunder, and shall commit no trespass on any private property in performing any of the work embraced by this Agreement.

I. During the performance of this Agreement, the Contractor agrees not to discriminate nor to permit any discrimination against any employee or applicant for employment because of race, color, religion, age, sex, gender identity or expression, marital status, national origin, sexual orientation, ancestry, present or past history of mental disability, intellectual disability, learning disability, physical disability including, but not limited to blindness, unless it is proven that the disability or characteristic prevents proper performance of the work involved.

J. This Agreement incorporates all the understandings of the parties hereto and supersedes any and all agreements reached by the parties prior to the execution of this Agreement, whether oral or written.

K. The City and the Contractor each binds itself and its successors and assigns to the other party and to its successors and assigns with respect to all covenants of this Agreement. The Contractor shall transfer any interest in this Agreement without the prior written approval of the City.

L. The products of the services performed under this Agreement shall become and remain the property of the City. This shall include all partially completed services in the event that the Agreement is terminated before completion of its term for any reason.

M. If any provision of this Agreement is held invalid, the balance of the provisions shall not be affected thereby if such provisions would then continue to conform to the requirements of applicable laws. The remaining provisions shall thereupon continue in full force and effect.

N. All notices of any nature referred to in this Agreement shall be in writing and sent by registered or certified mail, postage prepaid, to the respective addresses set forth below or to such other addresses as the respective parties hereto may designate in writing:

To the City: «DepartmentHead», «DepartmentHeadTitle»
Department of «Department»
City of Norwalk
P.O. Box 5125
Norwalk, CT 06856-5125

With a Copy to: Corporation Counsel
City of Norwalk
P.O. Box 5125
Norwalk, Connecticut 06856-5125

To the Contractor: «VendorAuthorizer», «VendorAuthorizerTitle»
«VendorName»
«VendorAddress1»
«VendorAddress2»
«VendorCity», «VendorState» «VendorZip»

Notices shall be deemed to have been duly given, delivered or served either upon personal delivery or three (3) days following the date when they are sent by registered mail with proper postage.

O. No change or modification of this Agreement shall be valid unless it is in writing and executed by all parties to this Agreement.

P. The Contractor represents to the City as follows:

(i) That the Contractor is a legally existing corporation under the laws of its respective states of incorporation and has not previously filed, nor is presently contemplating filing, nor has received notice of a petition of, nor contemplates receiving notice of a petition of, bankruptcy, liquidation, receivership or any other action for the protection of creditors or debtors;

(ii) that the Contractor has the financial resources to perform this Contract and that it is not the subject of any litigation or action, pending or threatened, regarding this Contract or which, if resulting in an adverse decision, would affect its ability to perform its duties under this Contract;

(iii) that it has, and has exercised, the required corporate power and authority and has complied with all applicable legal requirements necessary to adopt, execute and deliver this Contract and to assume the responsibilities and obligations created hereunder; and

(iv) that this Agreement is duly executed and delivered by an authorized corporate officer, in accordance with such officer's powers to bind the Contractor hereunder, and constitutes a valid and binding obligation enforceable in accordance with its terms, conditions and provisions.

Dated at Norwalk, Connecticut, the day and year first above written, and executed in two (2) counterparts.

Signed, Sealed and Delivered

in the Presence of:

Witnesses' signatures:

_____
Name:

_____
Name:

CITY OF NORWALK

By:_____
«ContractAuthorizer»
Its «ContractAuthorizerTitle»
Duly Authorized

Date signed:_____

Witnesses' signatures:

_____
Name:

_____
Name:

«VendorName»

By:_____
«VendorAuthorizer»
Its «VendorAuthorizerTitle»
Duly Authorized

Date signed:_____

APPROVED AS TO FORM:
OFFICE OF CORPORATION COUNSEL

By:_____

APPROVED AS TO
AVAILABILITY OF FUNDS:

By:_____
Comptroller

Date:_____

INSURANCE RIDER

The Contractor shall provide and maintain insurance coverage related to its services in connection with the Project in compliance with the following requirements.

The insurance required shall be written for not less than the scope and limits of insurance specified hereunder, or required by applicable federal, state and/or municipal law, regulation or requirement, whichever coverage requirement is greater. It is agreed and understood that the scope and limits of insurance specified hereunder are minimum requirements and shall in no way limit or preclude the City from requiring additional limits and coverage to be provided under the Contractor's policies.

The insurance obligations under this agreement shall be (1) all the insurance coverage and/or limits carried by or available to the Architect; or (2) the minimum insurance coverage requirements and/or limits shown in this agreement, whichever is greater.

Minimum Scope and Limits of Insurance:

Workers' Compensation Insurance: With respect to all operations the Contractor performs, it shall carry Workers' Compensation Insurance in accordance with the requirements of the laws of the State of Connecticut.

Commercial General Liability: With respect to all operations the Contractor performs it shall carry Commercial General Liability insurance providing for a total limit of One Million Dollars ($1,000,000) coverage per Occurrence for all damages arising out of bodily injury, personal injury, property damage, products/completed operations, and contractual liability coverage for the indemnification obligations arising under this Agreement. The Annual Aggregate limit shall not be less than Two Million Dollars ($2,000,000).

Automobile Liability: With respect to each owned, non-owned, or hired vehicles the Contractor shall carry Automobile Liability insurance providing One Million Dollars ($1,000,000) coverage per accident for bodily injury and property damage.

Umbrella/Excess Liability: With respect to all operations the Contractor performs, the insurance limits required can be provided with a combination of Umbrella or Excess Liability insurance that would “follow form” of the underlying required terms and conditions.

Environmental Liability: If applicable, based on the Contractor’s Scope of Work, the Contractor is required to provide environmental and remediation (Contractor’s Pollution Liability –CPL-) insurance in the amount of Five Million Dollars ($5,000,000) per claim limit and Five Million Dollars ($5,000,000) aggregate limit per occurrence. If the insurance is provided with a combination of excess pollution liability policies, the policy shall be written on a follow form coverage wording to its underlying Schedule of insurance.

Errors and Omissions/Professional Liability: With respect to any damage caused by a negligent act, error, or omission of the Architect, the Architect shall carry minimum One

Million Dollars ($1,000,000) coverage per claim and in the aggregate. With respect to any damage caused by a negligent act, error, or omission of the Architect's subconsultants, the subconsultants shall carry minimum One Million Dollars ($1,000,000) coverage per claim and in the aggregate.

"Tail" Coverage: If any of the required liability insurance is on a "claims made" basis, "tail" coverage will be required at the completion of the Project for a duration of twenty-four (24) months, or the maximum time period reasonably available in the marketplace. Contractor shall furnish certification of "tail" coverage as described or continuous "claims made" liability coverage for twenty-four (24) months following Project completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of this Agreement. If continuous "claims made" coverage is used, Contractor shall be required to keep the coverage in effect for a duration of not less than twenty-four (24) months from the date of final completion of the Project.

Acceptability of Insurers: The Contractor's policies shall be written by insurance companies licensed to do business in the State of Connecticut, with an AM Best rating of A-VII, or otherwise acceptable to the City.

Subcontractors: The Contractor shall require all subcontractors to provide the same "minimum scope and limits of insurance" as required herein, with the exception of Errors and Omissions/Professional Liability insurance, unless Errors and Omissions/Professional Liability insurance is applicable to the Work performed by the subcontractors. All Certificates of Insurance shall be provided to the City's Corporation Counsel as required herein.

Aggregate Limits: Any aggregate limits must be declared to and be approved by the City. It is agreed that the Contractor shall notify the City whenever fifty percent (50%) of the aggregate limits are eroded during the required coverage period. If the aggregate limit is eroded for the full limit, the Contractor agrees to reinstate or purchase additional limits to meet the minimum limit requirements stated herein. Any premium for such shall be paid by the Contractor.

Deductibles and Self-Insured Retentions: Any deductible or self-insured retention must be declared to and approved by the City. All deductibles or self-insured retentions are the sole responsibility of the Contractor to pay and/or to indemnify.

Notice of Cancellation or Nonrenewal: Each insurance policy required shall be endorsed to state that coverage shall not be suspended, voided, or cancelled in coverage or in limits before the expiration date except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City. Notwithstanding this requirement, the Contractor is primarily responsible for providing such written notice to the City thirty (30) days prior to any policy change or cancellation that would result in a change of the amount or type of coverage provided. In the event of any such change the Contractor shall provide comparable substitute coverage so that there is no lapse in

applicable coverage or reduction in the amount of coverage available to the City related to the Contractor's services.

Waiver of Governmental Immunity: Unless requested otherwise by the City, the Contractor and its insurer shall waive governmental immunity as defense and shall not use the defense of governmental immunity in the adjustment of claims or in the defense of any suit brought against the City.

Additional Insured: The liability insurance coverage, except Errors and Omissions, Professional Liability, or Workers' Compensation, if included, required for the performance of the Project shall include the City of Norwalk as an Additional Insured with respect to the Contractor's activities to be performed under this Agreement. Coverage shall be primary and non-contributory with any other insurance and self-insurance.

Waiver of Subrogation: Contractor hereby waives the right to subrogate or seek recovery from City of Norwalk and its insurance carriers.

Certificate of Insurance: As evidence of the insurance coverage required by this Agreement, the Contractor shall furnish Certificate(s) of Insurance to Corporation Counsel's Office prior to the Contractor's commencement of services under this Agreement. The Certificate(s) will specify all parties who are endorsed on the policy as Additional Insureds (or Loss Payees). The Certificates and endorsements for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf. Renewals of expiring Certificates shall be filed thirty (30) days prior to expiration. The City reserves the right to require complete, certified copies of all required policies at any time.

All insurance documents required should be mailed to the City of Norwalk Corporation Counsel, 125 East Avenue, Room 237, P.O. Box 5125, Norwalk, Connecticut 06856-5125.

Waiver of requirements: The Corporation Counsel may vary these insurance requirements at Corporation Counsel's sole discretion if Corporation Counsel determines that the City's interests will be adequately protected by the provision of different types or other amounts of coverage.

1.5 INSURANCE REQUIREMENTS

INSURANCE RIDER

The Contractor shall provide and maintain insurance coverage related to its services in connection with the Project in compliance with the following requirements.

The insurance required shall be written for not less than the scope and limits of insurance specified hereunder, or required by applicable federal, state and/or municipal law, regulation or requirement, whichever coverage requirement is greater. It is agreed and understood that the scope and limits of insurance specified hereunder are minimum requirements and shall in no way limit or preclude the City from requiring additional limits and coverage to be provided under the Contractor's policies.

Minimum Scope and Limits of Insurance:

Workers' Compensation Insurance: With respect to all operations the Contractor performs, it shall carry Workers' Compensation Insurance in accordance with the requirements of the laws of the State of Connecticut.

Commercial General Liability: With respect to all operations the Contractor performs it shall carry Commercial General Liability insurance providing for a total limit of One Million Dollars ($1,000,000) coverage per Occurrence for all damages arising out of bodily injury, personal injury, property damage, products/completed operations, and contractual liability coverage for the indemnification obligations arising under this Agreement. The Annual Aggregate limit shall not be less than Two Million Dollars ($2,000,000).

Automobile Liability: With respect to each owned, non-owned, or hired vehicles the Contractor shall carry Automobile Liability insurance providing One Million Dollars ($1,000,000) coverage per accident for bodily injury and property damage.

Umbrella/Excess Liability: With respect to all operations the Contractor performs, it shall carry Umbrella/Excess Liability insurance providing for a total limit of Ten Million Dollars ($10,000,000) coverage per Occurrence and Ten Million Dollars ($10,000,000) Aggregate limits. Coverage includes, but it not limited to, claims for damages arising out of any Auto Liability and/or General Liability incidents.

The insurance limits required can be provided with a combination of Umbrella or Excess Liability insurance that would “follow form” of the underlying required terms and conditions.

"Tail" Coverage: If any of the required liability insurance is on a "claims made" basis, "tail" coverage will be required at the completion of the Project for a duration of twenty-four (24) months, or the maximum time period reasonably available in the marketplace. Contractor shall furnish certification of "tail" coverage as described or continuous "claims made" liability coverage for twenty-four (24) months following Project completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of this Agreement. If continuous "claims made" coverage is used, Contractor shall be required to keep the coverage in effect for a duration of not less than twenty-four (24) months from the date of final completion of the Project.

Acceptability of Insurers: The Contractor's policies shall be written by insurance companies licensed to do business in the State of Connecticut, with an AM Best rating of A-VII, or otherwise acceptable to the City.

Subcontractors: The Contractor shall require all subcontractors to provide the same "minimum scope and limits of insurance" as required herein, with the exception of Errors and Omissions/Professional Liability insurance, unless Errors and Omissions/Professional Liability insurance is applicable to the Work performed by the subcontractors. All Certificates of Insurance shall be provided to the City's Corporation Counsel as required herein.

Aggregate Limits: Any aggregate limits must be declared to and be approved by the City. It is agreed that the Contractor shall notify the City whenever fifty percent (50%) of the aggregate limits are eroded during the required coverage period. If the aggregate limit is eroded for the full limit, the Contractor agrees to reinstate or purchase additional limits to meet the minimum limit requirements stated herein. Any premium for such shall be paid by the Contractor.

Deductibles and Self-Insured Retentions: Any deductible or self-insured retention must be declared to and approved by the City. All deductibles or self-insured retentions are the sole responsibility of the Contractor to pay and/or to indemnify.

Notice of Cancellation or Nonrenewal: Each insurance policy required shall be endorsed to state that coverage shall not be suspended, voided, or cancelled in coverage or in limits before the expiration date except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City. Notwithstanding this requirement, the Contractor is primarily responsible for providing such written notice to the CITY thirty (30) days prior to any policy change or cancellation that would result in a change of the amount or type of coverage provided. In the event of any such change the Contractor shall provide comparable substitute coverage so that there is no lapse in applicable coverage or reduction in the amount of coverage available to the CITY related to the Contractor’s services.

Waiver of Governmental Immunity: Unless requested otherwise by the City, the Contractor and its insurer shall waive governmental immunity as defense and shall not use the defense of governmental immunity in the adjustment of claims or in the defense of any suit brought against the City.

Additional Insured: The liability insurance coverage, except Errors and Omissions, Professional Liability, or Workers' Compensation, if included, required for the performance of the Project shall include the City of Norwalk as an Additional Insured with respect to the Contractor's activities to be performed under this Agreement. Coverage shall be primary and non-contributory with any other insurance and self-insurance.

Waiver of Subrogation: Contractor hereby waives the right to subrogate or seek recovery from City of Norwalk and its insurance carriers.

Certificate of Insurance: As evidence of the insurance coverage required by this Agreement, the Contractor shall furnish Certificate(s) of Insurance to Corporation Counsel's Office prior to the Contractor's commencement of services under this Agreement. The Certificate(s) will specify all parties who are endorsed on the policy as Additional Insureds (or Loss Payees). The Certificates and endorsements for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf. Renewals of expiring Certificates shall be filed thirty (30) days prior to expiration. The City reserves the right to require complete, certified copies of all required policies at any time.

All insurance documents required should be mailed to the City of Norwalk Corporation Counsel, 125 East Avenue, Room 237, P.O. Box 5125, Norwalk, Connecticut 06856-5125.

Waiver of requirements: The Corporation Counsel may vary these insurance requirements at Corporation Counsel's sole discretion if Corporation Counsel determines that the City's interests will be adequately protected by the provision of different types or other amounts of coverage.

CITY OF NORWALK
PURCHASING DEPARTMENT

SECTION 2

PROJECT SPECIFICATIONS/SCOPE OF WORK

Y___N___

INTENT OF SPECIFICATIONS

It is the intent of these specifications to cover the furnishing and delivery to the purchaser of a complete fire apparatus equipped as specified herein; with the intent to obtain the best results and the most acceptable apparatus for emergency service use in the community of the purchaser. These specifications cover the minimum general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder must conform. Minor details of construction and materials, where not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design, engineering and construction of all features.

Y___N___

COMPLIANCE WITH NFPA 1901

The National Fire Protection Association Standard "NFPA 1901 - Standard for Automotive Fire Apparatus - Current Edition" (hereinafter referred to as NFPA 1901) in effect at the time of the purchase shall be used as a reference and its requirements shall be met by the bidder. Bidder shall construct the apparatus in accordance with federal and state laws effective at the time of purchase. Any federal, state or NFPA amended changes that shall affect the cost of producing said apparatus shall be charged to the purchaser. Mandatory minor apparatus equipment as stated in the applicable paragraphs (5.8, 6.7, 7.7, 8.8, 9.8, 10.5, 11.9 and respective subparagraphs) of the NFPA standard shall not be provided unless specifically stated and listed in purchaser's written specifications.

Any and all references to "NFPA 1901" within this document shall refer to the current edition of NFPA 1901 in effect at the time of the purchase.

Y___N___

PURCHASER'S NFPA 1901 RESPONSIBILITIES

In accordance with NFPA 1901, current edition, it shall be the responsibility of the purchaser to specify the following details of the apparatus:

- Its required performance, including where operations at or above elevations of 2000 ft. or on grades greater than 6 percent are required.
- The maximum number of firefighters to ride within the apparatus.
- Specific electrical loads that are to be part of the minimum continuous electrical load defined in 13.3.3 of NFPA 2003.
- Any hose, ground ladders, or equipment to be carried by the apparatus that exceed the minimum requirements of the NFPA 1901 standard in effect at the time of the bid. Equipment weight and location on the apparatus are the responsibility of the purchaser as a prerequisite of defining the loaded vehicle's vertical center of gravity for rollover stability calculations, when required.

Y___N___

ACQUAINTANCE WITH SPECIFICATIONS

It is the responsibility of the bidder to review all of the bidding requirements. Failure of a bidder to be acquainted with this information shall not relieve the bidder from any obligations of the bid requirements.

Y___N___

ERRORS AND OMISSIONS

Any error or omission in the specifications shall be reported immediately to the purchaser for correction, prior to bidding.

Y___N___

SINGLE SOURCE MANUFACTURER

Bids shall only be considered from single source apparatus manufacturers. A single source manufacturer shall be defined as a manufacturer who designs, engineers and manufactures the entire apparatus in the factory of the bidder. The use of commonly incorporated components such as the diesel engine, the transmission, the pump, lighting fixtures, etc. is acceptable. However, calling the cab/chassis/drivetrain or the outriggers/torque box/aerial device a "component" shall not be acceptable. Single source warranty and service provision from one manufacturer is mandatory to insure parts availability and undivided warranty responsibility. The purchaser shall be the sole judge in determining if a bidder meets the purchaser's definition of "single source manufacturer". There shall be no exceptions to these conditions.

Y___N___

PROTOTYPE OR EARLY PRODUCTION APPARATUS

No prototype, experimental or early production apparatus shall be accepted. The bidder shall demonstrate that they have successfully produced apparatus of the same design in the past, and that those apparatus have a repair history that is acceptable to the purchaser.

Y___N___

UNSOLICITED PROPOSALS

All bidders shall submit only one (1) bid, which meets or exceeds the specifications. Bids on alternate, stock or demonstrator units are not being solicited. Any such bids shall be considered non-responsive and shall not be considered. Total exception to the bid specifications will be cause for immediate rejection. There shall be no exceptions to these conditions.

Y___N___

COMPANY OVERVIEW AND HISTORY

Each bidder shall include in their bid proposal a clear overview of their company's manufacturing history, particularly as it relates to the manufacturing of fire apparatus. The bidder shall also include specifics about the factory location in which the apparatus they are bidding will be manufactured.

Y___N___

RELIABILITY OF MANUFACTURER

Bids shall only be considered from companies which have an established reputation in the field of fire apparatus construction and have been building fire apparatus for a minimum of 30 years.

Bids shall only be considered from manufacturers who are full time fire apparatus manufacturers and who are current members of the Fire Apparatus Manufacturers Association (FAMA).

Each bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified and shall state the location of the factory where the apparatus is to be manufactured. Each bidder shall also show that they are in a position to render prompt service and to furnish replacement parts for said apparatus.

Y___N___

MANUFACTURER'S LIABILITY

The bidder, if their bid is accepted, shall defend any and all suits and assume all liability for the use of any patented process, device or article forming a part of the apparatus or any appliance furnished under the contract.

Y___N___

DISCONTINUANCE POLICY

The apparatus manufacturer furnishes and installs components which are manufactured by 3rd Party Vendors. From time to time, these products are either changed or discontinued by the manufacturer. The apparatus manufacturer reserves the right to replace a discontinued 3rd Party Vendor manufactured component with an equivalent model.

Y___N___

STANDARD PLACEMENT OF COMPONENTS

Any deviation from the apparatus manufacturer's standard placement shall incur additional charges.

Y___N___

BID SUBMISSION

Bidders are required to complete and return this bid document. Bidders are required to complete the Bidder Compliance column truthfully. If a bidder believes that they have met the intent of the specification paragraph, but do not meet the exact requirements of the specification, then they shall write "Exception" in the Bidder Compliance column and document that exception accordingly. Failure to adequately document an exception shall be considered a "Not Compliant" response. *BE ADVISED: This document, and all responses and exception taken therein, shall become part of the contract.*

Each bid shall be accompanied by a "Contractor's Proposal" consisting of a detailed description written by the manufacturer of the apparatus and equipment proposed and to which the apparatus furnished under contract shall conform. To facilitate accurate and timely bid evaluation, the Contactor's Proposal shall be ordered in the same sequence as the purchaser's bid specification. In no case shall a bidder submit a copy of the purchaser's specifications as their Contractor's Proposal. Failure to comply with these requirements shall be cause for bid rejection.

The total price on the bidder's proposal sheet must include all items in the purchaser's specifications. Listing any requirement contained in the specifications as an option at additional cost shall automatically be cause for bid rejection.

Y___N___

EXCEPTION TO SPECIFICATIONS

Any exception or variation in construction, performance, test or items of equipment between the purchaser's specification and the bidder's proposal shall be detailed and submitted as an exception. The following requirements shall be strictly adhered to:

A. Exceptions will be allowed if they are equal to or superior to that specified and provided they are listed and fully documented and explained on a separate page entitled "EXCEPTIONS TO SPECIFICATIONS". The exception list shall refer to specification page number and paragraph.
B. All exceptions or deviations must be approved in writing by the Fire Department or the jurisdiction having authority. The purchaser shall be the sole judge as to whether an exception or variation meets or exceeds the specification and reserves the right to determine which, if any, exceptions or deviations are acceptable.
C. Proposals taking total exception to specifications shall not be accepted.
D. The apparatus shall be inspected upon delivery for compliance with the specifications. Deviations shall not be allowed and shall be cause for rejection of apparatus unless they were originally listed in bidder's proposal and approved in writing by the purchaser.

Y___N___

BID SELECTION/AWARD CRITERIA

The purchaser reserves the right to reject any or all proposals, or to accept such proposal that, in the purchaser's sole opinion, is in the best interest of the purchaser. The purchaser does not, in any way, obligate itself to accept the lowest bid.

The selection of the successful bidder will be based on a combination of factors which, in the purchaser's sole opinion, will best serve the purchaser's interest in obtaining the desired service levels. Factors that will be considered, but shall not be limited to, are:

- Experience
- Capability
- Prices
- Past performance
- References
- Responsiveness to the bid document
- Delivery time
- Quality of item(s) bid
- Warranty Coverages
- Service ability and location

Y___N___

COMPLETION DATE

Each bidder shall include in their proposals the number of calendar days for delivery of the completed apparatus, from the receipt of the complete order and signed approval drawing.

Y___N___

PROPOSAL DRAWINGS

Full size, blueprint type drawings of the apparatus being proposed shall be submitted with the bid package. These drawings shall be drawn to scale on a CAD system to assure an accurate and professional drawing. The drawing shall show five (5) views of the vehicle (front, rear, both sides and top). The drawings shall show the wheelbase and overall dimensions of the apparatus, proposed compartment sizes and features, booster tank position and the location of all emergency warning equipment, work lights, seating and other major items that are to be provided on the apparatus.

Because these drawings are an important tool in the bid evaluation process, the drawings submitted shall be specifically for the apparatus being bid. Drawings that are "similar to" or general in design are not acceptable and shall be considered non-compliant and non-responsive.

The drawing shall also reflect the approved angle of approach and departures by engineering.

Y___N___

TURNING RADIUS DRAWING

A turning radius drawing has been provided showing the turning radius of the vehicle as configured in the proposal. The diagram shall show the curb-to-curb and wall-to-wall clearance as well.

Y___N___

APPROVAL DRAWINGS

Following the completion of the pre-construction conference, three (3) sets of engineering, blueprint type drawings, specifically for this apparatus, shall be provided by the manufacturer and shall be approved by the Fire Department before construction begins. Both the Fire Department and the manufacturer's representative shall have a copy of this drawing. It shall become part of the total contract. These drawings shall be drawn to scale on a CAD system to assure an accurate and professional drawing. The drawing shall show five (5) views of the vehicle (front, rear, both sides and top). The drawings shall show the wheelbase and overall dimensions of the apparatus, final compartment sizes and features, booster tank position, the location of all emergency warning equipment, work and scene lights, and all changes, if any, mutually agreed to during the pre-construction conference.

Y___N___

PRE-CONSTRUCTION CONFERENCE

One (1) "Pre-Construction" conference trip for five (5) representatives of the purchaser shall be included in the bid. The conference shall be held at a company facility or an authorized representative's facility of the successful bidder, during normal business hours, Monday - Friday. All cost of transportation, meals and lodging shall be included. A distributor or sales representative shall accompany the purchaser on the trip. The conference shall be held prior to the commencement of any work being done on the apparatus. Factory sales and engineering personnel shall participate in the conference as needed to ensure that the apparatus fulfills all the requirements of the accepted bid. Authorized representatives from both the purchaser and manufacturer shall approve and sign any changes made during these meetings prior to the commencement of any work being done on the apparatus.

It is understood and agreed that delays beyond thirty (30) days of contract approval for Pre-Construction conference changes in specifications shall be cause for delay in delivery.

Y___N___

FINAL INSPECTION TRIP

One (1) "Final" inspection trip for five (5) representatives of the purchaser shall be included in the bid. The inspection shall take place at the successful bidder's company facility or an authorized representative's facility during normal business hours, Monday - Friday. All cost of transportation, meals and lodging shall the responsibility shall be included. A distributor or sales representative shall accompany the purchaser on the

inspection trip. The trip shall be of sufficient duration to complete the business required. The apparatus to be inspected shall be in finished condition and ready for shipment when the final inspection is conducted.

Y___N___

PRE-DELIVERY ROAD TRIP AND FINAL FACTORY CHECKLIST

Prior to delivery, the completed apparatus shall be thoroughly inspected by the factory. This inspection shall include road testing by the factory of no less than 100 miles. During the factory inspections and road testing, a checklist shall be utilized by factory personnel to document the inspection and road test results. The checklist shall include:

- Documentation of the make, model and serial numbers of all major components such as the engine, transmission, pump, axles, etc.
- Complete, comprehensive operational check of all chassis/drive train components and fluid levels.
- A comprehensive review of the entire exterior and interior of the apparatus for fit and finish, checked against the customer's pre-construction meeting approval specifications, and any ensuing change orders.
- A thorough test of all driving systems under actual highway and city driving conditions, for no less than 100 miles.

Y___N___

DELIVERY

The fire apparatus shall be delivered over the road and under its own power to insure proper break-in of all driving components while still under warranty. Rail or truck freight shipment of the apparatus is not acceptable.

Y___N___

FAMILIARIZATION

An experienced and qualified distributor or sales representative shall familiarize Fire Department personnel (as designated by the authority in charge) in the proper operation, care and maintenance of the apparatus delivered.

The representative must be a qualified, trained agent of the local authorized distributor or sales representative, or a direct employee of the manufacturer of the apparatus.

The familiarization period shall consist of three (3) sessions over a period of three (3) days, during the normal work week (Monday - Friday). The schedule of the instruction sessions shall be arranged by mutual agreement of the Fire Department and the delivering authority. The number, length and time of the sessions may vary due to the nature of the apparatus and availability of attendees and must be approved in advance. The balance of any time remaining in a session may be devoted to minor adjustments or corrections to the apparatus for items which may have developed while in transit from the factory.

Y___N___

DOCUMENTATION - NFPA REQUIREMENTS

All NFPA required documentation and certifications shall be supplied with the apparatus at the time of delivery.

Y___N___

GENERAL DESIGN REQUIREMENTS

The design and layout of the apparatus specified herein has been carefully selected to meet the needs of the purchaser. Because the purchaser is buying a custom fire apparatus, it is expected that all bidders can provide and shall adhere to the details specified herein.

The specified apparatus shall be a custom cab type, designed and manufactured specifically for the fire service in North America. Modification of a conventional or commercial chassis is unacceptable. The apparatus shall meet or exceed the requirements of the NFPA 1901, current edition, in all respects.

The chassis shall be the bidder's "top of the line" deluxe custom model incorporating an all steel cab for strength, durability and safety. The cab and body sheet metal shall be constructed of stainless steel, no exception.

The purchaser requires a cab that is structurally sound and has the structural integrity to provide protection to properly seat belted firefighters in the event of a rollover, impact with a heavy object or collision.

The specified apparatus shall be designed to be fully operational in the local climate of the purchaser. There shall be no exceptions to these conditions.

Y___N___

GROSS VEHICLE WEIGHT

The manufacturer shall be responsible for proper weight distribution upon the chassis and axles.
The apparatus when loaded, shall have not less than 25% nor more than 45% of the weight on the front axle and not less than 55% nor more than 75% on the rear axle. The successful bidder shall furnish a certified weight certificate showing weights on front axle, rear axle and total weight for the completed apparatus at time of delivery, with water and fuel tanks full, but without personnel, equipment and hose.

In accordance with NFPA 1901, it shall be the responsibility of the purchaser to notify the manufacturer in the purchaser's specification of any hose, ground ladders, or equipment to be carried by the apparatus that exceeds the minimum requirements of the NFPA 1901 standard in effect at the time of the bid.

Y___N___

IN-SERVICE WEIGHT CALCULATION

The successful bidder shall furnish a weight calculation showing weights on the front axle, rear axle and total weight for the completed apparatus as specified by the purchaser, with water and fuel tanks full, equipment and hose. This calculation shall be available for the pre-construction conference.

For the purpose of calculating the in-service weight, firefighter weight shall be calculated at 250 pounds per crew member, including SCBA. If a hose load is not provided, the minimum hose load required by NFPA 1901 shall be used for the calculation. If a loose equipment load is not provided, including its location on the vehicle, the NFPA 1901 load amount based on the cube of the body shall be used.

Y___N___

CUSTOMER DECLARED EQUIPMENT WEIGHT

The customer declared equipment weight shall be from 0 to 1250 pounds. This weight shall be evenly distributed.

Y___N___

VEHICLE PERFORMANCE ANALYSIS

A performance analysis report shall be run on the vehicle, as ordered, using computer software to determine top speed, gradeability, optimum shift points and acceleration on various grades. The report shall be delivered with the completed vehicle, but shall be available within thirty (30) days of the pre-construction conference.

Y___N___

APPARATUS OVERALL HEIGHT - **CRITICAL MEASUREMENT**

The overall height of the completed apparatus shall not exceed **One Hundred Thirty One (131) inches.** This measurement shall be taken with the water tank empty and no hose, equipment or personnel on the apparatus. All permanently mounted equipment shall be in the stowed/travel position.

Y___N___

APPARATUS OVERALL LENGTH - **CRITICAL MEASUREMENT**

The overall length of the completed apparatus shall not exceed **Six Hundred Seventy Two (672) inches.** This measurement shall be taken with all permanently mounted equipment in the stowed/travel position.

GENERAL CONSTRUCTION, QUALITY AND WORKMANSHIP

The design and construction of the apparatus shall embody standard automotive heavy vehicle engineering practices. The apparatus shall be designed, engineered and

constructed with due consideration for the severe service nature of the fire service. All parts of the apparatus shall be installed in accordance with the OEM specifications and shall be strong enough to withstand the general service under full load for twenty (20) years.

Distribution of load between the front and rear axles shall be engineered so that all specified equipment, including a filled water tank, full complement of personnel and fire hose shall be carried without damage to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association and current standard automotive practices.
The workmanship shall be of the highest quality in its respective field. In order to assure the quality that the purchaser demands and expects, all welding personnel that shall be utilized in the fabrication and construction of structural components of the apparatus chassis, body and aerial device shall hold a valid certificate from the AWS - American Welding Society.

The apparatus shall be designed to conform to the intent of ANSI and NFPA 1901 standards. The following design criteria shall be applicable to this specification to the extent specified herein:

- American Society for Testing Materials (ASTM) - A-36, Specification for Structural Steel
- Society of Automotive Engineers, Inc. (SAE) - SAE Handbook
- American Welding Society (AWS) - AWSO14.4-77 Classification and Application of Welded Joints for Machinery and Equipment
- American Society for Non-Destructive Testing (ASNT)
- ASNT Guidelines; Procedure SNT-TC-1A

The apparatus shall have symmetrical proportions and a pleasing appearance as a result of design detail and fit/finish quality. The apparatus shall be engineered with firefighter safety as the top priority. Ease of operation and ease of maintenance shall also be considered in the apparatus design, but shall not compromise safety. No special tools shall be required to access normal service or maintenance items.

All sensitive components shall be protected against adverse weather conditions. Any exposed metal surface which is not painted or otherwise coated shall have a bright finish. Corrosion protection shall be provided between any dissimilar metals joined in the construction of this apparatus.

Y___N___

DRIVELINE VIBRATION TESTING

The apparatus shall be tested for the level of vibration on power train and drive line components such as the engine, transmission, drive shafts, axles and tires, after construction. The test shall be performed using dedicated sensing devices and software on a pre-defined test route and under various regular driving conditions, including speeds, acceleration and braking. The apparatus shall have all major components and most features completed at the time of the test. The apparatus shall be loaded to simulate an in-service condition.

Y___N___

STEPPING SURFACE CERTIFICATION

The manufacturer shall provide at time of delivery of the apparatus, a certification that all materials used for exterior surfaces designated as stepping, standing and walking areas, all interior steps and all interior floors meet the slip resistance requirements of the applicable edition and section of NFPA 1901.

Y___N___

PUMP TEST AND CERTIFICATION

The fire pump shall be third party tested at the apparatus manufacturer's facility and shall conform to NFPA requirements and standards. Copies of all tests and the manufacturer's record of pump construction details shall be provided with the delivery documentation.

Y___N___

PERFORMANCE REQUIREMENTS AND TEST - NFPA

A road test shall be conducted with the apparatus loaded per NFPA recommendations (unless otherwise specified) and a continuous run of ten (10) miles or more shall be made during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus.

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

The fully loaded vehicle shall be capable of obtaining a minimum top speed of 50 mph on a level concrete highway with the engine not exceeding its governed rpm (full load).

The apparatus shall be able to maintain a speed of 20 mph on any grade up to and including 6%.

The service brakes shall be capable of stopping the fully loaded vehicle in 35 feet at 20 mph on a level concrete highway.

The apparatus shall be tested and approved in accordance with NFPA standard practices.

Y___N___

FAILURE TO MEET TEST

In the event that the apparatus fails to meet the road test requirements of these specifications upon delivery, during the first trials, second trials may be made at the option of the bidder within 30 days of the date of the first trials. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection of the apparatus. Permission from the manufacturer to keep or store the apparatus in any building owned or occupied by the purchaser or its use by the Fire Department during the above specified period shall not constitute acceptance

Y___N___

GENERAL

Chassis shall be a new, heavy-duty, custom fire apparatus design built expressly for the fire service. All standard components that have not been specified shall be provided.

Chassis shall be designed, engineered and built by the bidder and be the manufacturer's first line custom chassis.

The chassis shall be suitable for heavy duty service with all components having adequate strength and capacity for the intended load to be sustained and the type of service required.

Y___N___

WHEELBASE

The Tractor wheelbase shall be: One Hundred Fifty (150) inches.

The Trailer wheelbase shall be: Three Hundred Five (305) inches.

Y___N___

SEATING CAPACITY

The safe seating capacity of the cab for properly belted passengers shall be: Six (6)

Y___N___

APPROACH - DEPARTURE ANGLES

An angle of approach and an angle of departure of at least 8 degrees shall be maintained at the front and the rear of the vehicle when it is loaded to the estimated in-service weight, as defined by NFPA 1901 current edition.

Y___N___

GROSS VEHICLE WEIGHT RATINGS

Front Tractor Weight Rating shall be: **[20,000]**
Rear Tractor Weight Rating shall be: **[31,500]**
Tiller Axle Weight Rating shall be: **[21,500]**
Gross Vehicle Weight Rating shall be: **[73,000]**

Y___N___

FRAME

The chassis frame shall be built with two steel channels with a minimum of five (5) cross members. Pump shall not be counted as a cross member. The side rails shall be of heat treated steel. Each rail shall have a section modulus of 16.4, a minimum elastic limit of 120,000 PSI and a minimum resisting bending moment of 2,124,000 inch pounds. The cross members shall be of heavy duty, fabricated, all-welded design, made out of a minimum of 50,000 psi material. The frame and cross members shall be a bolted assembly utilizing 5/8" flange head grade eight bolts and Spiralock® flange nuts. Spiralock® nuts shall be used exclusively in the frame assembly for mounting spring hangers, steering gear, engine, transmission, etc. because of their ability to maintain a constant torque tension and prevent vibration loosening. Their design shall provide for an

even thread load distribution over the bolt, increased fatigue strength and life, and clamping torque. All holes made must be used and any holes in the frame for options not required on this chassis are not acceptable.

Frame rails less than or equal to 480" in length shall receive a duo-coat primer: an E-coat followed by a powder coating. This duo-coat process meets 1000 hours of salt spray testing per ASTM B117 test procedure. Frame rails greater than 480" in length shall be powder coated only. The inside of the rails shall be hand re-sprayed to insure coverage. This process meets 240 hours of salt spray testing per ASTM B117 test procedure.

Y___N___

BUMPER

A heavy duty 10-1/4" high x 1/4" thick painted steel bumper shall be mounted to the front of the chassis and be fabricated in the factory of the bidder. The bumper shall be channel shaped with 2" flanges and its ends shall be angled 45 degrees for a distance of 5". The bumper shall be painted to match the lower cab color.

As part of the bumper extension, a second formed channel with 2" flanges shall be provided directly behind the full width of the flat portion of the bumper. The bumper extension support shall be of channel (minimum 9-7/16" x 3" x 3/8") construction, bolted to the chassis frame stub. A 3/16" aluminum tread plate gravel pan (deck) contoured to fit just below the front face of the cab and just below the upper bumper flange shall be provided. The gravel pan shall not be fastened to the top flange of the bumper.

Y___N___

12" BUMPER EXTENSION

A bumper extension shall be installed at the front of the cab. The front of the bumper shall be approximately 12" from the front face of the cab. A gravel pan made of 3/16" aluminum tread plate shall be installed between the front bumper and the cab. The bumper extension shall be designed and constructed so that the apparatus can be pulled by the extension.

Y___N___

LIFTABLE AND TOWABLE BUMPER EXTENSION

The bumper extension shall be designed and constructed so that the apparatus can be lifted and towed by the extension. The bumper extensions shall be constructed with a heavy duty structure so as to allow the gravel pan to support weight and additional options. There shall be no exceptions to these conditions.

Y___N___

RECESSED NOTCH IN FRONT BUMPER FOR LEFT SIDE Q2B SIREN

A recessed notch shall be cut into the left side of the front bumper and gravel pan for a Q2B siren. It shall be boxed in on the three vertical sides with aluminum tread plate.

Y___N___

FAMA26 NO-STEP SIGN

In accordance with NFPA 1901 chapter 15.7.1.6, a FAMA26 "No-Step" sign shall be attached to the top of the gravel pan. The sign reads: "Fall Hazard-Railings NOT

provided. Surface may be slippery - Not intended for stepping, standing or walking. Fall will injure or kill".

Y___N___

FRONT TOW EYES

Two (2) painted "cut plate elongated-style" type tow eyes shall be furnished. They shall be installed under the aluminum tread plate "gravel" pan, behind bumper. The eyes shall be fabricated of 1" thick steel plate with a 3" diameter opening. They shall be painted to match the frame/undercarriage.

Y___N___

REAR TOW EYES

Two (2) rear tow eyes, bolted to the frame rails, one (1) each side shall be provided. The eyes shall be fabricated of 1" heavy duty steel plate, with a 3" diameter opening designed so that stress will be applied to each chassis frame rail, when utilized. They shall be painted to match the lower body color.

Y___N___

STEERING

A heavy duty power steering system shall be provided. The hydraulic pump shall be engine gear driven. The steering gear "box", or fixture that the gear is mounted to, shall be fabricated in the factory of the bidder. It shall be a welded assembly constructed of 3/8" formed steel with a 3/4" face plate. Vertical gussets shall be provided between the face plate and the frame mounting plate to insure against frame flex while the vehicle is stationary.

Y___N___

AUXILIARY CYLINDER FOR POWER STEERING

An auxiliary power assist cylinder shall be provided in the power steering system.

Y___N___

CHASSIS ALIGNMENT

The chassis frame rails shall be cross checked for length and square. Front and rear axles shall be laser aligned. The front axle shall be aligned at the manufacturer's facility.

Y___N___

AIR PIPING

The service brake system shall be full air type. The system is to meet or exceed current FMVSS-121 requirements. Other components or accessories shall be as follows:

Pressure protection valve
Quick build up system
Engine mounted, gear driven air compressor
Bendix Model E-6 dual circuit brake treadle valve
Two (2) air pressure gauges on cab dash with indicator light and buzzer
Air reservoirs with capacity to meet FMVSS-121

Brake piping shall consist of SAE approved, DOT rated "Synflex" reinforced nylon colored tubing. Braided hoses shall provide flexibility between axle and frame connections. Brake air lines shall be color-coded. Air inlet to air brake compressor shall be from the engine intake manifold, i.e. after transition through the engine air cleaner. A stainless braided Teflon hose and/or copper tubing shall be provided from the compressor to the air dryer. Fittings shall be brass.

The parking brake system is to be the spring set type operated by control valve on driver's console. A brake indicator light shall also be provided.

The parking brake shall lock up both the tractor drive axle and the trailer axle.

Y___N___

MAIN AIR SYSTEM DRAIN VALVE(S)

The drain valve(s) on the main air system reservoirs shall be cable controlled. The pull cable shall be extended to the side of the truck with a loop provided at its end. It shall be labeled: Drain Daily.

Y___N___

TRAILER AIR SYSTEM DRAIN VALVE(S)

The drain valve(s) on the trailer air system reservoirs shall be cable controlled. It shall be mounted in front of the tiller axle. The pull cable shall be extended to the side of the truck with a loop provided at its end. It shall be labeled: Drain Daily.

Y___N___

WET TANK

A 1250 cubic inch wet air tank shall be provided with the air system.

Y___N___

WET AIR RESERVOIR DRAIN CONTROL

A cable controlled drain valve shall be provided on the wet tank. The pull cable shall be extended to the side of the truck with a loop provided at its end. It shall be labeled: Drain Daily.

Y___N___

ADDITIONAL AIR RESERVOIR

One (1) additional 1770 cubic inch air reservoir(s) shall be provided and installed. Each extra reservoir shall be isolated and be plumbed with an 85 PSI pressure protection valve on the reservoir supply side.

Y___N___

One (1) drain valve(s) on the isolated air reservoirs shall be cable controlled. The pull cable(s) shall be extended to the side of the truck with a loop provided at its end. They shall be labeled: Drain Daily.

Y___N___

Air reservoir tank shall be used for air horn and air outlet.

Y___N___

OFFICER'S EMERGENCY BRAKE CONTROL

An additional emergency brake control shall be provided on the right hand side of the cab dash in easy reach of the officer. Control shall actuate the rear axle spring brakes only. In addition, the control shall disable the driver's accelerator pedal and shift the transmission into neutral. Brake control shall be a heavy duty toggle type electrical switch equipped with a spring loaded safety cover to prevent accidental brake engagement. Cover shall be red in color. Control switch shall have an identification label and a warning that it is "For Emergency Use Only". A red LED light shall illuminate when the brake is activated,

Y___N___

AIR DRYER

A Meritor WABCO 1200 System Saver air dryer shall be installed in the air brake system. It shall have a minimum capacity of 30 cfm air flow. Dryer shall be equipped with an integral, automatic, 12 volt heated moisture ejector which is thermostatically controlled. System shall include a pressure controlled check valve installed between the wet tank and the secondary air reservoir.

Y___N___

AUXILIARY AIR OUTLET

There shall be a 1/4" female air outlet with NPT plug mounted towards the front of the driver's side step well. A 1/4 turn shutoff valve shall be located adjacent to the outlet. The outlet shall be connected to the apparatus air reservoir tank.

Y___N___

KUSSMAUL AIR EJECT FOR AIR INLET

There shall be an auxiliary air inlet installed to maintain the chassis air pressure while the engine is not running. A Kussmaul Air Eject model #091-28 and weather proof adapter kit model #091-28-AK for the air inlet shall be provided on the cab, behind the driver's door over the front wheel.

Y___N___

The cover of the Air Eject shall be gray in color.

Y___N___

FRONT AXLE

A Meritor MFS front axle with a 20,000 pound rating shall be provided. It shall include composite low-friction bushings with diagonal grooves to better distribute lube, camber settings of +1/4 degree for both left and right sides to help improve tire life and a large diameter, heat treated kingpin with a lube retaining seal.

DISC BRAKES

The front axle shall be provided with Meritor #EX225H air disc brakes with internal automatic adjustment, sealed synchronized twin pistons and robust sealing of slide pins for environmental protection. The #EX225H air disc brakes shall have 17" rotors and a fully sealed lever mechanism with variable mechanical ratio. A visual indicator of brake wear shall also be provided.

FRONT SEMI-ELLIPTICAL SPRING SUSPENSION, 4" X 52"

The front suspension shall be semi-elliptical 4" x 52" constant rate type springs with a military wrapped eye. The correct material, spring length, width, thickness and number shall be provided to match the leaf spring rating with that of the gross axle weight rating of the vehicle.

SHOCK ABSORBERS

Gabriel heavy-duty telescoping shock absorbers shall also be provided on the front axle.

Y___N___

WARRANTY

Meritor Corporation provides a two (2) year parts and labor warranty on the front axle.

Y___N___

WARRANTY

Meritor Corporation provides a three (3) year parts and labor warranty on the EX225H disc brakes.

Y___N___

AUXILIARY AIR APPLIED FRONT AXLE PARKING BRAKE

An auxiliary air applied front axle parking brake shall **automatically apply when parking brake is engaged.** This front parking brake will only be able to be activated when the parking brake for the rear axle is set.

Y___N___

FRONT AXLE OIL SEALS

The front axle shall be equipped with oil type seals with viewing windows.

Y___N___

REAR AXLE

The rear axle shall be a Meritor model RS30-185 with a capacity of 31,500 pounds at the hub. The rear axle shall include 16-1/2" x 7" S-Cam brakes with dust shields and automatic slack adjusters. Stroke indicators shall be incorporated to provide a visual indicator of brake wear.

All axles shall be purchased complete from and certified by the axle manufacturer for the specific application. Brake chamber brand and size shall be determined by the axle manufacturer.

Y___N___

All axle applications must be certified by the axle manufacturer.

Y___N___

REAR AXLE RATIO

The rear axle ratio shall be determined at the time of order.

Y___N___

ROAD SPEED

Per NFPA, the maximum top road speed shall be 60 mph.

Y___N___

ANTI-LOCK BRAKING SYSTEM (ABS)

The vehicle shall be equipped with dual WABCO anti-lock braking system (ABS). The tractor ABS shall provide four (4) channel anti-lock-up braking control on the (2) front and (2) rear wheels. The trailer ABS shall provide two (2) channel anti-lock-up braking control on the tiller steer axle's (2) wheels and shall be linked to the tractor system via permanent cabling. The system shall employ a digital electronics system with microprocessor controls divided into two (2) diagonal circuits. In the event of one circuit's malfunction the second circuit shall operate unaffected. Each wheel shall be constantly monitored by the system when the vehicle is in motion. When any wheel begins to "lock-up" during braking a signal shall be transmitted to the processor from the wheel sensor. The control unit shall instantly reduce the braking force applied to the wheel and immediately re-apply braking force so that the wheel rapidly slows without locking. The system shall control all wheels simultaneously to provide maximum vehicle braking in a relatively straight line.

An ABS warning light shall be installed in the warning light panel of the driver's dash.

The ABS system shall automatically disengage the auxiliary braking system whenever the anti-lock braking mode is active.

Y___N___

WARRANTY

A three (3) year or 300,000 miles parts and labor warranty shall be provided by Meritor WABCO Vehicle Control Systems for the Anti-Lock Braking System (ABS).

Y___N___

WARRANTY

Meritor Corporation provides a two (2) year parts and labor warranty on the rear axle.

Y___N___

VEHICLE STABILITY COMPLIANCE

In compliance with NFPA 1901, current edition, the vehicle stability compliance shall be performed on a tilt table.

Y___N___

AUTOMATIC TRACTION CONTROL WITH DEEP SNOW AND MUD SWITCH

Automatic Traction Control, working in concert with the ABS system, shall be provided which shall reduce wheel slip on acceleration on wet or slippery road conditions. A light shall illuminate on the driver's dash when the drive wheels slip during acceleration.

A deep snow and mud option switch shall be provided in addition to the ATC option. This function increases available traction on extra soft surfaces like snow, mud or gravel

by slightly increasing the permissible wheel spin.

Y___N___

SKF LUBRICATION SYSTEM

The SKF automatic lubrication system shall provide automatic grease applications up on the unit, with the recommended dosages, per system interval cycle.

The auto lube system shall be powered by an electrically driven Gear Pump. The gear pump shall be top mounted to a reservoir assembly with a capacity of 6 liters. The pump shall operate against a back pressure of 38 BAR (550 PSI) nominal, with an output of 160 cc/min. The pump assembly shall be mounted in a suitable location to facilitate care and maintenance of the system by removal of the cover assembly for access to the refill valve connection for replenishment of the grease reservoir.

Distribution of lubricant shall be via Piston Distributors utilizing the “post lubrication principle”, dispensing lubricant on the off cycle of the system or pump run time, with metering nipples bearing dosage identification which can be field changeable without disruption of other lubrication point connections.

The auto lube system shall be operated via an electronic control module with System Monitoring capabilities of the main line and operating cycle with dash mounted visual indication to the vehicle operator. The control module shall have LED's and a system reset button to initiate a lube cycle for diagnostic purposes and/or reset the control module in the event a system fault has occurred. Upon a fault, the system is inoperable until the fault has been corrected and a system reset has been initiated by the operator or serviceman.

On the front axle, the following items shall be lubricated, as standard: drag link, tie rod, spring and shackle pins and the steering assist cylinder. The following items shall also be lubricated, if present: s-cam brakes and slack adjusters. The kingpins shall be lubricated, as standard, only if on a Meritor axle; kingpin lubrication on a Dana axle voids the warranty.

On the rear axle, if present, the following items shall be lubricated: s-cam brakes and semi-elliptical spring suspension.

On the tiller steer axle, the following items shall be lubricated, as standard: kingpins, drag link, tie rod and steering assist cylinder. The following items shall also be lubricated, if present: s-cam brakes and slack adjusters.

Y___N___

The auto lube system reservoir shall be located aft of the driver's side drive axle fender.

Y___N___

DRIVER CONTROLLED DIFFERENTIAL LOCK

The drive axle shall be equipped with an air actuated supplemental traction device that locks the differential case gears and axle shafts via the clutch collar, maximizing traction and control to both right and left side wheel sets, in low speed operation. The lock position shall also protect against spin out damage to the differential. A dash mounted

locking rocker switch, to prevent accidental activation, with an indicator “on” light shall engage and disengage the lock.

It is understood that the DCDL is a short time period traction enhancement and should only be engaged when very slippery road surface conditions exist and at speeds under 25 mph.

Y___N___

ONSPOT AUTOMATIC SNOW CHAINS

Onspot automatic snow chains shall be provided in front of the rear axle of the vehicle. An electric locking rocker switch shall be mounted in the cab to provide 12 volts to an air solenoid mounted on the vehicles frame. Compressed air to the solenoid from the vehicle's onboard air system shall activate the chains. When the chains are deactivated, the solenoid exhausts the air provided to the chain units and self-contained return springs bring the chain wheels back to their nested position.

Y___N___

REAR SUSPENSION

A Neway AD-130 heavy duty 31,000 lb. capacity air ride suspension shall be used. The assembly utilizes air springs and a parallelogram framework design that reduces driveline wear and vibration while maintaining a constant pinion angle. The air ride offers a smoother ride with less stress on truck components. It eliminates tire hopping and helps provide superior traction to the wheels.

Y___N___

FRONT TIRES

The two (2) front tires shall be Goodyear 385/65R22.5 G296 MSA, load range "J", with on-off highway tread. This tire has a nominal rating of 9,370 pounds at a top speed of 68 mph and an intermittent fire service rating of 10,025 pounds at a top speed of 68 mph.

Y___N___

REAR TIRES

The four (4) rear tires shall be Goodyear 315/80R22.5, Endurance TSD

Y___N___

WHEELS

Wheels shall be steel disc type and hub piloted. Wheels shall be painted job color. Chrome plated nut covers shall be furnished.

Y___N___

FRONT AXLE "BABY MOON" HUB CAPS

Stainless steel "Baby Moon" type hub caps shall be provided on the front axle. The hub caps shall be cut out for viewing of the front axle oil seals.

Y___N___

REAR AXLE "HIGH HAT" HUB CAPS

Stainless steel "High Hat" type hub caps shall be provided on the rear axle(s).

Y___N___

TIRE PRESSURE INDICATORS

Tires shall have non-pressure indicators installed for shipment.

Accu-Pressure Heavy Duty Safety Caps shall be provided and shipped loose. This valve stem inflation pressure sensitive monitor shall provide a visual color indication of when the tire pressure is below the manufacturers recommended level. The chrome safety cap shall show green when the tire is properly inflated and red once the tire becomes under inflated.

All inner wheels shall be equipped with a valve stem extension that shall allow the inner wheel to be filled without removing the outer wheel.

Y___N___

TIRE BALANCE

EQUAL Tire Performance Balancing Compound shall be inserted into the front tires to balance and maintain a vibration-free rotation.

Y___N___

ENGINE

The chassis shall be powered by an EPA17/OBD17 certified and compliant Cummins X12 diesel engine, as described below:

Model	X12
Number of Cylinders	Six
Bore and Stroke	5.2 x 5.67 in
Displacement Liter (Cu. In.)	11.8 (720)
Rated BHP	500 @ 1800 RPM
Torque	1695 ft.lb. @ 1000 RPM
Governed RPM	2000
Oil Capacity / Type	10.5 gallons / SAE CK-4
Fuel Requirement	Ultra low sulfur diesel (15 ppm max.)

Standard equipment on the engine shall include the following:

Selective Catalytic Reduction (SCR) after treatment
Cooled Exhaust Gas Recirculation system
Fan – 32”, 11 blade
Charge air cooling
High pressure, common rail fuel system
Fuel filter with check valve and water separator
Fuel strainer
Governor – electronic, interact system
Injectors – electronically controlled full authority injection
Lube oil cooler – integral
Lube oil filter – full flow
Turbocharger – variable geometry type

Air compressor – Wabco 26.0 CFM

The engine exhaust system shall be a horizontal design constructed from heavy-duty truck components. Flexible couplings shall be utilized to absorb the torque and vibration of the engine. The outlet shall be directed to the forward side of the rear wheels, exiting the right side, with a straight tip. A heat-absorbing sleeve shall be used on the exhaust pipe in the engine compartment area to reduce stored heat, providing protection for the alternator, and also to protect hands when checking or adding oil in the engine compartment.

ENGINE AND CHARGED AIR COOLING SYSTEMS

A serpentine core type radiator with continuous louvered copper fin design shall be provided. Radiator shall be fitted with formed steel side frames. The top tank shall have a built-in de-aeration system. A drain shall be located at the lowest point.

The engine charged air heat exchanger shall be located directly in front of the radiator and be bolted to its side rails. It shall be all aluminum-brazed construction. Air cooler shall be cross flow design with cast aluminum side tanks, horizontal inlet and outlet at top and aluminum louvered serpentine external air fins. Plastic tanks shall not be acceptable, no exceptions. Cooler tubers shall also be constructed of aluminum and have internal fins that eliminate laminar airflow.

The charge air cooler and the radiator shall be produced by the same manufacturer as a single assembly to provide continuity throughout the cooling system. This shall ensure a certified “balanced” package for the chassis engine air and fluid cooling systems.

The radiator and charger cooler shall be mounted to the chassis stub. Fabricated mounting bracket for the fans ring shall be attached to the front of the engine in a manner so that it “floats” with the engine and increases the fan’s efficiency by tightening the tip clearance. This mounting design eliminates engine fan and radiator shroud contact due to engine torque movement and promotes more efficient airflow. The radiator and charger cooler shall be held in place at the bottom by two (2) large bolts equipped with anti-stress rubber biscuits. The top of the radiator shall be supported by two (2). ¾” tubular braces, bolted to the chassis stub. Anti-vibration rubber biscuits shall be installed at the top threaded end of the braces where they attach to the radiator.

Y___N___

ENGINE COOLING CERTIFICATION

"EPQ" (End Product Questionnaire) certification shall be provided by the chassis manufacturer. Certification shall be documented with reference to each specific chassis model by the chassis manufacturer.

Y___N___

FAN CLUTCH

A fan clutch shall be provided for the engine cooling fan. The viscous clutch shall be of a failsafe design, in that it shall fail in the "on" mode and thus prevent overheating in the event of component failure. Manufacturer shall also wire the clutch so that it remains

"on" in the pumping mode to prevent water pressure fluctuations.

Y___N___

TRANSMISSION

An Allison, Model 4000 - EVS, electronically controlled automatic transmission with integral fluid filter shall be provided. A transmission cooler shall be installed in the radiator bottom tank. A warning light and buzzer shall be provided on the cab dash to alert the driver should the transmission overheat.

The transmission shall include the following: an oil life monitor, a filter life monitor, and a transmission health monitor. The oil life monitor determines fluid life remaining by monitoring various operating parameters. The filter life monitor determines when fluid filter(s) need to be replaced. The transmission health monitor determines when clutch system inspection is required. The monitors send a message via a blink code to a special prognostic light on the shift pad. Also on the shift pad shall be installed a digital, double-digit display that identifies the level of transmission oil. The display shall identify the oil level as “Ok”, “Lo” or “Hi”, also indicating the number of quarts lo or hi.

The transmission shall include the following emergency vehicle specifications:

Maximum gross input power:	600 hp
Maximum gross input torque:	1850 ft.lb.
Input speed range:	1700 to 2300 rpm
Direct gear lock-up:	4th @ 1.00 to 1.00
Overdrive gear and ratio:	5th @ 0.74 to 1.00

Gear ratios shall be as follows:

1st	3.51 to 1
2nd	1.91 to 1
3rd	1.43 to 1
4th	1.00 to 1
5th	0.74 to 1
6th	0.64 to 1
Rev	-4.80 to 1

The transmission shall automatically shift into neutral whenever the chassis parking brake is applied.

Y___N___

TRANSMISSION FLUID

The Allison 4000-EVS transmission shall be delivered from the factory with a synthetic SAE standard ATF, Transynd.

Y___N___

TRANSMISSION PROGRAMMING

The transmission shall be programmed as a 5-speed with 5th gear (overdrive) selected by mode button only.

Y___N___

TOUCH PAD TRANSMISSION SHIFT CONTROL

Touch pad control shift module shall be mounted to the right of the driver on the console and be indirect lighted for after dark operation.

Y___N___

WARRANTY

Allison provides a 5 year warranty on the EVS transmissions. See warranty certificate for complete details.

Y___N___

DRIVELINE

Drivelines shall be built with heavy-duty metal tubes and utilize Spicer 1810 series or "Equal" mechanics type universal joints with "half round" end yokes. This quick disconnect strap and bolt design type end joint shall allow the driveline to be easily disassembled and dropped straight down for ease of service and maintenance. They also shall be dynamically balanced by the truck manufacturer before installation in the chassis. A splined slip joint is to be provided in each shaft assembly. A grease zerk shall be provided for lubrication of the slip joint.

Y___N___

DRIVESHAFT DROP GUARD

One (1) drive shaft drop guard shall be provided in the middle of the drive shaft to prevent damage to the vehicle should the drive shaft fail. It shall be constructed of 2" x 1/2" steel bar stock. It shall be a two piece design with one straight bar installed over the drive line with formed ends bolted to the frame side rails. The other piece shall be "U" shaped with the drive line running through it. Its top shall be flanged and bolted to the other cross member so that it may be removed if drive shaft requires servicing.

Identify which drive shafts require the drop guard: Rear Shaft

Y___N___

FUEL WATER SEPARATOR WITH ALARM

A Fleetguard FH230 Series (Davco Fuel Pro® 382) top load 7 micron filter with fuel water separator, water sensor alarm and 12V fuel heater shall be mounted in a serviceable and accessible location, that the cab may need to be tilted for.

The filtering system shall be remote mounted on the chassis and shall include the check valve. The system shall have a drain valve and aluminum housing.

Y___N___

ENGINE STARTER

A Delco, 12 volt, 39 MT-HD starter shall be installed.

Y___N___

AIR COMPRESSOR

A Wabco 26.0 cfm air compressor shall be furnished. The air compressor shall be gear driven off the engine.

Y___N___

EXHAUST

A single exhaust module containing an SCR chamber and a DPF chamber shall be installed on the right side of the vehicle, immediately behind the cab. The exhaust module shall ingest urea from a remote storage tank to remove NOx from the exhaust. The exhaust assembly shall be mounted outboard of the frame rail.

Y___N___

TELMA FOCAL RETARDER

A Telma Focal retarder shall be installed in the drive line to provide an auxiliary braking device for the vehicle. Telma application shall be achieved by depressing the brake pedal. There shall also be a four lamp indicator system to indicate the progressive stages of vehicle retardation. A momentary on/off switch with indicator light defaults on, resetting with the battery switch. The retarder shall be reset with the ignition or by pressing the switch a second time. The Telma relay box shall be mounted at the manufacturer's discretion in an easily accessible location for service.

Y___N___

The Telma operation shall be first two stages off throttle.

Y___N___

WARRANTY

Cummins provides a 5 year or 100,000 mile warranty on the X12 engine. See Cummins Warranty Certificate for complete details of terms, conditions and deductibles.

Y___N___

COOLANT OVERFLOW RESERVOIR

A six (6) quart coolant overflow reservoir shall be provided. It shall be located in the engine compartment.

Y___N___

SILICONE HOSES

All hoses in the cooling system shall be silicone type with stainless steel constant torque Oetiker clamps.

Y___N___

FUEL SYSTEM

The vehicle shall be furnished with a 50 gallon fuel tank mounted behind the rear tractor axle and just below the frame rails using a stainless steel strap. The tank shall be constructed of stainless steel and equipped with a swash partition and vent. The fuel tank shall meet all FHWA requirements including a fill capacity of 95% of tank volume and all DOT and FMVSS regulations for rollover protection. A 2" diameter fill inlet, located on the top of the tank, shall be provided. Fuel cap shall be of brass or bronze construction, non-vented and have lead safety fuses. It shall be chained to inlet tube or to the body sheet metal to prevent loss. Braided hoses shall be provided for the fuel lines. A 1/2" NPT drain plug shall be located at the bottom of the tank. The tank shall be installed using stainless steel straps and hardware, separated from the tank by a rubber insulating strip to prevent against chaffing. The fuel tank pickup tube and sending unit shall be accessible without having to remove the tank.

Y___N___

FUEL LINE SHUTOFF VALVE

A fuel line shutoff valve shall be provided to prevent fuel from draining back while changing fuel filters.

Y___N___

The fuel line shutoff valve shall be located near the fuel water separator on the **input side and near the fuel tank.**

Y___N___

ENGINE FUEL COOLER

An engine fuel cooler shall be provided on the apparatus. The engine fuel cooler shall cool the returning fuel from the engine.

Y___N___

ELECTRIC FUEL PUMP

An auxiliary electric fuel pump shall be provided in the fuel line to assist in priming the fuel system. Switch for pump shall be located on cab instrument panel and labeled "For Priming Only".

Y___N___

ALTERNATOR

A 430 amp Delco alternator, model 55SI, shall be provided.

Y___N___

AIR CLEANER

A Donaldson® PowerCore® dry type engine air cleaner shall be provided. It shall be installed in a location so that the filter element can be easily serviced.

Y___N___

AIR RESTRICTION INDICATOR IN INFORMATION DISPLAY CENTER

An electrical engine air restriction indicator shall be provided and installed in the cab information display center.

Y___N___

DPF REGENERATION PROCESS

NFPA 12.2.6.7.1 The regeneration process shall be activated by two methods:

1) Automatically by the engine system but only when the transmission is in gear and the speedometer indicates a speed above 5 mph (8km/hr) whether the apparatus is in motion or is operating in stationary pump mode with an engine rpm sufficient to register 5 mph (8 km/hr) on the speedometer.

2) Manually when initiated by activation of a switch located in the driver's area of the driving compartment.

There shall also be an inhibit switch placed near the driver to inhibit an automatic reburn.

Y___N___

DEF

The urea mixture, a solution of 2/3 water and 1/3 urea which reacts with NOx to create nitrogen and water, shall be stored in a 10 gallon tank equipped with a level sensor and alarm to prevent run-out.

Y___N___

DEF ACCESS

The DEF shall be filled via a vertically hinged aluminum tread plate door with a 1/4 turn latch. The door shall be located over the intermediate step in the driver's side crew cab step area.

A viewing slot shall be provided in the vertical surface of the left crew cab step riser below the intermediate step. The slot shall be marked with a black line to indicate the maximum DEF fill level.

Y___N___

EXHAUST HEAT SHIELDS

Heat shields shall be provided as needed to prevent damage to body and wiring from excessive exhaust temperatures. The exhaust pipe shall be wrapped in multi-layered insulation blankets, from just aft of the turbo down to inlet side of the DPF. Each blanket shall have a fiberglass inner layer and a silicone impregnated fiberglass cloth outer layer

The cab shall receive 1.25" thick foil back insulation blanket under the crew floor to reduce floor temperatures.

All harnesses and cables, in proximity to exhaust system components, shall be protected with insulation.

Y___N___

FAST IDLE SWITCH

A fast idle switch shall activate an engine high idle. The circuit shall be wired through the neutral safety/parking brake interlock to prevent activation when the transmission is

in the road mode. Fast idle shall be set at 1000 RPM's. A switch located inside the cab convenient to the driver shall be provided for this system.

Y___N___

LUBRICATION NAMEPLATE

A nameplate shall be installed that specifies the quantity and type of the following fluids used in the vehicle and tire information:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid
- Pump priming system fluid, if applicable
- Drive axle(s) lubrication fluid
- Air condition refrigerant
- Air conditioning lubrication fluid
- Power steering fluid
- Cab tilt mechanism fluid
- Transfer case fluid
- Fuel
- Diesel Exhaust Fluid
- Windshield Washer Fluid
- Auto Lubrication System lubricant, if applicable
- Equipment rack fluid, if applicable
- Foam system lubricant, if applicable
- Generator system lubricant, if applicable
- Aerial Hydraulic Fluid, if applicable
- Front tire size and cold pressure
- Inter tire size and cold pressure, if applicable
- Rear tire size and cold pressure
- Trailer tire size and cold pressure, if applicable
- Maximum tire speed ratings
- Ambient operating temperature
- Paint colors and codes

A layer of Velvet Polycarbonate shall overlay the lettering to protect it. The lubrication nameplate shall be installed on the interior face of the driver's door, near the hinge and below the window controls.

Y___N___

TRAILER FRAME

The trailer frame shall be of the curved gooseneck design, welded channel construction, incorporating a forward section for the turntable and rearward section for the body and tiller station. The frame is to have a 110,000 PSI yield and a minimum resistance to bending moment of 2,300,000 in lbs. per rail.

The distance from the center line of the tiller axle to the trailer frame cut off shall be 126.0"

Y___N___

FIFTH WHEEL

A heavy duty fifth wheel shall be provided with a monorace bearing of a minimum of 3" x 30" in diameter. The mounting plate shall be bolted to the tractor frame rails using .75" grade 8 bolts. The longitudinal pivot shall utilize two (2) 1.75" minimum diameter 4340 heat treated steel pins mounted in double shear.

Y___N___

AXLE

The trailer axle shall be Dana Model D-2200W with auto slacks, Meritor EX225 air disc brakes and a rated capacity of 21,500 lbs. Chrome plated wheel nut covers shall be furnished.

STEERING

A steering gear pump and assist cylinder shall be provided for the trailer axle steering.

Y___N___

SUSPENSION

The tiller axle suspension, (up to 21,500 lb), shall be a Ridewell RAS-227 air type. Heavy duty sway and stabilizer bars as well as shock absorbers shall be provided. A 1250 cubic inch air reservoir will be provided to supply the required air for the suspension.

Y___N___

BRAKES

The trailer is to have full air type Meritor brakes. The system is to meet or exceed current FMVSS-121 requirements.

Y___N___

NYLON BRAKE PIPING

Nylon brake lines shall be provided in the trailer frame.

Y___N___

TILLER TIRES

The two (2) tiller tires shall be Goodyear 425/65R22.5 G296 MSA load range "L", on/off highway tread. This tire has a nominal rating of 11,400 pounds at a top speed of 68 mph and an intermittent fire service rating of 12,200 pounds at a top speed of 68 mph..

Y___N___

TILLER WHEELS

The tiller wheels shall be steel disc type and hub piloted. Chrome plated nut covers shall be furnished.

Y___N___

TILLER AXLE HUB CAPS

Stainless steel "Baby Moon" type hub caps shall be provided on the tiller axle.

Y___N___

REAR TRAILER TOW EYES

Two (2) cut plate painted tow eyes are to be provided. They shall be bolted (welding not acceptable) directly to the trailer frame rails.

Y___N___

STAINLESS STEEL FULL TILTING CAB

The cab shall be designed specifically for the fire service and shall provide roll cage strength and safety. The stainless steel cab shall be made in the factory of the bidder and must utilize the bidder's top-of-the-line technology and manufacturing techniques. The entire cab shall tilt forward 45 degrees for engine access. No plastic, fiberglass, or aluminum shall be used in the construction of the cab sub-frame, floor assembly, front assembly, side assemblies, back wall assemblies or roof assembly. There shall be no exception.

CAB DIMENSIONS

The back wall of the 131" cab shall measure 62" from the center of the front axle. The cab shall have an inside width of 91" and outside width of 96". There shall be no exception.

CAB MOUNTING

A four point mounting system shall be provided. The cab mounting system shall consist of two (2) front pivot mounts fabricated of steel and two (2) rear cab mounts that are isolated from the chassis frame by center bonded rubber isolators. Each front pivot mount shall consist of a greaseless pin and a multi-layered, self-lubricating, composite bearing. The outer layer of the bearing shall be high-durometer rubber to isolate road vibrations and shock.

CUSTOM CAB DESIGN AND CONSTRUCTION

SUB-FRAME

The sub-frame shall be stainless steel plate and tube welded to 3” x 4” rectangular structural steel tubes, with the 4” stainless steel tubing used in a vertical orientation. All joints shall have continuous welds; stitch welding shall not acceptable. The sub-frame shall be designed as a continuous structure from the front to the back of the cab. It shall be used to support the cab while tilting, join front pivots to the cab locks, and to join the cab to the chassis. Pocketing of the sub-frame shall not be acceptable. There shall be no exception.

FRONT ASSEMBLY

The safety cage section at the front of the cab shall be constructed of 1.25" stainless steel tubing and shall join the front door posts together with the main sub-frame. There shall be a 2.50" x 1.50" x .25" heavy wall lower cross tube that joins the cab sills together to prevent cab twisting when tilting the cab. The front fire walls shall be set back from the front assembly structure to provide added protection in a frontal crash. The outer cab skin shall not be an integral structural member, although it shall help stiffen the cab front face.

CAB FLOORS

All floor components shall be welded directly to the sub-frame. The floor shall be constructed of 50,000 psi stainless steel.

SIDE WALL ASSEMBLIES AND DOORS

The safety cage on the sides shall be constructed of 1.25" stainless steel tubing. Both side wall assemblies shall be joined to the sub-frame via thick tubular structures, using heavy fillet welds. This shall strengthen the walls to withstand high roof loading. The side wall outer skins shall be integral with the cab structure as well as additional formed components to help stiffen side wall assemblies. There shall be 1.25" of insulating foam between the exterior and interior side walls. The structure shall be reinforced for cab entry grab handle mountings.

The front door hinge mount (aka "A" pillar) shall be a 2" x 3" tube with a .19" thick wall. The rear door hinge mount (aka "C" pillar) shall be equivalent to a 12 gauge formed channel with .19" thick tapping bar. There shall be no exception.

BACK WALL ASSEMBLY

The safety cage on the back wall shall be constructed of 1.25" stainless steel tubing. It shall join the roof to the floor assembly. Construction of the back wall assembly shall utilize a minimum of 12 gauge stainless steel material and the design shall provide crush protection in the event of a rollover. The back wall structure shall be uniform, regardless of the seating choices. All seat mounts and seat belt mounts shall use weld nuts to eliminate pull outs and stripped threads. The outer skins shall not be an integral structural member. One inch of insulating foam shall be located between the exterior and interior back walls.

ROOF ASSEMBLY

The perimeter structure of the safety cage roof assembly shall be tied by repeating 1.25" stainless steel tubing to maximize loading potential across the whole roof. The fabricated and welded roof sills and front header shall be made of 50,000 psi stainless steel material. The corner caps shall utilize spun metal technology thus retaining the metal's strength while producing a very rigid corner joint. The side roof covering (rolled edges) shall be constructed of stainless steel formed in a quarter round. It shall form a hollow double

wall, angle reinforced roof edge with an integral drip rail. There shall be 1.25” of insulating foam between the exterior roof and interior ceiling. There shall be no exception.

Y___N___

CAB DOOR CONSTRUCTION - BARRIER CLEARING

The cab doors shall be barrier clearing and fabricated from stainless steel (No exceptions). The cab doors shall be 34.75" wide. The interior and exterior door handles to be flush mounted paddle style with a Trimark TM202 keyed lock incorporated in the exterior handle and lever control lock incorporated in the interior handle. One (1) key per door shall be provided. Six (6) inch wide strap style door checks shall be provided. The door check’s straps shall have a tensile strength of 120 lbs/in of width. The door’s latch locking mechanism shall make it impossible to lock oneself out of the cab unless locked with the supplied key. Doors shall be hung on stainless steel full length hinges attached to cab and door with .25" bolts. The hinges for each door shall be of one-piece 304-2B stainless steel construction with ¼ stainless steel pins and 0.090 gauge leaves with 2” joints and a 3” width opening. Doors shall meet Federal Motor Vehicle Safety Standard #206. The doors shall be designed so as to allow the windows to roll completely down. There shall be no exception.

Entrance step wells to the driver's and officer's positions shall be a minimum of 26" wide and the rear crew step wells shall be 26" wide. They shall be "spaced" from the step well walls at front, rear and side to prevent trapping of dirt and other residue. Entrance steps shall be made of expanded grating.

Y___N___

The front cab doors shall open approximately 75 degrees.

Y___N___

The rear crew cab doors shall open approximately 90 degrees.

Y___N___

INNER DOOR PANELS – BLACK LINE-X (4)

The upper inside bolt-on panel on each cab door shall be removable and shall be constructed of aluminum covered with black LINE-X.

Y___N___

STOP SIGNS

A reflective stop sign shall be provided on the interior lower portion of the four (4) cab doors in place of the required NFPA reflective chevron.

Y___N___

CAB TILT

The cab shall tilt a minimum of 45 degrees for normal servicing of the engine and other equipment. The tilt cab locking system shall be a two-point type that locks automatically when the cab is lowered into its nested position. The cab tilt package is custom designed for safety and ease of vehicle maintenance. The hydraulic tilting system consists of two (2) heavy-duty single acting cylinders equipped with velocity fuses at the cylinder base in case of any failure in the operating mode. The power supply is a high efficiency electric over hydraulic system with an integral mechanical override in case of battery failure. All

components and parts are designed for installation with a minimum of 3 to 1 safety factor based on current S.A.E. standards.

In addition to the velocity fuses, a secondary safety system shall be provided to hold cab in the fully raised position in the event of a failure in the primary lift mechanism. It shall consist of a metal channel device, which automatically drops over the extended rod of the left side hydraulic lift cylinder thereby preventing its retraction. The safety channel can only be released through an overt action made by the operator such as pulling a lever or cable. Automatic release of the safety system shall not be acceptable.

The cab tilt system shall be remotely controlled utilizing a twelve foot cable with a hand held push button device which is to plug into a receptacle in the bumper area on the left-hand side of the cab. The receptacle shall have a spring-loaded weatherproof cover.

Y___N___

ENTIRE CAB FLOOR

The entire cab floor shall be covered with a black mat that functions as a sound dampening barrier. The mat shall have a pebble textured heavy-duty wear surface and be laminated to a foam underlay. The mat shall be composed of a vinyl-nitrile blend, which is the base material used in IV tubes and blood bags; it is not affected by blood or other body fluids.

Y___N___

FORWARD CAB FLOOR

Aluminum tread plate flooring shall be installed over the insulated forward cab floor matting. The ATP shall be covered with LINE-X. Flooring shall be removable in sections and may be notched around floor mounted components.

Y___N___

The cab floor overlay LINE-X shall be black.

Y___N___

CREW CAB FLOOR

Aluminum tread plate flooring shall be installed over the insulated crew cab floor matting. The ATP shall be covered with LINE-X. Flooring shall be removable in sections and may be notched around floor mounted components.

Y___N___

The cab floor overlay LINE-X shall be black.

Y___N___

ATP OVERLAY ON BACK OF CAB

An aluminum tread plate overlay shall be provided on the exterior rear wall of the cab. Strips of aluminum tread plate shall cover the full height of the rear wall of the cab, and shall run from the outside edge of each side of the cab in towards the center approximately one-quarter of the width of the cab. If an optional window is provided on the rear wall of the cab, it shall be fully surrounded by the aluminum tread plate.

Y___N___

CAB GRILLE - VERTICAL BARS AND RAISED BEZEL SURROUND

The cab front opening shall be covered with a custom made polished stainless steel grille that shall be fabricated in the bidder's factory. The grille shall have formed vertical bars spaced apart on 2" centers. The upper polished stainless steel grille shall have a matching lower counterpart to further facilitate engine cooling. The two (2) stainless grilles shall be housed in a custom, raised and chrome plated bezel.

Y___N___

UPPER RAISED BEZEL SURROUNDS, WITH PANELS

A custom raised and chrome plated bezel shall be installed on the front face of the cab, on each side of the front grille. Housed within each bezel shall be a removable panel, painted job color. The removable panel shall provide service access to the forward side, firewall mounted electrical connections and wiring harness.

Y___N___

FRONT GRILLE SCRIPT NAMEPLATE

A "Manufacturer" nameplate, fabricated from AISI 304 stainless steel, with mirror finish, shall be located on the lower front engine cooling intake grille of the cab.

Y___N___

ENGINE AIR INTAKE GRILLE WITH WATER/EMBER SEPARATOR

The air intake shall be concealed behind the cab grille. The water and ember separator shall set behind the cab grille on the officer’s side. This may be cleaned or replaced by tilting the cab.

Y___N___

FLAT ROOF

A flat roof shall be provided with an interior floor to ceiling height of 57".

Y___N___

PAINTED CAB ROOF WITH ATP STRIPS

The exterior surface of the cab roof shall be painted in compliance with the cab paint specifications detailed elsewhere in this specification document. A strip of embossed, skid resistant aluminum tread plate shall be provided on each side of the cab roof, parallel to the cab side near the outside edge.

Y___N___

FAMA26 NO-STEP SIGN

In accordance with NFPA 1901 chapter 15.7.1.6, a FAMA26 "No-Step" sign shall be located on the rear of the cab roof. The sign reads: "Fall Hazard-Railings NOT provided. Surface may be slippery - Not intended for stepping, standing or walking. Fall will injure or kill".

Y___N___

FRONT INTERMEDIATE CAB STEPS

Two (2) stationary steps shall be provided, one at each front cab door. The steps shall be approximately 12.0” long, have a 9.0” radius, and be located to the front of each cab step well. The steps shall be constructed of aluminum grating.

Y___N___

REAR CREW INTERMEDIATE CAB STEPS

Two (2) stationary steps shall be provided, one at each rear crew cab door. The steps shall be approximately 12.0” long, have a 9.0” radius, and be located to the front of each cab step well. The steps shall be constructed of aluminum grating.

Y___N___

CAB SIDE ACCESS DOOR

Two (2) stainless steel cab side access doors shall be provided on the cab, one each side between the front doors and front crew cab windows. Door openings shall be approximately 13.00" wide x 25.00" high. The doors shall open a minimum of 90 degrees.

Y___N___

The cab side access doors shall be vertically hinged at the front edge.

Y___N___

The doors shall each have a strap style door stay.

Y___N___

The "D" handle type latches shall be provided on the upper part of the door.

Y___N___

KEYED LOCKS

There shall be keyed locks for both the cab side access doors. The driver's side and officer's side access doors shall be keyed alike with #1250 keys.

Y___N___

CAB SIDE ACCESS DOOR SILL PROTECTORS

Brushed stainless steel sill protectors, approximately .50" wide, shall be provided on the cab side access door sills to protect the painted finish.

Y___N___

CAB SIDE ACCESS DOOR FRAME SCUFF PLATES

A brushed stainless steel scuff plate shall be installed on the striker side of each cab side access door frame and shall run the full height of the door opening. The scuff plate shall be a single bend configuration that guards the outer door frame post from damage and chips to the paint.

Y___N___

CAB ACCESS AREA TRAYS-BOTH SIDES

An aluminum tray, approximately 16.5" wide x 21.5" deep with a 2" lip, shall be provided and mounted to the floor area aft of the driver's seat and aft of the officer's seat. The trays shall be spaced up from the floor by 1/2".

Y___N___

The cab access area tray(s) shall be painted to match the cab interior Zolatone finish.

Y___N___

COMPARTMENT LIGHTS - LED

Each cab side access door shall have a ROM LED lighting strip installed. The full height lighting strip shall be mounted vertically at the hinged side of the cab door. The LED lights shall be mounted in an anodized aluminum track. A switch, installed in the door jam, shall be used to activate light.

Y___N___

FRONT STAINLESS STEEL INNER LINERS

Semi-circular inner liners shall be provided in each front wheel housing. They shall be constructed of 304 stainless steel and shall be bolted in place so they may be removed if damaged. Self-tapping sheet metal screws are not acceptable. The outside edge of the inner liner shall be bolted along its entire length. The bottom edge of liner shall not have a formed reinforcement flange to avoid trapping dirt and debris. There shall be no exception.

Y___N___

FRONT FENDERETTE

Polished stainless steel fenderettes shall be installed in the front wheel openings. They shall be sufficiently wide to completely cover the front tire and reduce wheel splash along the sides of the cab. They shall be installed with 1/4" hex head bolts (self-tapping sheet metal screws are not acceptable) and have a full width rubber welt placed between the fenderette and body wheel well opening flange. Outside edge of welting shall form a "V" bead between fender and cab side face to prevent moisture from entering. Inside edge shall also have a small raised bead. Outside edge of fenderette, at the wheel opening shall be rolled inward to eliminate a sharp edge and avoid injury when cleaning apparatus.

Y___N___

FRONT MUD FLAPS

Heavy duty mud flaps with the manufacturer's logos placed on the rear face shall be provided and installed to the rear of the front wheels. Flaps shall be 14" wide and be made of 0.38" heavy duty rubber material to prevent "sailing".

Y___N___

REAR MUD FLAPS

Heavy duty rear mud flaps with the manufacturer's logo placed on the rear face shall be provided and installed to the rear of the rear dual wheels. Flaps shall be 24" wide and be made of 0.38" heavy duty rubber material to prevent "sailing".

Y___N___

REAR BODY MUD FLAP WITHOUT ALUMINUM STRIP

A heavy duty mud flap, the width of the body, shall be installed aft of the rear wheel mud flaps on the rear of the body. The mud flap shall be centered in line with the rearmost

compartment behind the axle and shall be approximately 3 inches from the ground.

Y___N___

TILLER WHEELS MUD FLAPS

Heavy duty rear mud flaps with the manufacturer's logo placed on the rear face shall be provided and installed to the rear of the tiller wheels. Flaps shall be 24" wide and be made of 0.38" heavy duty rubber material to prevent "sailing".

Y___N___

CROSSOVER MIRRORS

An approximately 8" diameter mirror with polished stainless steel housing shall be provided on the **right and left** front of the cab above the windshield. The main adjustment bar shall be mounted to the cab roof.

Y___N___

The crossover mirror shall be convex.

Y___N___

The crossover mirror bracket shall have an outboard location.

Y___N___

LOOK DOWN EXTERIOR MIRROR

A Velvac model 715198 convex mirror shall be **located above the officer's side door,** centered over the door with the mirror facing downward to enable viewing of the stepping surface where the vehicle is parked.

Y___N___

MIRRORS

Two (2) Rosco Accustyle heated mirrors with remote shall be installed on the cab doors, one on each side of the cab. The flat upper mirror shall measure 7" x 14" and the lower convex section shall measure 6.5" x 6". The mirrors shall have a chrome finish.

Y___N___

The mirrors shall be wired through the ignition.

Y___N___

WINDSHIELD

The windshield shall be of tinted automotive laminated safety plate glass with a curved two-piece design. The windshield shall have approximately 2900 square inches of visual area. Right and left hand windshield glass shall be symmetrical and interchangeable from side to side to minimize spare parts stock and expense. Windshield shall be installed and held in place by an extruded rubber molding with a bright finish, decorative, locking bead. Cab shall be finish painted prior to windshield glass being installed.

Y___N___

WINDSHIELD WIPERS AND WASHERS

One (1) wet arm operated windshield wiper shall be provided for each plate of windshield glass for accessibility and optimum windshield wiping surface areas. Wipers shall be two speed type with intermittent wiping feature. One (1) control switch shall be provided and located on the self-canceling directional switch for both wiper arms. The switch shall

combine the on/off (automatic park position), two speed, intermittent and washer functions in one control. The turning switch shall activate the wipers and control speed, and pushing it shall operate the washers.

Y___N___

WINDSHIELD WASHER RESERVOIR

A four (4) quart windshield washer fluid reservoir shall be provided. It shall be accessed in the driver's step well with a remote fill. A visual inspection shall be possible without tilting the cab (NO EXCEPTIONS).

Y___N___

DOOR WINDOWS

A retractable window with automotive type tempered safety glass shall be provided in all four (4) cab doors. All glass shall be tinted. Glass shall slide in stainless steel side channels with cloth/fiber liners. Rubberized fiber seals shall be located at the bottom of the window opening to prevent water and debris from entering the interior of the door when the glass is up (or down). A seal shall be placed on both sides (interior and exterior) of the glass. The front door glass shall be 23.75" high x 25.75" wide upper and 27.50" wide lower. The rear door glass shall be 23.75" high x 30" wide. The door window openings shall be trimmed on the exterior side with a smooth, black, poly vinyl chloride (PVC) molding

Electric power window regulator shall be manufactured by the Muncy Corporation and shall be the enclosed, sliding flexible shaft, gear type for ease of operation and reliability. The shaft shall enter a vinyl plastic protective sheath whenever it is exposed. A 12 volt electric motor with gear reduction box to slow driven gear rpm and increase power transmission shall be provided. Individual switches shall be provided so that the driver controls the left side forward door window, officer the right side and crew occupants the rear.

Y___N___

DRIVER'S DOOR GLASS SWITCH

An individual switch for the driver's electric door window shall be provided on the driver's dash.

Aftermarket add-on type electric power window conversion devices like the type that replaces the crank arm will not be acceptable.

Y___N___

OFFICER'S DOOR GLASS SWITCH

An individual switch for the officer's electric door window shall be provided on the officer's dash.

Aftermarket add-on type electric power window conversion devices like the type that replaces the crank arm will not be acceptable.

Y___N___

CREW DOOR GLASS SWITCHES

An individual switch for the crew electric door windows shall be provided on the crew doors.

Aftermarket add-on type electric power window conversion devices like the type that replaces the crank arm will not be acceptable.

Y___N___

ADDITIONAL SWITCHES

Three (3) additional switches shall be provided to allow driver to operate all power cab door windows.

Y___N___

CREW CAB SIDE GLASS

There shall be a side window on each side of the cab between the doors. They shall be tinted and be manufactured of automotive tempered safety glass. Each window shall be 23" high x 17" wide to provide maximum vision. They shall be installed and held in place by an extruded rubber molding with a chrome plated, decorative, locking bead. Cab shall be finish painted prior to window glass being installed.

Y___N___

CREW CAB WINDOWS TINT

The crew cab windows shall have a blue-green tint.

Y___N___

CAB DOOR FRAME SCUFF PLATES

A brushed stainless steel scuff plate shall be installed on the striker side of each cab door frame and shall run the full height of the door opening. The scuff plate shall be a single bend configuration that guards the outer door frame surface from damage and chips to the paint.

Y___N___

CAB DOOR HINGES

All piano hinges on the exterior cab doors shall be mill finished.

Y___N___

CAB HANDRAILS AND GRAB HANDLES

Handrails shall be 1-1/4" diameter extruded aluminum, knurled, with a bright anodized finish.

All handrail stanchions shall be chrome plated. They shall be bolted to the body with 1/4" stainless steel hex head bolts. Stanchions shall have a rubberized gasket placed between them and the body surface they are mounted on. A drain hole shall be provided in each bottom stanchion.

Handrails and handles shall be installed as follows:

Four (4) 24" handrails shall be installed on the side of the cab, one just to the rear of each cab door.

Four (4) 6" chrome grab handles shall be provided, one on the inside of each cab door:

Two (2) 12" rubber covered grab handles shall be provided, one on the driver's side and officer's side front A-pillar, above the door hinge, to assist in entry to the cab.

Two (2) 12" rubber covered grab handles shall be provided, one on each rear crew door hinged-pillar, on the hinged side of the door, to assist in entry to the cab.

Y___N___

CRASH TEST

The cab shall be certified for the following tests:
SAE J2420: Cab Over Engine (COE) Front Strength Evaluation - Dynamic Loading - Heavy Trucks
SAE J2422: Cab Roof Strength Evaluation - Quasi Static Loading - Heavy Trucks
ECE Regulation 29: Protection of Occupants of Cab in Commercial Vehicle

Performance Measure:
1. After undergoing each test, the cab of the vehicle shall exhibit a survival space accommodating a 50th percentile male ATD in the median position without contact between the manikin and non-resilient parts for all seating positions.
2. None of the doors shall open during the tests.
3. The cab attachments may be distorted or fractured, however, the cab shall remain attached to the vehicle frame in at least one attachment location.

Y___N___

HELMET HOLDER - BODY

The helmets shall be stored in the body in accordance with NFPA 1901 current regulations:

NFPA 14.1.8.4.1 A location for helmet storage shall be provided.

NFPA 14.1.8.4.2 If helmets are to be stored in the driving or crew compartment, the helmets shall be secured in compliance with 14.1.11.2.

Y___N___

CAUTION LABELS

Caution labels shall be posted in the main cab and the tiller cab so that they shall be visible from each seat position. The labels shall read: “Do Not Wear Helmets While Seated”.

Y___N___

HEADLINER

The cab shall be provided with a removable gray headliner for ease of servicing the

electrical wiring placed in the cab roof. The headliner shall consist of 3 layers of material. Next to the roof shall be a layer of acoustical insulation made of polyester and polypropylene fibers. The next layer is 1/4" thick Luann. Finally, there is a 1/4" thick layer of foam/perforated acoustical vinyl.

The headliner shall be the multi-piece type (minimum of three (3) sections) so that the entire liner does not have to be removed for localized maintenance.

Y___N___

BACK LINER

The cab shall be provided with an aluminum tread plate removable back liner. The back liner shall be the multi-piece type (minimum of three (3) sections) so that the entire liner does not have to be removed for localized maintenance.

Y___N___

HEAD BUMPERS

Two (2) padded gray vinyl head bumpers shall be provided each side on the interior of the cab above the crew doors in the header area.

Y___N___

PAC TRAC ON CAB BACK WALL

A Pac Trac 7000 assembly shall be installed on the interior rear cab wall, on both the driver's side and the officer's side outboard positions, starting at floor level. The Pac Trac on each side shall measure approximately 20" wide overall by 51.75" high.

Note: Other options selected for the cab interior, such as seats, speakers, back wall windows, compartments and other mounting brackets may affect the dimensions of the Pac Trac.

Y___N___

ENGINE ENCLOSURE

The engine enclosure structure shall have a 1-1/4" thick inner lining, on the engine side, comprised of aluminized foil and foam/barrier composite for heat insulation. The tunnel cover shall have 1/2" decoupled foam lower and 1" decoupled foam upper covering, on the cab interior side, for noise insulation. The top forward portion of the hood shall have a full-width riser with a sloped face for the installation of the switch panel. The sloped panels shall be used for vehicle accessory controls. A minimum of 1" shall be provided between the right edge of the accelerator pedal and the side of the engine hood. A removable cover over the engine enclosure and insulation shall be coated with black LINE-X to act as an insulator for sound and engine temperature, as well as to provide an easy-to-clean work surface.

In order to optimize in-cab vision and seating space for the driver, officer and crew members while properly seated and belted in turn-out gear, the maximum overall dimensions of the engine enclosure shall not exceed:

- 26.25" from floor to top of engine tunnel between driver and officer
- 26.25" from floor to top of engine tunnel at front center dash panel
- 31.25” from floor to top of driver and officer dash panels

ACCESSORY MOUNTING STRUCTURE

The top portion of the engine enclosure shall have a 1/8" thick aluminum channel frame located between the engine tunnel structure and the cover to support the cover and facilitate mounting of accessories and equipment.

ENGINE COMPARTMENT ACCESS DOOR

An access door shall be provided at the rear of the engine enclosure for routine engine fluid checks. The access door shall be insulated from engine heat with aluminized foil/foam/barrier composite and sealed to prevent exhaust fumes from entering the crew cab.

Y___N___

REMOVABLE PANELS - TUNNEL

A set of access panels LINE-X'd to match the engine tunnel shell shall be installed on top of the engine tunnel shell. They shall only provide access into the area beneath the shell and not into the actual engine tunnel. They shall be approximately the full width of the tunnel and shall be provided on each side of the horizontal split.

Y___N___

18" STEERING WHEEL WITH TILT/TELESCOPE

A padded 18" steering wheel with center horn ring shall be provided. The upper steering column shall be of the tilt and telescopic type. A self-canceling directional switch with wiper control and headlight dimmer control shall be mounted on the steering column with an ICC four way flash switch. The self-canceling directional switch shall be easily removable and replaceable without removing the steering wheel or column assembly. The junction of the shaft and the cab floor shall be sealed to prevent air exchange between the cab interior and exterior.

Y___N___

BLACK LINE-X FOR CAB DASH

The cab dash shall be sprayed with black LINE-X having a high resistance to abrasion and tearing. A vinyl cloth glued or laminated in some manner to a metal backing surface shall not be acceptable.

The LINE-X shall absorb impact without surface damage. The LINE-X shall be resistant to gasoline, diesel fuel, paints, bleaches, organic solvents and other cleaning agents and chemicals. It shall include sound dampening and vibration elimination properties.

The LINE-X shall be solvent free and be environmentally safe to apply with no VOC or CFC hazards. Its surface shall have a non-glare, granular texture and be easily cleaned with common cleansing compounds.

Y___N___

OVERHEAD DASH

An overhead drop down dash shall be provided with a full length piano hinge and four (4) 1/4 turn latches. This dash shall incorporate areas designed to hold emergency switching and selected options such as control heads and indicators that shall be accessible to the driver and officer. The overhead dash shall have a black LINE-X finish.

Y___N___

LIMITING STRAP

A strap shall be provided to limit the extent of opening range for the overhead power distribution area (overhead dash) access. This 2" wide, retention strap shall prevent the contact between the upper, overhead, power distribution access housing and the lower, center, dash housing. An approximate clearance of 3 inches shall be maintained between the upper and lower dash structure and retained by the strap. The strap shall be fastened by footman loops between the cab roof structure and hinged upper power distribution housing.

Y___N___

OFFICER'S DASH

The standard (no notch) configuration of the officer's dash shall be provided.

Y___N___

SUN VISORS

Two (2) approximately 8" x 28" padded, black sun visors shall be provided, one on the driver's side and one on the officer's side. Visor shall be supported at both ends to prevent drooping.

Y___N___

CUP HOLDER

Two (2) cup holder(s) with a black Line-X finish shall be installed in the cab. The cup holder shall be designed for mounting on top of the engine tunnel.

Y___N___

The cup holder shall be shipped loose.

Y___N___

VEHICLE DIMENSION SIGN

A sign shall be provided in the front cab area indicating the height of the completed apparatus in feet and inches, length of the completed apparatus in feet and inches, and the gross vehicle weight rating (GVWR) in tons.

Y___N___

CABLE RACEWAY

A cable raceway, 1.75" x 5.75", shall be installed underneath the officer's floor. It shall run between the officer's kick plate and the seat riser.

Y___N___

The cable raceway shall be opened underneath the officer seat to assist in the installation of radio or additional equipment.

Y___N___

A pull wire shall be provided within the cable raceway to assist in the installation of radio or additional equipment.

Y___N___

DRIVER'S SEAT

The driver's seat shall be an H.O. Bostrom Sierra Air-100 reclining high back seat with air suspension. This seat shall have 5" horizontal adjustment.

Y___N___

The driver's seat shall be held at NFPA regulated height by a C Channel Bracket.

Y___N___

SEAT BELT

The driver's seat shall have a 3-point vertically adjustable D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belt shall be red in color.

Y___N___

OFFICER'S SEAT

An H.O. Bostrom Tanker 450 Air-100 SCBA seat shall be provided for the officer. This seat shall have no forward/aft adjustment.

Y___N___

The officer's seat shall be held at NFPA regulated height by a 3CR12 stainless steel frame that measures approximately 15.5" wide x 3" high x 17.5" deep, front to back at the top and 14.5" deep at the bottom. There shall be a panel on the front and a side opening.

Y___N___

One (1) NFPA compliant IMMI SmartDock Gen 2 SCBA bracket shall be installed in the seat(s). The bracket shall utilize a locking mechanism that engages during deceleration. The bracket shall hold the cylinder in place while in transit and release using no straps, levers, buttons or switches.

Y___N___

SEAT BELT

The officer's seat shall have a 3-point fixed D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belt shall be red in color.

Y___N___

REAR SEATING

The rear crew cab section shall contain two (2) outboard rear facing H. O. Bostrom Tanker 450 SCBA passenger seats. The seats shall be installed one (1) each side at the rear of the engine enclosure. The seating area shall allow maximum room for fire fighters in full turn out gear.

Y___N___

Two (2) NFPA compliant IMMI SmartDock Gen 2 SCBA bracket shall be installed in the seat(s). The bracket shall utilize a locking mechanism that engages during deceleration. The bracket shall hold the cylinder in place while in transit and release using no straps, levers, buttons or switches.

Y___N___

SEAT BELTS

The two (2) outboard, rear facing seat(s) shall have a 3-point horizontally adjustable D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belts shall be red in color.

Y___N___

REAR SEATING

The rear crew cab section shall contain two (2) forward facing seats. The two forward facing seats shall be fold-up seats with bottom and back cushions installed on the rear wall of the cab directly behind the engine enclosure. The seat cushion shall be made by H.O. Bostrom. The seating area shall allow maximum room for fire fighters in full turn out gear. There shall be no logos on the back cushions.

Center forward facing seats on the rear cab wall shall have approximately 5" spacing between the seat brackets unless there are outboard forward facing seats.

Y___N___

SEAT BELTS

The two (2) inboard, forward facing seat(s) shall have a 3-point vertically adjustable D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belts shall be red in color.

Y___N___

ELBOW PADS

Two (2) "head bumper style" elbow pads shall be installed on the engine tunnel inboard of the officer and the driver. They shall be covered in Durawear™ and be attached to the engine tunnel with Velcro. The rear end of the "elbow pad" shall be 26" off from the dash face.

Note: elbow pads may need to be removed in order to access other components.

Y___N___

The color of the elbow pads shall be black.

Y___N___

SEAT UPHOLSTERY

Six (6) cab seats shall be upholstered in black H.O. Bostrom Durawear™ Plus waterproof cloth fabric.

Y___N___

INTERIOR DÉCOR

The following components shall always be black in color:
Floor matting and floor mat edging
Headliner trim
Back liner trim
Crew heater, complete assembly
Electrical panels

Plastic snap plugs for wire access holes
Door seals
Seat risers
Under seat compartments
Seat belt retractor cover.
Rubber covered grab handles
Map Desk, if present

Y___N___

CAPACITY SIGN

A sign visible to the driver, that states the number of personnel the vehicle is designed to carry, shall be provided.

Y___N___

SEW PATCH TO SEAT HEAD REST(S)/SEAT BACK(S)

A customer patch shall be sewn to six (6) seat head rest(s) in place of the Manufacturer Logo. If a head rest is not present, then the customer's patch shall be sewn onto the front of the seat back cushion.

The Manufacturer Logo shall be embroidered onto each side of the seat cushions.

Y___N___

FIRE EXTINGUISHER STORAGE

One (1) Aluminum tread plate extinguisher holders shall be installed below the forward facing center seats. The holders shall be installed on a slight angle toward the front of the cab to allow the extinguisher to be removed while standing. A Velcro strap shall be provided to secure the extinguisher from sliding out. The holder shall be approximately 9.75" wide x 11.0" tall x 20.5" long.

The exterior sides, top and rear shall be covered with black LINE-X over the aluminum tread plate.

Y___N___

HEATER/DEFROSTER-FORWARD CAB

A front cab heater/defroster unit shall be provided. The unit shall have a heating capacity of 30,000 BTU and combined 520 CFM variable speed blower assembly. The unit shall be located on top of the engine tunnel and shall be centered on the windshield. Defroster outlets shall be located at the bottom of the windshield and shall direct air flow from the unit up on to the windshields. Vents shall be located in the drivers and officers dashes and kick plates.

Y___N___

CONDENSER COVER

The air conditioning condenser assembly shall have an additional cover and / or covers to protect the Freon hoses, dryer, valves, switches and / or solenoids above the cab roof and connected to the condenser body.

The main condenser body shall have one fabricated cover with openings for, and above, the condenser fans. The main condenser body cover shall be approximately 7.5" high x 46.5" long x 26.25" wide and fabricated from 1/8" aluminum and painted to match the cab roof.

Additional covers, formed from 1/8" aluminum painted to match the cab roof, shall be provided for hose and harness routing above the cab roof, as necessary.

Note: Condenser location and orientation is dependent on other influential options.

Y___N___

MANUAL COOLANT SHUTOFF VALVE - INLET

The forward cab heater inlet flow shall be interrupted by one (1) manual engine coolant shutoff valve mounted behind the engine for auxiliary engine coolant flow control. The valve shall be 1/4 turn style with label for ease of identification.

Y___N___

MANUAL COOLANT SHUTOFF VALVE – RETURN

The forward cab heater return flow shall be interrupted by one (1) manual engine coolant shutoff valve, mounted on the lower radiator tube, for auxiliary engine coolant flow control. The valve shall be 1/4 turn style with label for ease of identification.

Y___N___

REAR CREW CAB HEATERS

Two (2) rear crew cab heaters with a combined rating of 64,000 BTU output and 850 CFM air flow shall be provided. The rear cab heaters shall be mounted under the rear facing outboard seats each side. The units shall have a variable speed blower, and a removable, replaceable filter. The driver side rear facing heater shall have control of the thermostat and the on/off control.

Y___N___

CREW HEATER MASTER SWITCH

A master switch to the crew heater blower shall be located on the cab dash.

Y___N___

MANUAL SHUTOFF VALVE FOR CREW CAB HVAC COOLANT INLET

The crew cab heater inlet flow shall be interrupted by one (1) manual engine coolant shutoff valve mounted behind the engine for auxiliary engine coolant flow control. The valve shall be 1/4 turn style with label for ease of identification.

Y___N___

MANUAL SHUTOFF VALVE FOR CREW CAB HVAC COOLANT - RETURN

The crew cab heater return flow shall be interrupted by one (1) manual engine coolant shutoff valve, mounted on the lower radiator tube, for auxiliary engine coolant flow control. The valve shall be 1/4 turn style with label for ease of identification.

Y___N___

CAB AIR CONDITIONING SYSTEM

The cab shall be equipped with an air conditioning system that shall include two (2) ceiling mounted evaporators. The air conditioning system shall have a combined cooling capacity of 79,000 BTU and variable speed blower assemblies for a combined 1100 CFM. The main controls for the unit shall be located in the dash. The evaporators shall have air diffusers to allow for multi-directional airflow. Each diffuser shall be adjustable up and down and side-to-side for individual preference. Each evaporator shall have its own sump style drain system for removal of condensation. The sump shall be integrated into the ABS evaporator cover.

The evaporators shall be compliant with all EPA regulations and use R-134A Refrigerant. All hoses used in the air conditioning system shall be “barrier” type construction for containment of the refrigerant.

The condenser assembly shall be a stacked type, low profile, dual fan compact design with dryer and pressure switch included. The condenser assembly shall include a white powder coated housing over the stacked condenser coils, as provided from the manufacturer. The condenser shall be located on the cab roof.

The air conditioning system shall exceed the industry norm by cooling the cab from the ambient temperature of 100 degrees Fahrenheit at 50% relative humidity to an average cab temperature of 75 degrees Fahrenheit in 30 minutes.

Y___N___

AUXILIARY FAN(S)

Two (2) adjustable 7.5" auxiliary fan(s) shall be provided in the cab with a two (2) speed control switch on the mounting pedestal.

Y___N___

The auxiliary fans shall be wired battery switched and shall be activated by the switch on the fans.

Y___N___

The auxiliary fans shall be located hanging from the overhead, one each side of the center windshield post.

Y___N___

HVAC CONTROLS - FORWARD CAB

HVAC controls shall feature rotary switches, function labeling, backlighting, and have colored indicators and shall be located in the center dash area between the driver and officer.

Y___N___

MAP BOX

A map box shall be provided and installed between the driver and officer on top of the engine hood. The box shall have four (4) angled vertical slots space on 2.75 inch centers. The rear interior of the slots shall be 14.25 inches wide by 8.00 inches deep and shall run crossways of the cab. The front two (2) slots shall be 4.00 inches deep.

The box shall be constructed of a 0.125 inch thick aluminum sheet metal welded assembly. It shall be covered with black LINE-X.

Y___N___

The location of the map box shall be determined at the Final Inspection.

Y___N___

GENERAL 12-VOLT ELECTRICAL WIRING REQUIREMENTS
12-VOLT ELECTRICAL SYSTEM

The apparatus shall be equipped with a heavy-duty 12-volt electrical system. All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All electrical wiring and components installed in the apparatus shall be suitable for use in severe duty emergency vehicle applications.

GENERAL WIRING AND WIRE HARNESS CONSTRUCTION

Unless otherwise specified by the component supplier, all insulated wire and cable shall conform to SAE J1127 *Low Voltage Battery Cable* type SGX or STX, or SAE J1128 *Low Voltage Primary Cable* type SXL, GXL, or TXL.

Circuit feeder wires shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the circuit is protected.

Conductor materials and stranding, other than copper, shall be permitted if all applicable requirements for physical, electrical, and environmental conditions are met as dictated by the end application.

The overall covering of conductors shall be moisture-resistant loom or braid that has a minimum continuous rating of 194°F (90°C) except where good engineering practice dictates special consideration for loom installations exposed to higher temperatures.

The overall covering of jacketed cables shall be moisture resistant and have a minimum continuous temperature rating of 194°F (90°C) except where good engineering practice dictates special consideration for cable installations exposed to higher temperatures.

CIRCUIT IDENTIFICATION

All wiring shall be uniquely identified by a circuit number and color coding. The identification shall be referenced on a wiring diagram. Wires less than 8 AWG shall be permanently identified at least every 2.0 inches (50.8 mm) by a circuit and function code. Cables equal to or larger than 8 AWG and wires included in jacketed cables shall be permanently identified by circuit number at all terminations.

WIRING CONNECTIONS

All wiring connections and terminations shall use a method that provides a positive

mechanical and electrical connection. The wiring connections and terminations shall be installed in accordance with the device manufacturer's instructions. Secondary locks shall be utilized on all connectors that are secondary lock capable.

Exterior exposed wire connectors shall be environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Seal plugs shall be installed in all unused sealed connector cavities.

All ungrounded electrical terminals shall have covers or be in enclosures to protect against corrosion, excessive heat, excessive vibration, physical damage, liquid contaminants, dust, and other environmental factors.

Wiring splices shall be crimp-type, molded, or sonic weld type. Adhesive lined heat shrink tubing shall be used to seal and insulate splice joints.

WIRE AND CABLE ROUTING

Wiring routed through holes in sheet metal or castings shall have edges protected by an appropriately sized grommet.

Wiring shall be routed to avoid metal edges, screws, trim fasteners and abrasive surfaces. When such routings are not possible, protective devices (shields, caps, etc.) shall be used to protect the wires. When wires must cross a metal edge the edge shall be covered with a protective shield.

Wiring shall be routed to provide at least 3 inches (76.2 mm) clearance to moving parts, unless positively fastened or protected by a conduit.

Wire routings should avoid areas where temperatures exceed 180° F (82.2° C) and a minimum clearance of 6 inches (152.4 mm) shall be maintained from exhaust system components. Where compliance with this requirement is not possible, high temperature insulation and heat shields shall be utilized.

When wiring is routed between two members where relative motion can occur the wiring shall be secured to each member, with enough wire slack to allow flexing without damage to the wires.

Wiring to all circuit components (switches, relays, etc.) in exposed locations shall provide a drip loop to prevent moisture from being conducted into the device via the wire connection.

Routing wires into areas exposed to wheel wash shall be avoided if possible. When such routings cannot be avoided, adequate clipping or protective shields shall protect the wires from stone and ice damage.

Wiring shall be secured in its intended location with appropriately sized bolt-on clips and nylon wire ties.

Electrical components designed to be removed for maintenance shall include a sufficient length of wire to allow the component to be pulled away from the mounting area for inspection and service work.

Bulkhead type connectors or sealed fittings shall be used to prevent the entry of liquid contaminants into weather tight enclosures.

SPARE WIRES

Wiring harnesses from/to major power and signal distribution areas of the apparatus shall include spare wires for future expansion of the system.

ELECTRICAL SYSTEM COMPONENTS

Serviceable components shall be readily accessible. Switches, relays, terminals and connectors shall have a dc rating of 125% of the maximum current for which the circuit is protected.

A distributed power and signal system shall be utilized on the apparatus to minimize power supply voltage drops. Power and signal distribution areas in the cab shall be concentrated in five (5) areas.

A lower cab power and signal distribution center shall be located in the center forward portion of the cab "dash". It shall be hinged and opened by unlocking two (2) top mounted, double hinged, lift and pull latches. This area shall contain relays and circuit breakers installed in a logical and serviceable fashion.

An additional lower cab power and signal distribution center shall be located below the officer's dash behind the kick plate.

An upper power and signal distribution area shall be located in the forward portion of the cab ceiling, above the engine tunnel. Components in this area shall be permanently labeled and easily accessible by opening a hinged cover.

A power and signal distribution area shall be located in the pump module, if applicable. Components in this area shall be permanently labeled and easily accessible.

A power and signal distribution area shall be located on the front of the forward body compartments. Components in these areas shall be permanently labeled and easily accessible.

All electrical components or devices installed in an exposed area on the outside of the cab or body shall be mounted in such a manner, or protected by a gasket, caulking or other means, so that moisture shall not accumulate in it.

CORROSION PROTECTION

Externally exposed, non-plug type, electrical connections shall be given a hand applied or

sprayed application of an industrial standard insulation coating with a minimum rating of 2100 volts per mil thickness. Insulation shall protect the connection from water induced electrical corrosion and accidental short circuiting. Should the connection be loosened or removed during the manufacturing process another coating shall be applied after it has been refastened or replaced.

Y___N___

MAIN BATTERY AND STARTER CIRCUITS

BATTERY POWER BUSS

All positive cables from the batteries shall be connected directly to a battery positive buss bar located as close to the batteries as practical. The alternator shall be wired directly to the battery positive buss bar through the ammeter shunt, if one is provided.

ENGINE STARTER AND INTERLOCK CIRCUITS

The starter solenoid(s) shall be connected directly to the battery positive buss bar. An interlock shall be provided to prevent the operator from engaging the starter when the engine is running.

BATTERY GROUND BUSS AND SINGLE POINT GROUND SYSTEM

All negative (ground) cables from the batteries shall be connected directly to a battery negative buss bar located as close to the batteries as practical. Appropriately sized ground feeder cables shall be utilized to provide a low impedance ground path to the negative buss bar for all electrical devices on the apparatus.

APPARATUS GROUND BONDING

The battery negative buss bar shall be connected to the chassis frame. The cab, pump enclosure (if furnished), and body structure shall be electrically bonded to the vehicle frame with braided copper grounding straps.

Y___N___

EMI/RFI PROTECTION

The apparatus electrical system and related devices shall have the ability to function in the severe electromagnetic environment typical of fire ground operations.

EMI/RFI EMISSIONS

State-of-the-art electrical system design and components shall be utilized to ensure the suppression of radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions that may cause communication and navigation radio-reception interference. The electrical system and related components shall comply with the applicable sections of J551/1 *Performance Levels and Methods of Measurement of Electromagnetic Compatibility of Vehicles, Boats (up to 15 m), and Machines (16.6 Hz to 18 GHz)*

EMI/RFI SUSCEPTIBILITY

The apparatus electrical system shall incorporate immune circuit designs, filtering, shielding and twisted-pair wiring to control EMI/RFI susceptibility. Particular attention shall be given to harness and cable routing to minimize the potential for conducted and radiated signal susceptibility.

Electrical / electronic equipment on the apparatus shall not be susceptible to radiated and conducted EMI/RFI emissions from on-board radio transmitter(s) and shall comply with the requirements of SAE J551-12 *Vehicle Electromagnetic Immunity--On-Board Transmitter Simulation*.

Y___N___

ELECTRICAL SYSTEM PERFORMANCE TESTING

An operational test shall be conducted to ensure that all installed electrical equipment is properly connected and is in working order. The apparatus alternator shall be tested with the total continuous electrical load applied and engine running up to the engine manufacturer's governed speed for a minimum of 2 hours. Additionally, all warning lights shall be run continuously during the three (3) hour NFPA pump certification test (or at another time for not less than three (3) hours). Activation of the load management system (if furnished) shall be permitted during this test. An alarm sounded by excessive battery discharge, as detected by the low voltage warning system, or a system voltage of less than 11.8 V dc at the battery for more than 120 seconds, shall be considered a test failure.

Y___N___

CAB DASH AND INSTRUMENTS FOR 2013 EMISSIONS ENGINE

A non-glare instrument panel, custom designed to accommodate the appropriate functions, shall be provided. Illumination shall be provided for controls, switches, instruction plates, gauges, and instruments necessary for the operation of the apparatus. The cab dash shall be forward slanted, and constructed of aluminum. Rocker switches that have integral lights shall be as follows when applicable: red indicator lights shall be provided for warning light and engine/mechanical functions, green indicator lights shall be provided for scene and auxiliary lighting and general functions; selection shall be at the manufacturer's discretion.

A system shall be provided that interacts with the engine electronics and eliminates redundant senders and switches. The electronic engine gauges shall receive information on the SAE J1939 data link to improve reliability and gauge accuracy. Connectors shall be utilized for ease of service. The dial face shall be black with white lettering. The primary letters shall be in Imperial with the secondary, smaller letters in metric. The dial shall have international non-language symbols for the gauge function (except speedometer). Gauges shall have illumination with a monochrome LCD display located on the speedometer gauge. They shall also have a 250 degree dial sweep for greater definition of scale. SAE J1939 Faults and Warnings shall be displayed on the LED display.

DRIVER'S INSTRUMENTATION

The following individually mounted gauges shall be provided: (all inclusive gauge clusters not allowed, no exceptions)

Main Gauges

3" Speedometer:	0-85 mph with built-in LCD display
Speedometer Mode Switch:	Allows operator to select menu items in the display screen
Speedometer Up Switch:	Allows operator to scroll up through display menu items
Speedometer Down Switch:	Allows operator to scroll down through display menu items
3" Tachometer:	0-4000 rpm

Satellite Gauges

2" Fuel Level:	Empty – full with low level warning indicator
2" Voltmeter:	10-16 VDC
2" Coolant Temperature:	100-240 Degrees Fahrenheit
2: Engine Oil Pressure:	0-80 psi
2" Transmission Oil Temp:	100-320 Degrees Fahrenheit
2" Front Air Pressure:	0-150 psi
2" Rear Air Pressure:	0-150 psi
2" DEF Level:	Empty – full with low level warning indicator

DRIVER'S INDICATOR LIGHT MODULE

The following indicators shall be mounted in a removable modular panel in front of the steering column. The indicators shall be identified with universal ISO 2575 symbols where applicable and visible to the driver while seated. All applicable indicators in the modular panel shall automatically illuminate for 1 second upon activation of the ignition switch to verify operation:

Battery Switch "On" green indicator light
Ignition Switch "On" indicator (Manufacturer Logo)
Check Transmission amber indicator light
Check Engine amber indicator light
Stop Engine (Engine Warning) red indicator light
High Exhaust Temperature (HEST) amber indicator light (if applicable)
Diesel Particulate Filter Regeneration (DPF) amber indicator light (if applicable)
Wait-to-Start amber indicator light (if applicable)
Malfunction Indicator Light (MIL) amber indicator light (if applicable)
ABS warning amber indicator light
ATC/ESC activated amber indicator light
Spring (Parking) Brake "On" red indicator light
High Beam "On" blue indicator light
Low air pressure red indicator light

Left Turn signal green indicator light
Right Turn signal green indicator light
General Warning red indicator light (if applicable)
DEF Level Indicator Light

AUDIBLE CAB ALARMS

Audible alarms shall be provided in the cab to alert the operator of conditions that require attention. The alarm device(s) shall be audible in the driving compartment and feature an adjustable volume control.

An intermittent audible tone shall sound when the following conditions are present and the parking brake is disengaged:

Active Hazard Warning –
(Do Not Move Apparatus; Door Open, Tower Raised, Ladder Rack Down, etc.)
Seat Belt Warning

A steady audible tone shall sound when the following conditions are present:

Stop Engine (includes High Engine Temperature and Low Engine Oil Pressure)
Low Voltage
Engine Air Filter Restriction
Jackknife Warning (if applicable)
Tiller Cab Operator Not in Position (if applicable)

DRIVER'S AND OFFICER'S CONTROLS

The following rocker style control switches shall be identified and accessible to the driver while seated. Switches shall include integral indicator lights (where applicable) to advise that the switch has been energized and identification labels shall be illuminated for night driving.

Ignition switch with green indicator light
Engine Start switch
Headlight / Tail-Marker-ID light switch
Instrument Panel Dimmer control rheostat

The following controls shall be stalk mounted on the steering column and identified and visible to the driver while seated:

Turn Signal Control and 4-Way Hazard Warning switch
High-beam headlight switch
Windshield wiper control switch
Windshield washer control switch

The following controls shall be identified and accessible to the driver while seated:

Parking (Spring) Brake Control
High Idle control switch
Other controls (as defined elsewhere in this specification)

The following controls shall be identified and accessible to both the driver and officer while seated. Controls shall be identified and illuminated for night driving.

HVAC control panel

Other controls (as defined elsewhere in this specification)

Y___N___

EMERGENCY & WORK LIGHT SWITCH PANELS - DRIVER'S & OFFICER'S SIDES

All emergency light and work area lighting control switches shall be mounted in removable panels located in the overhead position on both the driver's and officer's side of the cab. The light switches shall be "rocker" type with an internal indicator light (where applicable) to show when the switch is energized. All switches shall be properly identified by an illuminated label for night driving.

A master warning light switch shall be provided for emergency lighting.

A momentary clear warning light switch shall be provided for clear emergency lighting control that shall default on.

Work lights are defined as ground, step, rear pick up, hose bed or dunnage area, if on the apparatus and specified.

Y___N___

DOOR AJAR/HAZARD INDICATOR LIGHT (DO NOT MOVE APPARATUS)

A Whelen "T0" series 2" round red flashing LED light with chrome flange shall illuminate automatically whenever the apparatus parking brake is not fully engaged and any of the following conditions exist:

Any passenger or equipment compartment door is open.
Any ladder or equipment rack is not in the stowed position.
Stabilizer system is not in its stowed position.
Powered light tower is extended.
Any other device permanently attached to the apparatus is open, extended, or deployed in a manner that is likely to cause damage to the apparatus if the apparatus is moved.

The hazard warning light shall be identified with a label that reads: “Do Not Move Apparatus When Light Is On.” The light shall be located on the ceiling between the driver and the officer.

Y___N___

DIGITAL CLOCK

A 24 hour real-time digital clock shall be identified and visible to the driver while seated..

Y___N___

HAZARD WARNING BUZZER

There shall be an audible alarm on the cab dash that shall sound whenever the door ajar/hazard warning indicator is activated. Alarm shall be wired to the parking brake control and work in conjunction with the hazard warning light.

Y___N___

ELECTRICAL WIRING REQUIREMENTS - INTELEX™ PLUS

The apparatus shall be equipped with an INTELEX™ PLUS management system for control of the electrical system devices, where applicable.

CIRCUIT PROTECTION

Circuit protection devices shall be utilized to protect each electrical circuit. All circuit protection devices shall be sized according to 125% of the anticipated load to prevent wire and component damage when subjected to extreme current overload.

SOLID STATE CIRCUIT PROTECTION

Intelex power distribution modules shall utilize solid state output channels and feature fully protected high-side drivers (+12V) to protect wiring. High-side drivers shall provide overload protection, current limitation, transient protection, and replicate the function of an automatic reset circuit breaker. If output current exceeds the rated amperage, the output shall automatically turn off. After 30 seconds, the module shall attempt to re-energize the load. If the output is still overloaded, it shall remain off until the power is cycled. In the event of a communications loss with the vehicle's control module, all outputs not controlling a moving device, such as a ladder rack, shall remain in their previous state until communication is restored or the power is cycled.

NON-SOLID STATE CIRCUIT PROTECTION

Circuit breakers shall be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258 unless operational requirements and/or safety concerns dictate Type-III manual reset type conforming to SAE J1625. Automotive-type fuses conforming to SAE J554, J1284, J1888 or J2077 shall be utilized when required to protect electronic equipment.

POWER CONTROL RELAYS AND SOLENOIDS

Power control relays and solenoids shall have a direct current (dc) rating of 125 percent of the anticipated current load.

BUSSMANN MVEC RELAYS AND CIRCUIT PROTECTION

Manufactured as a hardened and weather tight module, the mVEC is rated at 200 Amps. The mVEC is configured to provide various OEM circuit protection and switching functions, using industry standard fuses, relays and breakers, with the status and control of each circuit accessible through J1939 CAN open messages. Each mVEC is rated at 200 Amps, with individual outputs rated up to 30 Amps. Waterproof to high pressure spraying (IP66 equivalent). The mVEC is designed and manufactured with robust features such as heavy-duty housing, silicon and Gortex gaskets, and protective conformal coated electronics, to operate in demanding vehicle environments such as those found in fire apparatus.

Y___N___

INFORMATION CENTER II

A 5" color display capable of displaying graphical images as well as text messages shall be located on the cab dash. The main display page shall include the date, time and ambient air temperature in Fahrenheit. Additional information pages shall be provided for the warning indications, not stowed indications, and open doors. The display shall be dimmable with a Rheostat control on the dash and shall have an override button on the control to dim to ten (10) percent.

APPARATUS STATUS INDICATORS AND AUDIBLE ALARMS

If a monitored "Not Stowed" or "Warning" condition is active, the corresponding status indicator shall flash. In addition to visual indicators, audible alarms shall sound when designated conditions activate the “Not Stowed” and “Warning” status indicators.

WARNING INDICATOR

A flashing red triangle symbol shall alert the vehicle occupants of an active "WARNING" condition. This is defined as a situation or status on the vehicle that is of high priority or "mission critical" nature. The flashing red triangle shall be displayed on the Information Center and dash gauge panel in front of the driver. The following are typical "Warning" (high priority) conditions:

HYDRAULIC FILTER	LOAD MANAGE	LOW AIR PSI
CAB NOT LOCKED	LOW VOLTAGE	JACK KNIFE
AIR RESTRICTION	ABS FAULT	TRAILER ABS

NOT STOWED INDICATOR

A flashing Not Stowed indicator shall alert the vehicle occupants of an active "Not Stowed" condition. This is defined as a situation or status on the vehicle that is not of high priority or "mission critical" nature, but requires attention before the vehicle is put in motion. The following are typical “Not Stowed” (not high priority) conditions:

AERIAL RAISED	DECK GUN RAISED	JACKS EXTENDED

The following items are considered Not Stowed only when the parking brake is released.

LADDER UP	JACKS EXTENDED	Q2B TILTED
LIGHT TOWER UP	DECK GUN RAISED	DS TELE LIGHT UP
OUTRIGGERS	STEP DOWN	PS TELE LIGHT UP
DS HATCH OPEN	PS HATCH OPEN	PEDESTAL COVER UP

AUDIBLE ALARMS

The following conditions shall cause the audible alarm to sound "steady" (not an intermittent beep); signifying a "mission critical" condition exists that requires immediate attention.

STOP ENGINE	CAB NOT LATCHED	LOW VOLT
LOW AIR	ABS FAULT	
LOW COOLANT	LOW OIL PRESSURE	

Corresponding "Low Air", "Stop Engine" visual indicators shall be located in the dash gauge panel in front of the driver.

The following conditions shall cause a chime alarm to sound "intermittently" (i.e., beep), once the parking brake is released, signifying a condition exists that may become "mission critical" if not quickly addressed.

ANY LIGHT NOT STOWED
ANY BODY DOOR OPEN
ANY CAB OR CREW CAB DOOR OPEN

An audible alarm shall sound if any of the seat belts are not properly closed and the vehicle is going 5 mph or greater. The sound shall be different from all other audible alarms in the cab.

OPEN DOORS / DEPLOYED EQUIPMENT RACKS / EXTENDED STEPS

When a cab or compartment door is open, a step is extended, or equipment (i.e., ladder) rack is deployed, the "DOORS" indicator shall flash. Pressing the corresponding button shall display an overhead graphical representation of the apparatus. This image depicts the open cab door(s), open compartment door(s), deployed equipment rack(s), and/or extended step(s). The chime alarm shall also sound when the parking brake is released.

Y___N___

The following shall display on the information display screen:

Y___N___

AUTOMATED ELECTRICAL LOAD MANAGEMENT SYSTEM

The apparatus shall be equipped with an automated load management system. The load management system shall monitor battery voltage and activate the engine high idle system (provided NFPA interlocks have been established) before disabling any electrical loads. If engine high idle is not available or activation does not result in sufficient battery system voltage, individual electrical loads shall be automatically and sequentially deactivated until voltage returns to an acceptable level. Loads shall be sequentially reactivated to avoid a sudden large voltage demand on the system. Electrical loads defined in NFPA 1901 as "minimum continuous" shall not be subject to automatic load management. Load prioritization shall be independently field programmable by authorized users.

If the load management system becomes active, the "LOAD MANAGE" indicator shall illuminate on the "Warnings" page of the INTELEX™ PLUS cab mounted display.

Y___N___

LOAD SEQUENCER

A sequential switching device shall automatically energize the specified optical warning devices to minimize potentially damaging voltage fluctuations due to the sudden addition or removal of large current demands on the electrical system. Upon activation of the "EMERGENCY MASTER" warning switch and provided the individual optical warning device switches are also activated, the following loads shall be activated (or deactivated) in 0.5 second intervals:

Front Light Bar
Side Light Bar (if applicable)
Front and Rear Flashing Lights
Side Warning
Rear Beacons
High Beam Headlight Flash

Y___N___

VEHICLE DATA RECORDER AND SEAT MONITOR DISPLAY

Fire Research series SBA200-A00 seat monitor display and vehicle data recorder kit shall be installed. The kit shall include a seat monitor display module, a vehicle data recorder, and cables.

The seat monitor display shall be programmable for up to twelve (12) seats and have a seatbelt icon for each. A message display, push buttons for navigating through programs, and vehicle system warning indicators shall be located on the front of the seat monitor display.

The data recorder case shall be waterproof. It shall have inputs for monitored information from the vehicle J1939 CAN bus, independent sensors, seatbelt and seat occupied switches, outputs for audible alarms, and two-way FRC datalink connectors.

The vehicle data recorder shall record the following data once per second and store it in a 48 hour loop:

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Device Switch
- Time
- Date

The vehicle data recorder shall record the following data once per minute and have memory to store it for 100 engine hours:

- Maximum Vehicle Speed
- Maximum Acceleration
- Maximum Deceleration
- Maximum Engine Speed
- Maximum Engine Throttle Position
- ABS Event
- Seat Occupied with Seat Belt Unbuckled
- Master Optical Warning Device Switch
- Time
- Date

The oldest data shall be erased first when memory capacity is reached. All data shall be password protected and uploadable from the vehicle data recorder to a computer running FRC HAWK data management software. The HAWK software shall store, manage, provide graphic displays and produce formatted reports of the vehicle data recorder data.

Y___N___

ELECTRICAL SYSTEM DIAGNOSTICS

The apparatus shall feature on-board electrical system diagnostics and provision for off-board diagnostic service equipment.

ON-BOARD DIAGNOSTICS

On-board diagnostic indicators shall be provided to support rapid troubleshooting of the INTELEX™ PLUS based electrical power and signal system. The input and output status of each INTELEX™ PLUS system module shall be easily determined through easy to use display pages.

Switches shall be provided in the cab to allow the operator or service personnel to obtain On-Board diagnostic information from the ABS system and Engine Controller.

A troubleshooting guide shall be provided with the vehicle to assist with interpretation of the diagnostic signals.

OFF-BOARD DIAGNOSTIC PROVISION

An interface port shall be provided for service access to the INTELEX™ PLUS data bus. The diagnostic port shall be mounted inside the cab on the driver side in a location that is accessible from the ground.

Y___N___

POWER STUDS (OVERHEAD SWITCH PANEL)

Three (3) studs shall be provided in the overhead switch panel to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud and grounding stud.

Y___N___

POWER STUDS (CAB DASH)

Four (4) studs shall be provided in the cab dash area to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud and grounding stud.

Y___N___

BUSS BAR (UNDER OFFICER'S SEAT)

A four (4) stud 30 Amp buss bar with protective cover shall be provided under the officer's seat to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud and grounding stud.

Y___N___

No Power Strip & Receptacle Required on Driver's Side Cab Interior Wall

Y___N___

BUSS BAR (UNDER ENGINE TUNNEL)

One (1) four (4) stud 30 Amp buss bar(s) shall be provided under the rear engine tunnel panel to provide a 12 volt feed. The studs shall consist of two (2) 12 volt direct studs, switched battery stud, and grounding stud.

Y___N___

DASH LAYOUT

The Manufacturer shall furnish a dash layout drawing to the Fire Department for their review and approval. The drawing shall detail the locations for installation of radios, sirens, light switches, gauges, etc. Due to the cab dash configuration and electrical wiring design, the components shall have designated locations that each will fit. The Fire Department shall review and approve the layout during the Engineering Conference.

Y___N___

AMMETER

A heavy duty ammeter shall be included with the cab dash gauges. The ammeter scale shall read from -500 amps to +500 amps indicating charging status of the engine alternator.

Y___N___

OFFICER SPEEDOMETER

An additional speedometer shall be provided on the right hand side of the dash so that the

officer can monitor apparatus speed. The speedometer shall be analog. The speedometer lettering shall be in Imperial.

Y___N___

12 VOLT PLUG(S) AND RECEPTACLE(S)

One (1) 12 volt power plug receptacle(s) and cover(s) shall be provided on the officer's side of the dash and shall be wired battery direct, with a fused circuit. The plug and receptacle are made from corrosion resistant marine grade materials. The plug locks into the receptacle providing a positive moisture proof connection.

The power point shall be located at the outboard lower corner of the center dash panel to the officer's side.

Y___N___

12 VOLT PLUG(S) AND RECEPTACLE(S)

Two (2) 12 volt power plug receptacle(s) and cover(s) shall be provided and shall be wired battery direct, with a fused circuit. The plug and receptacle are made from corrosion resistant marine grade materials. The plug locks into the receptacle providing a positive moisture proof connection.

Location of the 12V Power Point(s) shall be located in zone 17 and 18 in the lower outboard position

Y___N___

OUTLET BOX

A fabricated 0.090" aluminum enclosed box that follows the contour of the engine tunnel shall be provided aft of the officer's seat on the side of the engine tunnel. It shall be covered with black LINE-X to match the color of the engine tunnel. This outlet box shall be capable of holding one (1) 12 volt power point, one (1) USB charger port and one (1) 120 volt receptacle. (The power point, USB charger port and receptacle are not included in this cost.)

Y___N___

12 VOLT PLUG(S) AND RECEPTACLE(S)

One (1) 12 volt power plug receptacle(s) and cover(s) shall be provided and shall be wired battery direct, with a fused circuit. The plug and receptacle are made from corrosion resistant marine grade materials. The plug locks into the receptacle providing a positive moisture proof connection.

Location of the 12V Power Point(s) shall be: Outlet Box

Y___N___

USB CHARGER PORT

One (1) Kussmaul Electronics model 091-219-5 USB 2.4/2.4 Amp Dual Charger Ports shall be wired battery direct with a fused circuit and shall be located on the dash as follows:

Location of USB charger port shall be: Outlet Box

Y___N___

120 VOLT SHORELINE POWERED RECEPTACLE(S) IN CAB INTERIOR

One (1) 120-volt, 20 amp, 3-wire receptacle(s) shall be provided in the cab interior in accordance with NFPA guidelines. A brushed stainless steel cover plate shall be provided to protect the receptacle. The receptacle shall be powered by the shorepower inlet and labeled accordingly.

The receptacle(s) shall be located: Outlet Box

Y___N___

NEMA Rating: 5-20R (20 Amp) Non-Twist-Lock, Single.

Y___N___

One (1) stainless steel wallplate(s) shall be installed.

Y___N___

USB CHARGER PORT

Two (2) Kussmaul Electronics model 091-219 USB 2.1/1.0 Amp Dual Charger Ports shall be wired battery direct with a fused circuit and shall be located on the dash as follows:

Location of USB charger port shall be located in zone 17 and 18 in the lower outboard position.

Y___N___

STEREO

One (1) Pioneer AM/FM/CD/MP3 stereo with four (4) 5.25" coaxial speakers shall be provided and installed. The AM/FM radio, with OEL display, shall have a CD and MP3 player. It shall have USB direct control for iPod/iPhone. The stereo radio shall be centrally located in the overhead console and the speakers shall be located two (2) in the front of the cab behind driver and officer, and two (2) in the rear cab corners. A stereo antenna shall also be installed.

Y___N___

STEREO MASTER SWITCH

A stereo master switch shall be provided for the **officer**, located per the approved dash layout drawing. **When the master switch is on, the radio will be off**. **When the master switch is off, the radio will be on.**

Y___N___

TWO-WAY RADIO ANTENNA MOUNT(S)

Four (4) universal antenna mount(s), model MATM, with 17 feet of coax cable and weatherproof cap shall be provided for the two-way radio equipment. The mount(s) shall be installed in the cab roof, behind the lightbar, unless specified differently.

Y___N___

The antenna lead shall terminate in the officer's seat riser. Any excess cable shall be secured in an accessible location.

Y___N___

The antenna location shall be: Behind lightbar spaced evenly

Y___N___

HEADSET INTERCOM SYTEM

One (1) Sigtronics UltraSound Emergency Intercom System, model US-45D, shall be provided and installed on the apparatus. This system shall provide for in cab and on-scene communications for the crew. This voice activated intercom system interfaces with dual radios, provides for up to four (4) headsets and allows for two (2) transmit positions in the cab along with a third transmit position on the body of the apparatus.

The base unit shall measure 4" D x 7.88" W x 2.31" H with mounting bracket.

The intercom shall be located: _____
The body transmitter and headset jack shall be located: _____

Y___N___

HEADSET(S)

Four (4) Sigtronics model SE-48 headset(s) shall be provided. The headset shall be designed to be worn with or without a helmet. There shall be one (1) headset hanger hook located above the seat position over the inside shoulder.

Y___N___

WARRANTY

Sigtronics shall provide a limited one (1) year warranty. See warranty certificate for complete details.

Y___N___

WARRANTY

Sigtronics shall provide a limited two (2) year warranty. See warranty certificate for complete details.

Y___N___

REAR VIEW CAMERA SYSTEM

A Zone Defense rear view camera system, #ZD.323.1.4, shall be installed. The system shall consist of the following items:

- One (1) ZD.M.302 7" color LCD 22 pin, digital monitor, 182mm wide x 122mm high x 26mm thick with speaker 7G rated.
- One (1) CAM.313C Color camera with 1-3" Color CCD Sensor, True Zero Light Night Vision with 18 infrared LEDs and a microphone 120 degree lens, 10G, 1P69K rated..
- One (1) ASSC.402.302 remote control.
- One (1) ASSC.400D Pana-vise mount shall be used to mount the monitor. Pana-vise mount shall be a T-bolt all-metal construction, pedestal mount with a 6" rise and adjustment knob.
- One (1) 65 foot cable.
- All required mounting hardware.

Y___N___

The camera monitor shall be hung from the overhead console in zone 9.

Y___N___

The rear view camera color shall be black.

Y___N___

The rear view camera shall be surface mounted on the rear upper bulkhead, close to center. An ATP guard shall be installed around the camera.

Y___N___

BATTERIES

Six (6) 12V Group 31 950 CCA batteries shall be installed three each side of the cab under the rear entrance way.

Heavy-duty battery cables shall be provided to maximize power available to the electrical system.

Y___N___

JUMPER CABLE STUDS

A pair of jumper cable studs with color coded covers shall be provided under the driver's side battery storage area.

Y___N___

BATTERY AND ELECTRICAL COMPONENT STORAGE AREAS

Battery and electrical component storage areas shall be constructed of stainless steel with structural steel tubes at the corner mounting points and shall be located one (1) each side mounted on the vehicle frame. They shall be well ventilated and enclosed to protect against road splash and debris. Suitable provisions shall be provided for drainage.

The batteries shall be held firmly in place by providing a full frame type top clamp which encloses the battery set on all four (4) upper corner sides. The one piece clamp shall be fabricated of 3/4" angles and be held in place by four (4) "J" shaped clamping bolts placed in the corners. Battery inspection shall be available by tilting the full tilt cab.

Y___N___

The interior of the battery box where the batteries are installed shall be painted to match the color of the lower cab.

Y___N___

BATTERY MATS

The batteries shall be installed on a non-corrosive Turtle Tile mat.

Y___N___

DISCONNECT SWITCH - BLUE SEA 9003

A master load disconnect switch shall be provided between the battery positive buss bar and the remainder of the switched battery electrical loads on the apparatus. A green "battery on" pilot light that is visible from the driver's position shall be provided.

One (1) single battery system switch mounted near the driver's side front entrance in a location so it may be turned off by a person standing on the ground outside the vehicle. It shall have the capacity to handle 350 amps of continuous power.

Y___N___

BATTERY CHARGER KIT

A Kussmaul Battery Charger Kit model 50-03-1406 shall be provided.

BATTERY CHARGER

Included in the kit shall be one (1) Kussmaul model LPC-40 single battery charger system that shall be installed in the vehicle's electrical system. The charger shall be fully automatic and shall maintain the truck batteries at a full charge level when connected to a 120 VAC source. Remote sensing shall be provided to compensate the charger output for the voltage drop in the charging wires.

AUTO EJECT AND DELUXE COVER

Also included in the kit shall be one (1) Kussmaul 120 VAC "Super Auto Eject" shoreline power connector. The shoreline power connector shall be provided with a spring loaded cover to prevent water from entering when the shoreline is not connected. A label shall be permanently affixed at the power inlet that indicates the line voltage in volts and the current rating in amps.

One (1) Super Auto Eject Deluxe Cover with Digital Display, model 091-55-194X shall also be provided. The cover with lid shall open 180 degrees. The display shall have a three (3) digit number for both the voltage and amperage.

Y___N___

The battery charger/compressor shall be located on the driver's side wall adjacent to the side window.

Y___N___

BATTERY CHARGER/AIR COMPRESSOR COVER

A smooth aluminum cover shall be provided over the battery charger/air compressor. The outside finish shall match the cab interior finish.

Y___N___

The Super Auto Eject plug shall be 20 amperes.

Y___N___

The Kussmaul Super Auto Eject Plug shall be located behind the driver's door on the cab's side.

Y___N___

The Super Auto Eject Cover shall be red.

Y___N___

120 VOLT SHORELINE POWERED RECEPTACLE(S) IN CAB INTERIOR

One (1) 120-volt, 20 amp, 3-wire receptacle(s) shall be provided in the cab interior in accordance with NFPA guidelines. A brushed stainless steel cover plate shall be provided to protect the receptacle. The receptacle shall be powered by the shorepower

inlet and labeled accordingly.

A plug and cable assembly shall be installed, connecting the battery charger/compressor to the receptacle.

The receptacle(s) shall be located near the battery charger or compressor.

Y___N___

NEMA Rating: 5-20R (20 Amp) Non-Twist-Lock, Duplex.

Y___N___

One (1) stainless steel wallplate(s) shall be installed.

Y___N___

AUTO EJECT PLUG

A Kussmaul 20 Amp, 120 VAC "Super Auto Eject" shoreline power connector shall be provided for the battery charger. The shoreline power connector shall be provided with a spring loaded cover to prevent water from entering when the shoreline is not connected. A label shall be permanently affixed at the power inlet that indicates the line voltage in volts and the current rating in amps.

Y___N___

The Kussmaul Super Auto Eject Plug shall be located behind the driver's door on the cab's side.

Y___N___

The Super Auto Eject Cover shall be red.

Y___N___

HEADLIGHTS

Front headlights shall be mounted on the front cab face to the left and right of the engine cooling intake grille. The headlights shall be quad type, rectangular JW Speaker model 8800 12-volt LED with bright finished trim rings and bezels. The low beam headlights shall be located at the outer position.

Y___N___

The headlights shall be in the middle position.

Y___N___

ALTERNATING FLASHING HEADLIGHTS

The chassis high beam headlights shall flash alternately controlled by a rocker switch.

Y___N___

FRONT DIRECTIONAL FLANGES

A pair of chrome plated flanges shall be provided for the Whelen M6 series front directional lights. One (1) flange shall be located on each side of the cab front face.

Y___N___

The front directional light bezels shall be in the uppermost position.

Y___N___

FRONT DIRECTIONAL LIGHTS

There shall be one (1) Whelen M6TC LED amber arrow directional signal light installed on each side of the cab front face. The light shall have an amber arrow shape with black background and shall be provided with a "flash" pattern; a "sweep" pattern shall not be allowed. Lens color shall be clear.

Y___N___

CLEARANCE LIGHTS

Exterior cab lighting shall meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards and any National Fire Protection Association requirements in effect at the time of proposal.

Five (5) surface mount Truck-Lite model 35, amber LED with amber lens type clearance and identification lights with chrome mounts shall be installed across the top leading edge of the cab roof.

Y___N___

MARKER LIGHTS

A TecNiq S34-C amber LED marker light with clear lens shall be recess mounted in a rubber sealing grommet placed in the lower front cab side, forward of the driver and officer door, on each side of the cab. The light body shall be urethane filled to ensure against moisture intrusion. These cowl mounted lights shall have 100,000 hour life and shall carry a manufacturers 10 year warranty.

Seven (7) TecNiq S34-C, red LED marker and clearance lights with clear lens shall be installed at the rear of the body. The three light identification cluster shall be surface mounted on the rear step vertical flange. Two lights shall be placed at each lower rear body corner, facing the side. Two lights shall be placed in the upper rear body corners, facing the rear.

Y___N___

MARKER LIGHTS

Four (4) additional TecNiq S34-C, amber LED marker lights with clear lens shall be provided, two (2) on each side of the vehicle, forward of the rear axle. Lights shall be located by the manufacturer.

Y___N___

TURN/MARKER LIGHTS

One (1) Britax model L428, short rubber double faced directional light shall be provided and installed on the rear body fender panel on each side of the vehicle. The amber lens shall face forward and the red lens shall face to the rear.

One (1) TecNiq model S34-A amber marker light shall be located on each side of the body just forward of the front compartments, near the bottom. The lens shall match the other marker light lenses on the apparatus.

Y___N___

REAR MARKER LIGHTS

A Britax long stemmed "LED" dual faced #L427 long, marker light shall be placed at each rear corner of the body. The front lens shall be amber; the rear lens shall be red.

Y___N___

LICENSE PLATE LED LIGHT & BRACKET

A stainless steel License Plate Bracket & LED Light, Locate to the right of the B/T/T on the left side of the body.

Y___N___

D.O.T. REFLECTORS

Reflectors shall be placed on the cab and body as required by Federal standards. An amber reflector, Signal Stat, model 32ADB, shall be placed on each side of the cab. Four (4) Signal Stat model 32DB red reflectors shall be located on the rear face and sides of the body. The reflectors shall be rectangular in shape.

Y___N___

SIDE DIRECTIONAL LIGHTS

Britax model #L428, short rubber side LED directional lights shall be provided in addition to the front turn signals. One (1) light shall be mounted just above the front fender on each side of the cab. Lamp shall have an amber plastic lens at front and a red lens facing rear.

Y___N___

BRAKE/TURN/BACKUP/WARNING LIGHTS CONFIGURATION

The brake, turn, backup and warning lights shall be located at the rear of the apparatus. Each light shall be mounted horizontally in a vertical configuration, one light atop the other.

The order of lights shall be as follows:
Top: Turn
Second from top: Brake
Third from top: Backup
Bottom: Emergency

Y___N___

REAR TAIL LIGHT LOCATION

There shall be two (2) vertical style fabricated stainless steel box enclosures mounted one (1) each side of the trailer frame near the back end over the rear tailboard. The

enclosures shall be painted job color and shall hold the tail lights in a vertical configuration.

Y___N___

BRAKE/TAIL LIGHTS

Two (2) Whelen M6 series LED red brake/tail lights, model M6BTTC, with clear outer lens, shall be mounted at the rear of the apparatus, one on each side. All brakes lights shall be shall be programmed for "steady burn" operation in compliance with FMVSS No. 108.

Y___N___

TURN SIGNAL LIGHTS

Two (2) Whelen M6 series Super-LED amber turn lights, model M6TC, with clear outer lens, shall be mounted at the rear of the apparatus, one on each side. They shall be provided with a "flash" pattern; a "sweep" pattern shall not be allowed.

Y___N___

BACK UP LIGHTS

Two (2) Whelen M6 series clear Super-LED back up lights, model M6BUW, shall be mounted at the rear of the apparatus, one on each side.

Y___N___

BEZELS - FOUR (4) LIGHT

Three (3) pair of Whelen model #M6FCV4 vertical 4-lamp, polished chrome housings shall be provided for the M6 Series rear stop/tail, turn, and backup lights.

Y___N___

LIGHT ACTIVATION

The cab step lights shall be activated with the cab door open switch.

The step lights on the body shall be activated with the parking brake in conjunction with the marker lights.

Y___N___

CAB STEP LIGHTS

Eight (8) TecNiq model EON, LED step lights shall be provided, two (2) at each cab entrance door. They shall be mounted one (1) above and one (1) below each intermediate step.

Y___N___

TURNTABLE STEP LIGHTS

Two (2) TecNiq Eon LED step lights, each with a polished stainless steel flange, shall be surface mounted one (1) on each side to illuminate the folding steps to the turntable.

One (1) TecNiq Eon LED step lights with a polished stainless steel flange shall be surface mounted to the forward side of each rear tractor fender to illuminate the tractor running boards.

Y___N___

ACCESS LADDER STEP LIGHTS

The access ladder shall be illuminated by one (1) TecNiq Eon LED horizontal surface mounted step light located above the top step shining downward and one (1) TecNiq E10 LED surface mounted step light located below the top step, also shining downward.

Y___N___

TURNTABLE STEP LIGHTS

There shall be three (3) TecNiq Eon LED step lights at the base of the aerial to illuminate the turntable stepping surfaces.

There shall be a TecNiq Eon LED step light on the pedestal to illuminate the area around the pedestal. This light shall be activated with the aerial PTO.

Y___N___

LIGHT ACTIVATION

A rocker switch shall be provided **in the cab and tillerman cab,** that once activated, shall turn on all the ground lights under every cab and crew cab door and all the ground lights on the body.

In addition, the ground lights under the cab shall come on any time a cab door is opened, regardless of the perimeter light switch position.

Y___N___

GROUND LIGHTS AS SIDE DIRECTIONALS

All the ground lights on the right side of the apparatus shall illuminate any time the right directional is actuated. All the ground lights on the left side of the apparatus shall illuminate any time the left directional is actuated. The lights shall cancel one second after the directional switch is cancelled.

Y___N___

GROUND LIGHTS ILLUMINATE IN REVERSE

All the ground lights on the **cab and body** shall illuminate any time the chassis transmission is placed in reverse.

Y___N___

GROUND LIGHTS

Four (4) weatherproof TecNiq #E10 LED ground lights shall be provided underneath the cab, per NFPA requirements.

Y___N___

GROUND LIGHTS

Four (4) weatherproof TecNiq #E10 LED ground lights shall be provided underneath the body, per NFPA requirements.

Y___N___

GROUND LIGHTS

In addition to the standard, NFPA required ground lights, fourteen (14) weatherproof TecNiq #E10 LED ground lights shall be provided underneath the vehicle.

Location of the additional TecNiq #E10 LED ground lights shall be:

One each side of Front Bumper
One each side of Ladder Bay
LS1, LS2, LS3, LS4, LS5
RS1, RS2, RS3, RS4, RS5

Y___N___

ENGINE COMPARTMENT WORK LIGHTS

Two (2) TecNiq E10 LED engine compartment work lights shall be provided and wired to illuminate automatically when the cab is tilted. The lights shall also be wired through the engine compartment access door switch, providing illumination of fluid dip sticks and coolant overflow reservoir.

Y___N___

PARKING LIGHTS

Four (4) TecNiq #E960 LED, side mounted, surface mounted, parking lights shall be provided. The lights shall have a stainless steel housing. **They shall be installed one each side of body in the front and rear wheel well area.** Light mounting fixture shall be designed so that light is angled to shine out to the rear and down towards the ground. They shall be switched on from the driver's position in the cab.

Y___N___

TILLER ALIGNMENT LIGHT

A center mounted tiller alignment light with chrome pole for the tiller driver shall be mounted on the tractor cab roof. The light shall be an Attwood model NVGLC-1-12-1, a red/green bi-color LED with 12" pole.

Y___N___

INTERIOR CAB DOME LIGHTS

Four (4) Whelen 60CREGCS 6" round red/clear LED lights with push buttons shall be mounted in the cab ceiling. Two (2) in front (driver & officer) and two (2) in the crew cab. All lights shall be controlled by a switch on the light head.

Y___N___

AUTOMATIC DOOR SWITCHES

Automatic door switches shall be provided for the cab dome lights.

Y___N___

The white dome light activates with the automatic door switch.

Y___N___

CAB DOOR INTERIOR LIGHTS

Four (4) Whelen model TLIR, red, ION™ T-Series™ Linear Super-LED® lights in black horizontal flanges shall be installed on the interior of the specified cab entrance doors, above the door seal in the lower outboard corner.

Y___N___

The cab doors receiving lights shall be all the doors.

Y___N___

HAND LIGHTS

Four (4) **Streamlight Fire Vulcan® LED model 44450** rechargeable hand light(s) with quick release shoulder strap(s) shall be provided. The hand light shall be orange in color and feature a C4 LED primary bulb and two(2) blue LED taillights. The momentary toggle switch has 8 different modes of operation. A 12 volt DC direct wire charging rack shall be installed and wired to vehicle electrical system.

Y___N___

The hand lights shall be shipped loose.

Y___N___

COMPARTMENT LIGHT(S)

Four (4) transverse compartment(s) shall have a ROM LED lighting strip installed on both sides of each door. The full height lighting strips shall be mounted vertically along both sides of each door framing in all specified body compartments. The LED lights shall be mounted in an anodized aluminum track. A switch, installed in each door frame, shall be used to activate the lights nearest that door.

Y___N___

No Center Lights in Transverse Compartment Required

Y___N___

MINI LIGHTBAR

Two (2) Whelen model F4N MINI Freedom™ IV LED 21.5" lightbars shall be provided and installed on the cab roof, facing outward to the sides. Each lightbar consist of two (2) Linear-LED® heads with two (2) clear LED located in the center forward facing and one (1) red LED to the outside facing the side. The lightbar shall also be equipped with two (2) red corner Linear-LED® lights in the front corners.

Y___N___

The one red LED on the side of the lightbar shall be positioned toward the cab front.

Y___N___

The mini lightbars shall be located above the crew doors.

Y___N___

The Whelen mini lightbar shall be mounted using a 1.5" high mount, model MKEZ7.

Y___N___

The lens color shall be clear.

Y___N___

MINI LIGHTBAR

Two (2) Whelen model F4N MINI Freedom™ IV LED 21.5" lightbars shall be provided

and installed on the cab roof on an approximate 30 degree angle on the front corners. Each lightbar shall consist of two (2) Linear-LED® heads with two (2) clear LED located in the center forward facing and one (1) red LED to the outside facing the side. The lightbar shall also be equipped with two (2) red corner Linear-LED® lights in the front corners.

One (1) Whelen Mini Freedom™ series LED 23" lightbar shall be installed on the cab roof, centered and forward facing. There shall be a red Linear-LED® light head in each of the two forward facing corners. The lens shall be clear.

A GTT LED emitter assembly shall be installed in the center section of the centered, forward facing lightbar. The emitter shall provide intersection control for quick response and reduced risk of accidents. The emitter shall be programmed with a high priority flash rate.

Y___N___

The Whelen mini lightbar shall be mounted using a 1.5" high mount, model MKEZ7.

Y___N___

The lens color shall be clear.

Y___N___

UPPER REAR WARNING LIGHTS

Two (2) Whelen model L315FN Super-LED® red beacons with clear lens shall be provided on the upper rear of the apparatus. The rear flasher shall have a Comet Flash pattern

Y___N___

WARNING LIGHTS

Fourteen (14) Whelen model M6RC red Super-LED® light(s) with chrome plated flange(s) and clear lens(es) shall be provided on the apparatus. The flash pattern of the light(s) shall be Triple Flash, also known as Comet Flash.

Y___N___

Location of each perimeter warning light shall be:

Zone A Upper:

__X__ Front light bars
__X__ Side light bars

Zone A lower:

____ Warning lights inboard of turn signals
__X__ Additional warning lights located: __Below Headlights__

Zone B/D lower:

__X__ Warning lights on side of bumper
__X__ Warning lights on side of cab, to rear of axle center, near crew door hinge

__X__ Warning lights on body fender

Zone C upper:

__X__ Rear beacons

Zone C lower:

__X__ Warning lights below the backup lights

Y___N___

AUDIBLE WARNING DEVICES

Dual automotive electric horns controlled by the steering wheel horn button shall be provided.

Y___N___

BACKUP ALARM

There shall be an Ecco SA914 electronic backup alarm provided that shall sound when the truck is placed in reverse to warn persons near or on the apparatus. The alarm shall be automatically adjustable and shall maintain a sound level of a minimum of 5 decibels over the environmental noise level. Sound level range shall be 87 to 112 decibels.

Y___N___

TWO-WAY TILLER TO CAB LIGHT & BUZZER SYSTEM

There shall be a two way signal and warning system provided to indicate truck movement as required by the NFPA. It shall consist of a buzzer mounted in the tractor cab that shall instruct the driver to go forward, backup or stop and a second buzzer located in the tiller cab to alert tillerman that the vehicle will be moving forward or backward. Buzzers shall be activated by a switch located in tractor cab and the "horn" button in the center of the tiller steering wheel. They shall be labeled: (1 - STOP) (2 - GO) (3 - BACKUP). There also shall be a red indicator light in each cab that shall be illuminated when the buzzer sounds.

The tillerman's buzzer button shall also be part of the engine starting system interlock that requires tillerman to be on board, i.e. he must activate buzzer to allow driver to start engine.

Y___N___

DUAL AIR HORNS

Two (2) Grover Stuttertone chrome air horns shall be furnished. A pressure protection valve shall be installed in-line to prevent loss of all air from the vehicle air brake system. **The air horns shall be 24" in length** and shall be as long as possible, dependent upon other selected options and extension length.

Y___N___

Both of the air horns shall be located on the right side of bumper.

Y___N___

AIR HORN SELECTOR SWITCH

An air/electric horn selector switch shall be provided which will allow either the electric or air horn to be actuated by the horn button on the steering wheel.

Y___N___

AIR HORN FOOT SWITCH

One (1) Linemaster® Model 632-S momentary foot operated switch(es) to activate the air horn(s) shall be installed on the cab floor.

Y___N___

The foot switch shall not be deactivated when the parking brake is set.

Y___N___

The foot switch shall be located on the officer's side floor, outboard position.

Y___N___

AIR SHUT OFF VALVE

An air shut off valve shall be provided in the feed line to the air horns, under the dash on the driver's side.

Y___N___

WHELEN SIREN

A Whelen model 295SLSC1 electronic siren shall be provided in the cab dash. The siren has a selectable output of 100 or 200 Watts. The microphone shall be removable.

The siren head shall be wired battery switched. Auxiliary activation switches shall only be active when the emergency master and ignition are activated.

Y___N___

The location of the siren mic clip shall be determined at the final inspection.

Y___N___

SIREN SPEAKER(S)

One (1) Whelen Projector Series SA-315P, 100-watt speaker(s) with Manufacturer logo polished grille shall be recess mounted in the front bumper extension.

Y___N___

The speaker shall be located in the center of the bumper.

Y___N___

MECHANICAL SIREN

A Federal Signal Model Q2B® siren with chrome plated housing shall be recessed mounted in the front bumper extension with front and vane grille exposed. There shall be an electric brake control installed in the cab, at the driver's switch panel, properly labeled.

The siren activation switches shall only be active when the emergency master is activated.

Y___N___

The Q2B® siren shall be mounted on the left side of the bumper, notched out and flush.

Y___N___

MECHANICAL Q2B® FOOT SWITCH

Two (2) Linemaster® Model 632-S momentary foot operated switch(es) to activate the mechanical Q2B® siren shall be installed on the toe board of the cab floor.

Y___N___

The foot switch shall be deactivated when the parking brake is set.

Y___N___

A foot switch shall be located on the driver's side, outboard of the steering column and on the officer's side floor, inboard position.

Y___N___

FOOT SWITCH BRACKET

An aluminum tread plate angle panel shall be installed to hold a single foot switch shall be installed on the driver's side.

Y___N___

FOOT SWITCH BRACKET

A metal fabricated FDNY style angled foot switch bracket shall be installed by the officer's feet. The bracket allows for 2 Linemaster® model 632-S foot switches.

This photo shows 2 brackets, each holding a foot switches along with a model 491 siren brake switch between them.

Y___N___

TRACTOR MOUNTING SUBSTRUCTURE

The tractor body shall be mounted to the chassis frame with 6 heavy duty gusseted angle L-brackets (3 each side). The angle brackets shall be made from 3" x 3" x 0.25" horizontal angles and 3" x 5# vertical channel welded in an "L" shape. These angle brackets shall also serve to support the running boards on each side of the vehicle. The rear fender areas shall be supported by a 3" x 5 lb. “C” channel assembly that shall be bolted to the chassis frame (1 each side). The front fender area shall be supported by a 3" x 5 lb. channel that is fully transverse from driver's to officer's side and bolted to a chassis cross member. In addition, the compartment behind the cab shall be supported by (4) 0.38" formed steel brackets (1 in each corner of the compartment) and bolted directly to the chassis frame.

Y___N___

TRACTOR REAR STAINLESS STEEL INNER LINERS

Full semi-circular inner liners shall be provided in each wheel housing. They shall be constructed of 304 stainless steel and shall be bolted in place so they may be removed if damaged. Self-tapping sheet metal screws are not acceptable. The bottom edge of liner shall be reinforced along its full length, however, it shall not have a formed reinforcement flange to avoid trapping dirt and debris. There shall be no exception.

Y___N___

TRACTOR REAR FENDERETTES

Polished stainless steel fenderettes shall be installed in the rear tractor fender compartment wheel openings. The fenderette shall be sufficiently wide to completely cover the outside rear tire and reduce wheel splash along the sides of the tractor and trailer. They shall be installed with ¼" hex head bolts (self-tapping sheet metal screws are not acceptable) and have a full width rubber welt placed between the fenderette and wheel opening flange. A liberal coating of anti-corrosive and rust preventative shall be applied to the fenderette and wheel opening flange during the assembly process. The outside edge of the welting shall form a "V" bead between the fenderette and the fender compartment to prevent moisture from entering. The inside edge shall also have a small raised bead. The outside edge of the fenderette, at the wheel opening, shall be rolled inward to eliminate a sharp edge and avoid injury when cleaning the apparatus.

Y___N___

TRACTOR REAR FENDERS

Rear tractor fenders assemblies shall be fabricated of heavy duty 3CR12 stainless steel. The front and rear top of the fender shall have large "mitered" corners. The top and forward face of the fender shall have a 1/8" aluminum treadplate overlay. The outward, side face shall be painted to match job color.

Y___N___

RUNNING BOARDS

A running board shall be installed on the both sides of the tractor. The running boards shall be fabricated of 3/16" aluminum tread plate and supported by structural steel angle assemblies bolted to the chassis frame. They shall be approximately 7.50" deep and shall be spaced 1/2" away from rear fender and side apron. The running boards shall serve as steps for access to the turntable platform and shall also act as rub rails to protect the tractor mounted compartments from damage.

An aluminum tread plate skirt shall be installed over the exhaust on the right side of the tractor. A step and handrail shall also be installed to ease access to the turntable.

Y___N___

TRACTOR COMPARTMENT - WITH ACCOMMODATIONS FOR A GENERATOR

Two (2) compartments with exterior dimensions of 26" wide x 40" high x 20" deep shall be mounted to the tractor directly behind the cab, one on each side. The enclosed center area between the compartments shall be provided with a rear-facing removable ventilated panel and a lift up cover on the top to accommodate a generator. The forward, top and rearward exterior surfaces of the compartments shall be covered with aluminum tread plate. A vertically hinged single door shall be provided on each side. Each door shall be provided with Eberhard 206 locks, top and bottom, controlled by a single stainless steel "D" ring handle. The compartment doors shall be provided with stainless steel double spring door stays. There shall be no exception.

Y___N___

YELLOW PERIMETER MARKING

In accordance with NFPA 1901 chapter 15.7.1.6, the perimeter of the roof of the tractor compartment shall be marked with a one-inch wide safety yellow line to delineate the designated standing or walking surface area.

Y___N___

COMPARTMENT DOORS

The compartment doors, unless otherwise specified, are to be lap type, double panel construction, with 14 gauge outer and 14 gauge inner 3CR12 stainless steel panels. Outer pan edges that form the lap portion of the door shall be "hemmed" (bent over and back 180 degrees) over the inner pan edges. Inside corners, at the hem joint area, shall be welded and ground smooth. A minimum of one (1) "Z" shaped and formed support rail [two (2) if door is wider than 14"] shall be placed between the panels to stiffen and reinforce the door. Stiffener shall be welded to the inside pan and fastened to the outside pan with 3M two sided industrial strength tape. The door material shall be the same type as used in the body construction.

The doors shall be weather stripped with an automotive bulb type extruded rubber inner seal. A second outer seal of closed cell rubber shall be placed on the lap edge of the door to prevent damage to the paint finish. Outer seal shall have corrugated surface to prevent sticking.

The doors shall be mounted on stainless steel piano hinges with a pin diameter of .25". Mounting holes shall be slotted vertically on one side of the hinge and horizontally on the other side to provide for proper adjustment of the door. The hinge pins shall have spun ends (crowns) at both ends to hold them in place and provide a finished look. Doors shall be bolted to door framing with 1/4", stainless steel, Phillips oven head bolts. Doors mounted with self-tapping sheet metal screws are not acceptable. Eberhard 206 latches with stainless steel "D" ring handles shall be provided. Isolation tape shall be furnished between the door hinge and door jamb. A rubber gasket shall be provided between the "D" ring handle and the door. Single door compartments shall be hinged to the front and have the handle installed in the upper rearward corner of the single door.
There shall be no exception.

Y___N___

Keyed Locks - NONE

Y___N___

FINISH – TRACTOR COMPARTMENT INTERIOR(S)

Two (2) tractor compartment interior(s) shall be finished with gray Zolatone type paint following the Zolatone Coat application process.

Y___N___

FINISH –TRACTOR COMPARTMENT INTERIOR(S)

The interior of two (2) tractor compartment(s) shall be clear coated following the Zolatone Clear Coat application process, applying the Clear Coat to the same components that received a Zolatone application.

Y___N___

LADDER PIPE HOSE STORAGE COMPARTMENT

A ladder pipe hose storage compartment shall be provided and installed on the top of the tractor compartment directly behind the cab. The compartment shall be constructed of 1/8" aluminum tread plate and shall include a full length hinged cover with gas door props. The bottom of the compartment shall be covered with Dri-Dek® to provide ventilation below the hose.

Dimensions will be adjusted to accommodate cord reels on top of Tractor Compartment.

Y___N___

FAMA26 NO-STEP SIGN

In accordance with NFPA 1901 chapter 15.7.1.6, a FAMA26 "No-Step" sign shall be located on the ladder pipe hose storage compartment door top. The sign reads: "Fall Hazard-Railings NOT provided. Surface may be slippery - Not intended for stepping, standing or walking. Fall will injure or kill"

Y___N___

FINISH – TRACTOR COMPARTMENT INTERIOR(S)

One (1) tractor compartment interior(s) shall have no finish applied.

Y___N___

There shall be an aluminum tread plate side apron on the left side of the tractor. Side apron shall be constructed of .125" aluminum tread plate to provide kick plate behind the running board and shall be removable to provide for complete access to fuel and hydraulic tanks for service.

Y___N___

There shall be an aluminum tread plate side apron on the right side of the tractor. Side apron shall be constructed of .125" aluminum tread plate to provide kick plate behind the running board and shall be removable to provide for complete access to fuel and hydraulic tanks for service.

Y___N___

TOOL BOX

A 14" wide x 15" high x 52" long tool box with lift-up door, constructed of .125" aluminum tread plate shall be transverse mounted on the tractor platform so as to serve as a step for access to the aerial turntable.

Y___N___

YELLOW PERIMETER MARKING

In accordance with NFPA 1901 chapter 15.7.1.6, the perimeter of the roof of the tractor toolbox shall be marked with a one-inch wide safety yellow line to delineate the designated standing or walking surface area.

Y___N___

HANDRAILS

A 12” shall be installed on each side of the tractor, on the rearward face of the tractor

compartment. Handrails shall be 1-1/4" diameter extruded aluminum, knurled, with a bright anodized finish.

Y___N___

TRAILER BODY CONSTRUCTION

The body and compartments shall be a modular design and construction, made of heavy duty 3CR12 stainless steel. The compartment floors shall be integral with the compartment and shall be constructed of 2.5 mm 3CR12 stainless steel. Compartments shall be the "sweep out" design with the floor higher than the door sill. All compartment seams shall be caulked with gray adhesive/sealant. Each non-transverse compartment or each side of a transverse compartment shall be rated for 500 pounds of storage.

A bright aluminum tread plate cover shall be installed over the side compartments. Side edges of cover shall have a 45 degree outward bend to provide drip protection over any compartment doors which are immediately below. The rear vertical trailer faces shall also be covered with aluminum tread plate. All tread plate shall be secured with threaded fasteners.

All body components that are covered with aluminum tread plate shall be coated with an anti-corrosive and rust preventative prior to installation. There shall be a coat of an anti-corrosive and rust preventative undercoating placed between any steel and aluminum mating surfaces to isolate the dissimilar metals.

NOTE: Some compartment dimensions may be reduced by customer selected, frame mounted chassis options or small construction details. There shall be no exception.

Y___N___

TRAILER BODY MOUNTING SUBSTRUCTURE

The trailer body shall be supported by 3" x 2" x 0.50" structural angles that shall be welded to the chassis frame (4 angles per each segment of the body). These chassis angles shall be bolted through the lower transverse area of each body compartment into a 3" x 2" x 0.25" angle that is fully transverse and welded into the body assembly (1 body angle at the front and rear of each transverse area). For the compartment behind the rear trailer axle, the same method of mounting shall be used when this compartment is fully transverse. In the instance when this rear compartment is not transverse, the individual compartments shall be supported by heavy 3" x 6 lb. gusseted channel brackets (2 per compartment) that are bolted to the chassis frame.

Y___N___

YELLOW PERIMETER MARKING

In accordance with NFPA 1901 chapter 15.7.1.6, the perimeter of all horizontal walking surfaces on the top of the trailer body shall be marked near the outside edge with a one-inch wide safety yellow line to delineate the designated standing or walking surface area.

Y___N___

COMPARTMENTATION

The compartmentation shall consist of the following:

Four (4) full height transverse compartments, two on each side of the trailer, just to the rear of the outriggers. Each compartment interior shall be 47.25” wide x 54.25” high. A set of vertically hinged double doors shall be provided for each compartment door opening. The upper 28” and the lowest 12” of each compartment shall be open through from side to side, a full 92” inside the doors. The center section of the compartments, through which the totally enclosed trailer frame passes, shall be 25” deep each side.

Two (2) low compartments, one on each side of the trailer, behind the above compartments. Each compartment interior shall be 47.25” wide x 24.25” high. A set of vertically hinged double doors shall be provided for each compartment door opening. The upper portion of the compartment shall be 25" deep with the lower 12" open from side to side.

Two (2) low compartments, one on each side of the trailer, behind the above compartments. Each compartment interior shall be 47.25” wide x 24.25” high. A set of vertically hinged double doors shall be provided for each compartment door opening. The upper portion of the compartments shall be 19" deep on the left side of the trailer and 25" deep on the right side, with the lower 12" of the compartments varying in depths: the forward 31.75" shall be open through from side to side, while the rear 15" of the compartments shall be 20" deep on the left side and 48" deep on the right side of the trailer.

In the lower transverse section at the centerline of the compartments there shall be a .19" wide drain. The drain shall be as long as the compartment is wide. The compartments shall be bolted to the trailer frame with 3” x 2” angle brackets. A minimum of two flex joints shall be provided to allow proper flexing of the trailer body.

All vertically hinged doors shall be provided with stainless steel double spring door stays.

Y___N___

SIDE PANELS

Stainless steel side panels painted job color shall be provided on each side of the trailer above each low compartment module, above the fender, and to the rear, to protect the ground ladders from the elements and provide a more pleasing appearance.

Y___N___

COMPARTMENT DOORS

The compartment doors, unless otherwise specified, are to be lap type, double panel construction, with 14 gauge outer and 14 gauge inner 3CR12 stainless steel panels. Outer pan edges that form the lap portion of the door shall be "hemmed" (bent over and back 180 degrees) over the inner pan edges. Inside corners, at the hem joint area, shall be welded and ground smooth. A minimum of one (1) "Z" shaped and formed support rail [two (2) if door is wider than 14"] shall be placed between the panels to stiffen and

reinforce the door. Stiffener shall be welded to the inside pan and fastened to the outside pan with 3M two sided industrial strength tape. The door material shall be the same type as used in the body construction.

The doors shall be weather stripped with an automotive bulb type extruded rubber inner seal. A second outer seal of closed cell rubber shall be placed on the lap edge of the door to prevent damage to the paint finish. Outer seal shall have corrugated surface to prevent sticking.

The doors shall be mounted on stainless steel piano hinges with a pin diameter of .25". Mounting holes shall be slotted vertically on one side of the hinge and horizontally on the other side to provide for proper adjustment of the door. The hinge pins shall have spun ends (crowns) at both ends to hold them in place and provide a finished look. Doors shall be bolted to door framing with 1/4", stainless steel, Phillips oven head bolts. Doors mounted with self-tapping sheet metal screws are <u>not</u> acceptable. Eberhard 206 latches with stainless steel "D" ring handles shall be provided. Isolation tape shall be furnished between the door hinge and door jamb. A rubber gasket shall be provided between the "D" ring handle and the door. “D” ring door handles shall be installed on the forward door of vertically hinged double door compartments. Single door compartments shall be hinged to the front and have the handle installed in the upper rearward corner of the single door. Full height compartment doors shall have the “D” ring handle centered on the specified door. Low height compartment doors shall be installed in the upper corner as specified. Lift up compartment doors shall have the handle installed centered at the bottom of the door. There shall be no exception.

Y___N___

Keyed Locks - NONE

Y___N___

<u>EBERHARD LEVER LATCH(ES)</u>

The free door of eight (8) double door compartment(s) shall be provided with an Eberhard 5669 spring loaded latch with release handle at the inside top of the door.

Compartments receiving an Eberhard 5669 latch shall be:
LS1, LS2, LS3, LS4
RS1, RS2, RS3, RS4

Y___N___

<u>FINISH – TRAILER COMPARTMENT INTERIOR(S)</u>

Eight (8) trailer compartment interior(s) shall be finished with gray Zolatone type paint following the Zolatone Coat application process.

Y___N___

<u>FINISH –TRAILER COMPARTMENT INTERIOR(S)</u>

The interior of the eight (8) trailer compartment(s) shall be clear coated following the Zolatone Clear Coat application process, applying the Clear Coat to the same components that received a Zolatone application.

Y___N___

VENTS

Compartment vents shall be provided to meet the requirements of NFPA 1901, current edition.

Y___N___

TRAILER REAR STAINLESS STEEL INNER LINERS

Full semi-circular inner liners shall be provided in each wheel housing. They shall be constructed of 304 stainless steel and shall be bolted in place so they may be removed if damaged. Self-tapping sheet metal screws are not acceptable. The bottom edge of liner shall be reinforced along its full length, however, it shall not have a formed reinforcement flange to avoid trapping dirt and debris.

Y___N___

TRAILER REAR FENDERETTE

Polished stainless steel fenderettes shall be installed on the rear wheel openings. The fenders shall be wide enough to completely cover the outside rear tire and reduce wheel splash up the sides of the body. They shall be installed with 1/4" hex head bolts, self-tapping sheet metal screws are not acceptable. A full width rubber welt shall be placed between the fenderette and body wheel well opening flange. The outside edge of the welting shall form a "V" bead between the fender and the body side face to prevent moisture from entering. The inside edge shall also have a small raised bead. The outside edge of fenderette, at the wheel opening, shall be rolled inward to eliminate any sharp edges and avoid injury when cleaning the apparatus.

Y___N___

TRAILER REAR FENDERS

Streamlined rear trailer fenders shall be provided. They shall be fabricated of 2.5mm 3CR12 stainless steel and painted to match job color.

Y___N___

TRAILER COMPARTMENTS - BEHIND TILLER AXLE

One (1) transverse style compartment shall be provided immediately behind the tiller axle, 54" wide x 24.5" high. The upper portion shall be 22" deep. The lower 12.25” shall extend under the frame rails and shall be open from side to side. The compartment openings shall each include vertically hinged double doors with stainless steel double spring door stays.

Y___N___

COMPARTMENT DOORS

The compartment doors, unless otherwise specified, are to be lap type, double panel construction, with 14 gauge outer and 14 gauge inner 3CR12 stainless steel panels. Outer pan edges that form the lap portion of the door shall be "hemmed" (bent over and back 180 degrees) over the inner pan edges. Inside corners, at the hem joint area, shall be welded and ground smooth. A minimum of one (1) "Z" shaped and formed support rail [two (2) if door is wider than 14"] shall be placed between the panels to stiffen and

reinforce the door. Stiffener shall be welded to the inside pan and fastened to the outside pan with 3M two sided industrial strength tape. The door material shall be the same type as used in the body construction.

The doors shall be weather stripped with an automotive bulb type extruded rubber inner seal. A second outer seal of closed cell rubber shall be placed on the lap edge of the door to prevent damage to the paint finish. Outer seal shall have corrugated surface to prevent sticking.

The doors shall be mounted on stainless steel piano hinges with a pin diameter of .25". Mounting holes shall be slotted vertically on one side of the hinge and horizontally on the other side to provide for proper adjustment of the door. The hinge pins shall have spun ends (crowns) at both ends to hold them in place and provide a finished look. Doors shall be bolted to door framing with 1/4", stainless steel, Phillips oven head bolts. Doors mounted with self-tapping sheet metal screws are not acceptable. Eberhard 206 latches with stainless steel "D" ring handles shall be provided. Isolation tape shall be furnished between the door hinge and door jamb. A rubber gasket shall be provided between the "D" ring handle and the door. “D” ring door handles shall be installed on the forward door of vertically hinged double door compartments. Single door compartments shall be hinged to the front and have the handle installed in the upper rearward corner of the single door. Full height compartment doors shall have the “D” ring handle centered on the specified door. Low height compartment doors shall be installed in the upper corner as specified. Lift up compartment doors shall have the handle installed centered at the bottom of the door. There shall be no exception.

Y___N___

Keyed Locks - NONE

Y___N___

EBERHARD LEVER LATCH(ES)

The free door of two (2) double door compartment(s) shall be provided with an Eberhard 5669 spring loaded latch with release handle at the inside top of the door.

Compartments receiving an Eberhard 5669 latch shall be: _____

Y___N___

FINISH – TRAILER COMPARTMENT INTERIOR(S)

Two (2) trailer compartment interior(s) shall be finished with gray Zolatone type paint following the Zolatone Coat application process.

Y___N___

FINISH –TRAILER COMPARTMENT INTERIOR(S)

The interior of the two (2) trailer compartment(s) shall be clear coated following the Zolatone Clear Coat application process, applying the Clear Coat to the same components that received a Zolatone application.

Y___N___

ALUMINUM TREADPLATE DECKING

A .1875" thick aluminum tread plate deck shall be provided over the ground ladder arches to protect the ladders and provide a walking surface along each side of the aerial ladder when it is in the bedded position.

Y___N___

REAR DOOR

There shall be a drop down door with D-ring 2 point positive lock, covering the opening of the rear frame rail area. The door shall be constructed of smooth aluminum in preparation for the installation of reflective chevron striping.

Y___N___

FRAME COMPARTMENT

There shall be an enclosed, weather-tight compartment installed at the rear of the trailer just below the ground ladder compartment, between the frame rails. The maximum size of the compartment is 28" wide x 11" high x 77" long.

The dimensions of the stored item to be determined at pre-construction.

Y___N___

FINISH – TRAILER COMPARTMENT INTERIOR(S)

One (1) trailer compartment interior(s) shall have no finish applied.

Y___N___

REAR STEP COMPARTMENT

An open equipment compartment shall be provided at the rear of the trailer on the rear step directly below the frame. The compartment shall be 36.00" wide x 8.00" high x 30.00" deep. The compartment shall be provided with a drop door with D-ring 2 point positive lock. The door shall be constructed of smooth aluminum in preparation for the installation of reflective chevron striping.

Y___N___

FINISH – TRAILER COMPARTMENT INTERIOR(S)

One (1) trailer compartment interior(s) shall have no finish applied.

Y___N___

ACCESS LADDERS

Two (2) tiller access ladders shall be provided; one on the curb side and one on the street side of the tiller cab. Each ladder shall be constructed of two (2) aluminum side rails with aluminum Grip Strut® steps. Each ladder shall be sloped inward a minimum of 6 degrees for easier access to the tiller cab. The ladders shall be bolted to the body for easy replacement if damaged.

Y___N___

HANDRAILS

A set of handrails shall be provided for two (2) access ladder(s) to the tiller cab. A set of handrails shall consist of a “swimming pool” style handrails and a 27” straight handrail.

The vertically mounted "swimming pool" style handrail shall be installed on the rearward side of the access ladder to tiller. The handrails shall be 1-1/4" diameter extruded aluminum, knurled, with a bright anodized finish.

The 27" handrail shall be provided on the forward beam of each tiller access ladder, opposite to the swimming pool style handrail.

Y___N___

REAR ACCESS LADDER SUPPORT STEP

A cross step shall be provided on the back of the trailer body, recessed under the ladder banking. The step shall be constructed of .1875" thick aluminum tread plate and supported by a channel assembly that is bolted to the trailer chassis frame. The step shall be 30" deep x 96" wide and shall be spaced 0.50" off the back of the body to allow proper drainage. The tiller access ladder(s) shall be supported by this step and the step may serve as one of the steps of the access ladder(s). The lower DOT required marker lights and reflectors shall also be installed on this step.

Y___N___

REVERSE FLANGES FOR REAR STEP

The rear step shall be constructed with reverse flanges (down and in) to provide increased strength.

Y___N___

TRAILER DOOR HINGES

All piano hinges on the trailer doors shall be mill finished.

Y___N___

CROSSOVER MIRRORS

Two (2) approximately 8" diameter mirror with polished stainless steel housing shall be provided on the body above the rearward edge of LS/RS 2 for the tillerman to view. The main adjustment bar shall be mounted to the body roof. The mirrors shall be convex.

Y___N___

TILLER CAB

A permanently mounted, fully enclosed tiller cab shall be provided, mounted to the rear of the trailer behind the aerial ladder. The tiller cab shall be 70.50" from the rear axle center line to the front skin of the tiller cab. The cab shall have a tubular stainless steel framework with stainless steel skin. The tiller cab shall have a minimum width of 36” and a minimum height of 54”. The vehicle overall height at the tiller cab shall be **128.5”.** The floor of the cab shall be aluminum tread plate with a forward area angled up to provide foot support for the tillerman. There shall be no exception.

The windshield shall consist of a flat piece of tinted automotive laminated safety glass, 31" wide by 24" high. The windshield shall be installed and held in place by an extruded rubber molding with a chrome plated, decorative, locking bead. Non-opening, vent-style windows shall be provided on each side of the cab, forward of the doors, to increase the tillerman's field of vision. The tiller cab shall be finish painted prior to windshield glass being installed.

The rear cab window shall be a minimum of 29" wide by 19" high and shall be a tinted, tempered, double slide type window. An open/close vent shall be located on the rear cab panel below the rear cab window.

Two (2) sliding doors with side windows shall be provided, one each side of the tiller cab. The doors shall be mounted on slides, top and bottom, and shall slide open towards the rear of the apparatus. The sliding doors shall be lockable in either the open or closed position. When locked in the open position, a minimum door opening width of 21.5" shall be provided for easy entrance into the cab.

There shall be a switch installed in each door that shall be integrated with the door ajar/hazard warning system. The "Do Not Move Apparatus" light in the cab shall activate when a tiller cab door is open. A momentary disable switch shall be provided between the driver and officer, that is monitored by the Info II Center. The momentary switch shall disable the "open door" alarm, which shall not "reset" until the vehicle is re-started. Activation of the disable switch shall be recorded in the data logger. There shall be no exception.

The tiller cab shall comply with SAE J2422.

Verbiage shall reflect approved OAH.

Y___N___

TILLER CAB DOOR SUPPORT ROLLERS

Dual roller assemblies under and alongside of the tiller cab sliding door shall be installed at the rear of the trailer deck, two (2) each side, to support the two tiller doors when open.

Y___N___

TILLER CAB ROOF

The roof of the tiller cab shall be painted the job color.

Y___N___

TILLER DOOR WINDOWS

Sliding glass windows shall be provided in the tiller cab doors. **The glass shall slide top to bottom.** There shall be no exception.

Y___N___

VENTS

An open/close vent shall be installed on each side of the tiller cab in the lower front corner panels.

Y___N___

WINDSHIELD WIPER

One windshield wiper shall be installed above the front windshield. It shall be a two speed electric with automatic park position and intermittent wiping feature. The wiper shall be controlled by a knob type switch that combines the off/intermittent/low/high selection and washer functions in one control. Turning the switch shall activate the wipers and control the speed. Pushing the switch shall operate the washer nozzle, which shall be installed below the front windshield.

A two (2) quart windshield washer reservoir shall be located in the kick plate of the tiller cab and shall be accessed from the inside of the cab.

Y___N___

TILLER CAB MIRRORS WITH AUTOMATIC TEMPERATURE CONTROL

Two (2) Lang Mekra 300 Series chrome plated aero style main and convex mirrors shall be installed, one (1) on each side of the tiller cab. The main mirror shall be a heated, adjustable 7" x 16" flat glass. The convex shall be an adjustable 6" x 8" 400 mm radius glass.

The mirrors shall have a built-in temperature sensor that will automatically control the surface temperature of the mirror. An additional on/off switch shall be installed on the dash of the tiller cab for mirror heat.

Y___N___

TILLER DRIVING LIGHTS

Rectangular rubber mounted tiller driving lights shall be provided, one (1) each side mounted ahead of tiller wheels below the compartments. **Lights shall be Whelen M6 series clear Super-LED back up lights, model M6BUW.** Lights to be controlled by rocker switch located on the tiller cab dash.

Y___N___

TILLER CAB HANDRAIL

A 45" knurled aluminum handrail shall be vertically mounted in front of the tiller cab access door on each side of the tiller cab.

Y___N___

TILLER CAB INTERIOR DECOR

The following tiller cab components shall be black in color:
Headliner
Vinyl visors, if selecting vinyl

The following tiller cab components shall always be black in color:
Seat risers
Headliner trim
Electrical panels
Heater components
Seat belt retractor covers
Rubber covered grab handles, if present
Plastic snap plugs for wire access holes

Y___N___

HEADLINER WITH INSULATION

The tiller cab shall be painted and provided with a removable one-piece headliner. The headliner shall extend approximately 3/4 the length of the roof, from the rear of the cab forward.

The headliner shall consist of three layers of materials. Next to the roof shall be a layer of acoustical insulation made of polyester and polypropylene fibers. The next layer is 1/4" thick Luann. Finally, there is a 1/4" thick layer of foam/perforated acoustical vinyl.

Y___N___

INTERIOR CAB DOME LIGHT

One (1) Whelen model 60CREGCS red/clear lights with push button shall be mounted in the cab ceiling. The light shall be controlled with a switch by the lens.

Y___N___

SUN VISOR

One (1) approximately 8" x 28" padded sun visor shall be provided for the front windshield of the tiller cab. The visor shall be supported at both ends to prevent drooping.

Y___N___

The tiller cab sun visor shall be black in color.

Y___N___

TILLER STEERING WHEEL AND COLUMN

The upper steering column shall tilt and telescope. The steering wheel shall be 18” in diameter.

Y___N___

TILLER CAB DASH AND INSTRUMENTS

The tiller cab dash shall be horizontal, constructed of 3CR12 stainless steel and painted to match the tiller cab interior. A non-glare switch panel, custom designed to accommodate the appropriate functions, shall be provided. Rocker style switches with integral indicator lights shall be provided to advise that the switch has been energized. The panel shall be back lit with a dimmer switch for night operations.

The following instrumentation shall be provided on the dash:
- Green turn signal indicator lights.

- A two-way signal buzzer system from the tiller cab to the tractor cab, with the buzzer button mounted in the center of the steering wheel, interlocked for engine starting.
- An audible and visual warning system to warn both the front cab and tiller driver when the maximum allowable jackknife position approaches.

Y___N___

AUTOMATIC DOOR SWITCHES

Automatic door switches shall be provided for the tiller cab dome light.

Y___N___

The clear lights shall be activated when the tiller cab door opens.

Y___N___

TILLER CAB HEATER

A diesel fueled tiller cab heater with adjustable controls shall be provided. The heat output shall range from 3100 to 7000 BTU's. One heater outlet shall be provided for the windshield and one outlet shall be provided for the cab floor. To maximize efficiency, the heater shall draw air from the interior of the tiller cab. Fresh air shall be introduced into the cab via the cab vent. In-line between the fuel tank and the tiller diesel heater shall be an electric fuel pump, complete with check valve and shutoff valve. An informational label stating "RUN HEATER CONTINUOUSLY FOR 20 MINUTES EVERY MONTH" shall be provided.

Y___N___

HEATER FUEL TANK LOCATION

The polyurethane diesel fuel tank for the tiller cab heater shall be located on the street side of the trailer deck, near the access ladder.

Y___N___

TILLER CAB DEFROSTER FANS

Two (2) adjustable 6" defroster fans shall be provided for the tiller cab windshield. One shall be mounted on the left side and one on the right side of the windshield. Each fan shall have a two (2) speed control on the mounting pedestal.

Y___N___

TILLERMAN'S SEAT

The tillerman's seat shall be an H.O. Bostrom Sierra FX series non-reclining low back seat. This seat shall have 5" of fore and aft adjustment.

Y___N___

TILLER SEAT BELT

The tiller seat shall have a 3-point fixed D Loop style shoulder harness, to meet FMVSS and NFPA 1901 current edition requirements. The seat belt shall be red in color.

An IMMI ReadyReach shall be attached to the seat belt. The ReadyReach positions the seat belt forward making the seat belt easier to reach.

Y___N___

TILLER SEAT & WINDOW GUARD

A metal bar shall be installed across the rear window which shall protect the seat and the window when the seat is moved fully rearward.

Y___N___

DRI-DEK®

Thirty (30) black Dri-Dek® mat(s) shall be provided and installed on body compartment floors and/or in shelves/trays as specified. Ramped edging shall not be included.

Y___N___

The location of the compartment option(s) shall be as follows:

Y___N___

FENDER STORAGE

Storage compartments in the fender area of the apparatus trailer shall be comprised of the following:

Y___N___

On the driver's side of the apparatus, forward of the rear tiller axle there shall be:

Y___N___

One (1) enclosure to accommodate one (1) air bottle, fabricated of high impact polyethylene material, with a minimum of 26.0" usable depth, and an 8.0" inside diameter. A detainment strap shall be installed.

Y___N___

On the driver's side of the apparatus, rearward of the rear tiller axle there shall be:

Y___N___

One (1) enclosure to accommodate one (1) air bottle, fabricated of high impact polyethylene material, with a minimum of 26.0" usable depth, and an 8.0" inside diameter. A detainment strap shall be installed.

Y___N___

On the officer's side of the apparatus, forward of the rear tiller axle there shall be:

Y___N___

One (1) enclosure to accommodate one (1) air bottle, fabricated of high impact polyethylene material, with a minimum of 26.0" usable depth, and an 8.0" inside diameter. A detainment strap shall be installed.

Y___N___

On the officer's side of the apparatus, rear of the rearward tiller axle there shall be:

Y___N___

One (1) enclosure to accommodate one (1) air bottle, fabricated of high impact polyethylene material, with a minimum of 26.0" usable depth, and an 8.0" inside diameter. A detainment strap shall be installed.

Y___N___

Four (4) fender storage door(s) shall be constructed of 12 gauge brushed stainless steel secured by a full length stainless steel hinge and a push button lever latch.

Y___N___

ADJUSTABLE SHELF OR SHELVES

Eleven (11) adjustable shelf or shelves (with open corners) made from 3/16" smooth aluminum sheet metal shall be provided in the body compartment(s). Each shelf shall be supported by four (4) stainless steel angles bolted to Aluma-Strut tracks.

When in a split depth compartment, the Aluma-Strut tracks shall only be provided in the upper or lower area where the shelve(s) are located.

Y___N___

The location of the compartment option(s) shall be as follows:

LS1- (1) Mid Level
RS1- (2) Evenly Spaced
LS2- (1) Mid Level
RS2- (1) Mid Level
LS3- (1) Mid Level
RS3- (1) Mid Level
LS4- (1) Mid Level
RS4- (1) Mid Level
RT1- (1) Mid Level

Y___N___

FINISH - ADJUSTABLE SHELF (OR SHELVES)

Eleven (11) adjustable shelf (or shelves) shall have a DA finish on the outside edge of the shelf.

Y___N___

ALUMA-STRUT

Four (4) set(s) of Aluma-Strut shelving supports shall be provided for future installation of a shelf or shelves. Two (2) tracks shall be installed full height on each side wall of the compartment(s).

Y___N___

The location of the compartment option(s) shall be determined at the time of order.

Y___N___

ROLL OUT TRAY(S)

Five (5) base depth roll out tray assembly(s) shall be provided in the body compartment(s). The tray assembly shall be bolted to the compartment floor.

Y___N___

Five (5) tray(s) shall be constructed of 0.188" aluminum and shall have edges on all four sides for added strength. The corners shall be open.

Y___N___

FINISH - ROLL OUT TRAY(S)

Five (5) roll out tray(s) shall have a DA finish applied to the outside edge of the tray.

Y___N___

Five (5) SlideMaster model AM2 aluminum base depth slide mechanisms shall be bolted to the compartment floor. It shall allow the tray to extend 70% of the slide length. The tray/compartment shall be able to support a 500 pound load.

Y___N___

The SlideMaster slide mechanism shall be secured with a SlideMaster 2-rail IMS spring lock.

Y___N___

The location of the compartment option(s) shall be as follows:

LS2, LS4, RS2, RS4

Y___N___

ROLL OUT TRAY(S)

One (1) transverse rollout tray assembly(s) shall be provided in the body compartment(s).

Y___N___

One (1) tray(s) shall be constructed of 0.188" aluminum and shall have edges on all four sides for added strength. The corners shall be open.

Y___N___

FINISH - ROLL OUT TRAY(S)

One (1) roll out tray(s) shall have a DA finish applied to the outside edge of the tray.

Y___N___

One (1) SlideMaster model M2D aluminum transverse slide mechanisms shall be installed allowing the tray to extend 70% of the slide length to either side of the vehicle. The tray/compartment shall be able to support a 1000 pound load, evenly distributed.

Y___N___

The SlideMaster slide mechanism shall be secured with a SlideMaster Rotating Lock.

Y___N___

The transverse tray/SlideMaster assembly shall be mounted to the floor.

Y___N___

The location of the compartment option(s) shall be as follows:

LS3/RS3

Y___N___

COMPARTMENT DIVIDER(S)

Five (5) vertical compartment divider(s) shall be installed in the body compartments. Partition(s) shall be the full height (allowance shall be made for ceiling light) and depth of the compartment. They shall be bolted in place so they may be removed if desired.

The divider shall be determined at pre-construction from the front door opening.

Y___N___

The location of the compartment option(s) shall be as follows:

LS2, LS4, RS2, RS4

Y___N___

COMPARTMENT DOOR SILL PROTECTORS

Twelve (12) brushed stainless steel sill protector(s), approximately .50" wide, shall be provided on the body compartment door sill(s) to protect the painted finish.

Y___N___

The location of the compartment option(s) shall be as follows:

LS1, LS2, LS3, LS4, LS5
RS1, RS2, RS3, RS4, RS5

Y___N___

COMPARTMENT DOOR SCUFF PLATES

Brushed stainless steel scuff plates shall be provided on the inside twelve (12) body compartment door(s) to protect the painted finish.

Y___N___

The location of the compartment option(s) shall be as follows:

LS1, LS2, LS3, LS4, LS5
RS1, RS2, RS3, RS4, RS5

Y___N___

RUB RAIL - BODY SIDES

Brushed stainless steel rub rails shall be provided along the lower portion of the body, beneath the compartment doors, on each side to prevent damage to the body and finish. The rub rails shall be a minimum of 2-3/8" wide x 1" deep and shall be mounted on rubber supports. Rub rails shall have a 1" x 1" chamfer at the front and rear of the rails. The rails shall protrude a minimum of 1.75" from the face of the body.

Y___N___

Y___N___

AERIAL LADDER DESIGN AND PERFORMANCE

A 100 foot, 500 lb. tip load telescoping steel aerial ladder shall be mounted on the apparatus. The ladder structure shall be of an open truss design and shall meet or exceed the requirements of all applicable sections of the current edition of NFPA 1901. The aerial ladder and turntable design shall provide continuous egress for civilians and firefighters through any angle of elevation to the ground as defined by NFPA 1901.

The ladder shall be designed with a structural safety factor of two-to-one (2:1) based on the dead and live loads and shall meet ANSI A92.2 Standard for Vehicle Mounted Aerial Devices and NFPA 1901 which requires a static stability safety factor of one and one half to one (1.5:1) based on the rated load. These capabilities shall be established in the unsupported configuration. The design and stability of the aerial shall not require fifth wheel lock up or tractor-in-line alignment when operating.

The aerial device and all supporting structure shall be third party tested to confirm that the aerial meets the original design criteria and the intent of the latest recommended NFPA standard for aerial devices. Such testing shall include the use of brittle lacquer stress coating to identify all stress concentrations, followed by strain gauging to verify that all nominal stresses and stress concentrations have a safety factor that is equal to or greater than 2:1 based on the dead and live load.

The aerial ladder shall be comprised of four (4) sections and extend to a nominal working height of 100 feet above the ground as measured by NFPA 1901 recommendations. The aerial ladder shall have a rated horizontal reach of 91 feet measured in the horizontal plane at zero (0) degrees from the centerline of the turntable rotation, as defined by NFPA 1901. The aerial ladder shall be capable of continuous operation through 360 degrees of rotation and from minus five (-5) degrees to plus eighty (+80) degrees elevation. There shall be no exception.

Y___N___

AERIAL LADDER CERTIFIED RATED CAPACITY

The rated capacity of the aerial ladder, with the ladder below 45 degrees elevation, shall be based on a 500 pound tip load or a 250 pound tip load while flowing a maximum of 1000 GPM of water. With the ladder above 45 degrees, the capacity shall be a 500 pound tip load while flowing a maximum of 1000 GPM of water in accordance with NFPA 1901, current edition. There shall be no nozzle orientation restrictions while flowing 1000 GPM of water.

All aerial ladder certifications shall be based on the ladder being properly deployed in an unsupported configuration. The capacities shall be based upon 360 degree rotation, up to full extension, and from -5 degrees to + 80 degrees. There shall be no exception.

Y___N___

OPERATION ON GRADES

The aerial is capable of being operated at full rated capacity in every position in which the aerial device can be placed when the apparatus is on a slope of 5 degrees (8.7%) in accordance with NFPA 1901 (19.21.3.1)

Y___N___

OUTRIGGERS

One (1) set of double box beam type out-and-down outriggers shall be provided with a forward angle design. Each horizontal cylinder extends to provide a maximum of 16 foot stance across the outriggers. All cylinders shall be equipped with integral (on the cylinder) holding valves which shall hold it either in the stowed position or the working position should a pressurized hydraulic line be severed at any point within the system.

The extension of the horizontal beams shall be accomplished by a horizontal jack cylinder. All the horizontal jack cylinders shall be totally enclosed within the extension

beam housings. The horizontal jack cylinder shall be equipped with a trombone type tube to supply hydraulic oil to the vertical jack cylinders to eliminate wear and potential failure of hydraulic hoses.

The extension of the vertical housing shall be accomplished by a vertical jack cylinder. All the vertical jack cylinders shall be totally enclosed within the outer and telescoping inner jack tubes to protect them against damage that may occur while on the fire ground. Outriggers that are not fully enclosed for protection shall not be acceptable. Each vertical jack tube structure shall be equipped with a mechanical pin lock. There shall be no exception.

Y___N___

OUTRIGGER CONTROLS

An electric outrigger control for each outrigger shall be provided on both sides of the trailer frame near the outriggers. The controls shall be in an enclosed compartment with a drop-down door having a trigger latch. The outrigger controls on the officer's side shall be on a fixed panel. The controls on the driver's side shall be on a hinged panel which opens up for access to the manual override. Out-and-down outrigger functions shall be operated by a single control (joystick). A short jack switch shall be provided so that the vehicle may be set up in restricted areas or on uneven terrain. An automatic high idle switch and indicator shall be provided so that automatic engine RPM ramp up from hydraulic requests can be disabled.

The compartment shall be illuminated by a TecNiq EON LED light engaged by the aerial PTO switch in the cab.

An electric safety diverter valve shall also be provided in conjunction with the outrigger controls. The diverter valve shall allow the hydraulic fluid to flow either to the outrigger hydraulic circuit or the turntable and aerial circuit but not simultaneously. The valve shall be located on the driver's side of the trailer.

A bubble type level shall be furnished to aid in leveling the unit side to side. Each outrigger shall have an indicator light that illuminates when proper ground jack placement has been achieved.

Y___N___

OUTRIGGER ALARM

An automatic electronic warning device (horn) shall be provided to warn personnel when the outriggers leave their nested position. Alarm shall operate only when outriggers are moving.

Y___N___

OUTRIGGER LIGHTING - LED

Two (2) Whelen 60R02FCR Super-LED® red flashing lights with clear lens and with flange shall be mounted, one (1) on each outer vertical surface of the aluminum tread plate outrigger jack housing cover. One (1) Weldon 9186-2366-10 double faced 4" LED red flashing light shall be placed on the backside of each of the vertical jack boxes. These lights shall face fore and aft. The combination of both of these lights, at each stabilizer

position, shall meet NFPA requirements.

Two (2) TecNiq T410 LED ground jack area illumination lights shall be furnished to light up the area around the stabilizers. One of these lights shall be mounted in each of the outrigger stowage housings.

All flashing and illumination lights shall be automatically activated if any outrigger leaves its nested position and shall not be switched off until all ground jacks are once again in their stowed position.

Y___N___

OUTRIGGER WARNING LIGHTS PROGRAMMED AS SIDE WARNING ALSO

The outrigger warning lights shall be programmed to turn on whenever the side warning switch is on and the emergency master switch is on. They shall also turn on any time the outriggers are not nested or if the Aerial Master is on.

Y___N___

LADDER CRADLE INTERLOCK SYSTEM

A ladder cradle interlock system shall be provided which automatically prevents the operator from lifting the aerial device from the cradle unless all outriggers are fully extended and placed in a load supporting configuration. An additional interlock shall be provided that prevents outrigger operation when the aerial device is not fully stowed in the cradle.

Y___N___

SHORT-JACK OPERATIONS

The aerial device shall be capable of operating in a “short-jacked” stance. The aerial device shall require only one operator to lift the ladder from the cradle, as long as the outriggers are in a load supporting configuration. Once the ladder is lifted from the cradle, the aerial device shall be fully operational by a single operator to the side of the apparatus with fully deployed outriggers, and shall be denied operation to the short set side. In the event both sides are short set, the operator will automatically be denied operation to both sides. Two methods of overriding the interlock are available: an electric switch, or mechanically moving the solenoid. Both are available to the single operator located at the primary operator's station.

Y___N___

MANUAL OVERRIDES

The manual overrides for the aerial device (clockwise and counterclockwise rotation and ladder lowering interlocks) shall be in the turntable control pedestal. Operation of the ladder without the outriggers properly set requires the operation of a diverter valve and requires a second operator. The overrides for the outriggers shall be conveniently located at the side of the trailer fender, behind the jack control panel. The outrigger overrides can be operated by one person, but requires the simultaneous activation of two separate controls to override any safety system.

Y___N___

OUTRIGGER SPOT LIGHTS

Two (2) Whelen PAR36 chrome plated spotlights, model PFBS12C, with 12 diodes, shall be installed, one on each side of the apparatus above the outriggers, to illuminate the area for spotting the outriggers in the down position. The lights shall be wired to a switch on the cab dash and shall also automatically activate when the PTO is engaged.

Y___N___

OUTRIGGER PADS AND BRACKETS

A set of two (2) auxiliary outrigger pads shall be installed on the apparatus. The pads shall be 24" x 24" and shall be made of 3/8" aluminum with a bent rod style carrying handle. There shall be one (1) pad bracketed to the underside of the body in close proximity to each outrigger.

Y___N___

LADDER CRADLE

A heavy-duty rest shall be provided to support the aerial in the travel position. Wear strips shall be attached to the aerial cradle to protect the aerial when the unit is in the travel position. The cradle pivots to conform to the nested ladder, providing support over the full width of the cradle.

Y___N___

AERIAL HYDRAULIC SYSTEM

HOSE

High pressure hydraulic hose used for the circuits of the hydraulic system shall have a minimum burst strength of four (4) times operating pressure.

FILTER

An easily accessible 6 micron replaceable filter, with remote filter condition indicator, shall be installed in the hydraulic pressure line. A 10 micron return filter shall be installed in the reservoir.

RESERVOIR

The hydraulic oil tank shall have sufficient capacity to operate the aerial while allowing the oil to cool and shall be located behind the tractor 5th wheel and between the frame rails. There shall be a means provided to remove the tank, if needed. The connection points to the tank shall be easily accessible, with internal baffles separating the intake and return. There shall be shut-off valves at these points to isolate the tank, if needed. A filtered breather cap and a basket strainer shall be located in the filler neck. A dip stick shall verify the oil level. There shall be a plaque mounted next to the fill cap labeled “Hydraulic Fluid Only”.

PUMP

The system shall be powered by a pressure compensated load sensing hydraulic pump. The pump shall be sized to operate all boom functions simultaneously. The load sense feature operates any function at the optimum pressure to maximize efficiency and minimize heat build-up.

HOUR METER

An aerial hydraulics hour meter shall be provided to accumulate hours when the transmission provides pressure to engage the PTO and the aerial enable switch is engaged.

Y___N___

EMERGENCY PUMP

The apparatus shall be equipped with an emergency hydraulic pump. The pump shall be driven by a 12 volt electric motor with power from the truck batteries. It shall be capable of providing hydraulic power for limited (slower) ladder functions and for stowage of the unit in case of prime power failure. A control switch for the emergency pump shall be located at the outrigger control station and at the aerial control. The control switch shall be a spring loaded momentary type to prevent prolonged operation of the emergency pump.

Y___N___

HOT SHIFT POWER TAKE/OFF FOR AERIALS

The apparatus shall be equipped with a power (hot) shift PTO driven by the chassis transmission. An indicator shall be located in the cab to indicate when the PTO is engaged.

The following conditions apply for use of the PTO:

If the PTO is used to power the generator only, then the PTO can be engaged by the generator switch when the truck is in motion.

If the PTO is used to power the aerial only, then the PTO can be engaged by the aerial enable switch if the transmission is in neutral and the parking brake is set or in pump mode with the parking brake set.

If the PTO is used to power the generator and the aerial, then the generator can be used while the truck is in motion by activating the generator switch. A hydraulic valve, controlled by the aerial enable switch, shall prevent aerial operation until the transmission is in neutral and the parking brake has been set or in pump mode with the parking brake set.

There shall be no exceptions to this interlock system since it is designed to protect and safeguard personnel and equipment.

The hydraulic pump shall be mounted on the transmission with an extension shaft between the PTO and the pump.

Y___N___

HOIST SYSTEM

Two (2) double acting (power up and power down) lift cylinders shall provide smooth and precise elevation from -5 to 80 degrees above horizontal. Units that do not operate below 0 degrees shall not be acceptable. The elevation cylinders shall be equipped with integral (on the cylinder) holding valves to prevent the unit from falling should a charged line be severed at any point within the hydraulic system.

Y___N___

EXTENSION-RETRACTION SYSTEM

A full hydraulic powered ladder extension and retraction system shall be provided utilizing dual hydraulic cylinders and cables. Each cylinder shall be capable of operating the ladder in the event of a failure of the other. The extension/retraction cylinders shall be equipped with integral (on the cylinder) holding valves to prevent the unit from falling should a pressurized hydraulic line be severed at any point within the system. The extension/retraction cables shall be of the following diameters: 3/8" 2nd section; 5/16" 3rd section; 1/4" fly section.

Wear pads shall be provided between the telescoping sections for smooth operation. Wear pads shall be composed of high strength polymers with friction reducing additives.

Y___N___

ROTATION INTERLOCK SYSTEM

The apparatus shall be supplied with a rotation interlock system. This interlock system shall not allow the aerial to be rotated over the side of the apparatus if the stabilizers on that side are not fully deployed. The interlock system shall include a light and audible alarm that will activate when rotation is no longer allowed. Once rotation is stopped the interlock system shall allow the operator to rotate away from the stopping point without the use of an override. A manual override feature shall be provided that will allow the operator at the turntable the ability to override the interlock system. There shall be NO EXCEPTIONS to this interlock system since it is designed to protect and safeguard personnel and equipment.

The rotation interlock system box/module shall be located in a junction box under the fifth wheel or gooseneck. If the outrigger controls are on both sides, then the interlock system box/module shall be behind the controls on the right side.

Y___N___

AERIAL SWIVEL

The aerial device shall be equipped with a swivel installed within the axial centerline of the turntable to allow 360 degree rotation of the aerial device. The swivel shall have passages for the hydraulic lines from the hydraulic pump and oil reservoir to the aerial control valve bank. The swivel shall also maintain electrical continuity of all necessary electrical circuits while ladder is rotating or when it is immobile. A minimum of thirty-

six (36) collector rings shall be provided.

Y___N___

ROTATION SYSTEM

A heavy-duty 34" center to center, 39.88 O. D., swing bearing shall be provided. This bearing shall feature four-point contact ball bearing design combined with offset raceway construction and individual ball separators to give maximum combined thrust and radial moment capacities. Races shall be deep induction hardened and precision ground. The bearing shall have a minimum of 61 precision, 1.38" diameter chrome alloy steel balls kept at uniform spacing by resilient spacers. Two (2) grease fittings shall be provided for proper lubrication.

The bearing shall be attached to both turntable and turntable support structure with grade 8 bolts. Both surfaces to which the bearing shall be mounted shall be milled to provide a level mounting. Welding of bearing to either support shall not be allowed, no exception. A planetary gear drive unit mounted on the turntable opposite of the control pedestal and powered by a hydraulic motor shall be provided. A spring applied, hydraulically released, disc type brake shall be furnished to provide positive braking of the turntable assembly.

Y___N___

TURNTABLE

The turntable shall consist of aluminum tread plate to provide a slip resistant surface while operating the ladder. It shall have a minimum of 12 sq. ft. of useable walking surface.

The turntable swing bearing bolts shall be accessible from the topside of the platform. This shall allow fire department service personnel to easily perform the required periodic bolt torque tightness check. There shall be no exceptions to this maintenance requirement as it shall eliminate extended labor cost and excessive down time.

Three 1-1/4" 12 gauge stainless steel tubing guardrails, with slip resistant poly elastomer material, shall be furnished. The guardrails shall have safety connecting chains with clasps between them. One guardrail shall be located near the control console, one opposite the control console, and one directly behind the aerial ladder. All shall be a minimum of 42" high.

The guardrail behind the aerial ladder shall be removable.

Y___N___

TURNTABLE OVERLAY

An aluminum grating overlay shall be provided for the turntable walking surface. Grating shall be made of 3/16" thick aluminum strips set of edge with the tops having a deep, sharp serration for a positive non-slip walking surface. Grating shall be bolted to the turntable surface and be removable.

Y___N___

YELLOW PERIMETER MARKING

In accordance with NFPA 1901 chapter 15.7.1.6, the perimeter of the turntable not covered with a railing shall be marked with a one-inch wide safety yellow line to delineate the designated standing or walking surface area.

Y___N___

AERIAL CONTROL CONSOLE

The aerial control console shall be located on the right side of the turntable facing the ladder tip.

Y___N___

PEDESTAL COVER

A hinged aluminum tread plate cover shall be provided for the control pedestal. Two (2) gas springs shall hold the cover in either an open or closed position.

Y___N___

PEDESTAL COVER LIGHT

There shall be a TecNiq Eon LED lamp installed in the pedestal cover. The light shall be activated when the PTO is engaged.

Y___N___

PEDESTAL COVER LATCH

There shall be a rubber ball type latch installed on the pedestal cover to assist in holding the cover closed.

Y___N___

CONTROL PEDESTAL INTERIOR WORKLIGHT

The interior of the turntable control pedestal shall have a TecNiq EON LED work light for control valve service visibility. It shall have a stand-alone toggle switch with label.

Y___N___

AERIAL CONTROL CONSOLE

The console shall be illuminated for night operation and shall have the following items clearly identified and conveniently located on or in close proximity to the console for ease of operation:

- Aerial overload chart
- Throttle switch
- Intercom system - allows communication between pedestal and end of aerial
- Three directional control handles for aerial functions

The following shall be inside the pedestal access door:

- Emergency override rotation switch with protective cover
- Emergency pump switch with protective cover

The three directional control valves shall control the elevation/lowering,

clockwise/counter clockwise, and extension/retraction functions for the positioning of the aerial. The controls for the three aerial functions may be operated independently or simultaneously and shall be of the "deadman" type. A foot pedal locking feature shall be incorporated to insure the controls are non-operable unless the foot pedal is engaged when the function is being performed.

The display located in the pedestal shall include the following information, if applicable:

- Low voltage (Red)
- Rung alignment (Green)
- Turntable aligned (Green)
- Aerial overload buzzer and light (Red)
- Rotation limit exceeded (Red)
- Cab avoidance (Red)
- Hydraulic system pressure
- Lower system pressure
- All warning information
- Aerial status
- Truck status
- Elevation indicator

AERIAL LADDER TIP CONTROLS

The aerial ladder device operation shall include controls at the tip of the "fly section". The controls shall consist of three (3) momentary toggle switches, which shall be clearly labeled for the function performed when activated, including extend/retract, clockwise/counterclockwise and down/up. Power to the switches shall be created by the main pedestal operator activating the "Tip Control Enable" switch on the pedestal, and the "Aerial Enable" foot switch located at the bottom of the pedestal. The tip controls shall be "creeper" controls which operate the ladder functions at a considerably reduced speed relative to the main control pedestal controls, in accordance with NFPA requirements.

Y___N___

ADDITIONAL PRESSURE GAUGES

One (1) pressure gauge shall be provided and installed on the aerial console for the hydraulic system pressure.

Y___N___

AERIAL OVERLOAD ALARM

An alarm horn and warning light shall be provided on the control pedestal that shall sound to alert the operator should the load capacity of the aerial be exceeded. The alarm shall in no way restrict the further operation of the aerial. There will be no exception to this safety requirement.

Y___N___

LOADMINDER SYSTEM WITH AERIAL OVERLOAD ALARM

A Class1 "Loadminder" system with single display shall be installed on the turntable control pedestal in addition to the standard aerial overload alarm. The Loadminder calculates and displays the current low level load on the aerial and instantly adjusts as the ladder angle, extension or live load changes.

Y___N___

PUSH BUTTON SWITCH F/AIR HORNS ON AERIAL PEDESTAL

A push button switch for air horns shall be provided on the aerial pedestal.

Y___N___

LADDER ALIGNMENT ARROWS

There shall be a 1" wide x 3.44" long arrow constructed of 12 gauge 304 stainless steel and painted fluorescent orange installed on the turntable. A corresponding arrow shall be placed on the decking next to the turntable. Each arrow shall be installed atop a 2.5" high box. Surface mounted on each arrow shall be a red TecNiq LED Dragon light. When the ladder is aligned with the cradle, the points of both arrows shall line up and both lights shall activate.

The alignment arrows shall be located at final inspection.

Y___N___

INCLINOMETERS IN CAB

Two (2) inclinometers shall be provided to inform the driver if it is safe to deploy the outriggers. The inclinometers shall identify the truck angles on both the X and the Y axis. One shall be located on the cab dash above the indicator panel. The second shall be located in the driver's side door jam area.

Y___N___

ANGLE INDICATOR

A lighted angle indicator shall be installed on the base section of the aerial, next to the aerial operator's position.

Y___N___

AERIAL INTERCOM SYSTEM

The intercom shall be a Fire Research Model ICA-900 2 station with ACT clear voice sound system. The master shall be a push-to-talk station with 5-LED volume indicator lights and push button, arrow-up and arrow down, controls. The master unit shall be mounted on the turntable control pedestal. The hands free voice transmission slave unit shall be installed at the aerial tip or platform control console and always in transmit mode until interrupted by transmission from the master unit. The intercom speaker at the aerial tip/platform control console shall have a cover over the rear of it. The system stations shall be interconnected with shielded cable for static free operation in normal conditions.

Y___N___

TILLER HEADSET & INTERCOM MODULE

One (1) Firecom model #UH-52 under helmet style headset shall be provided for the tiller cab. One (1) headset module shall be located above the left shoulder on the upper left wall, in the corner. One (1) yellow NFPA compliant headset hanger hook shall be located near the module, but on the ceiling.

This headset shall provide a noise reduction of 24 dB. It shall have a black button which shall be push-and-hold to activate the microphone for intercom only communications.

Y___N___

AERIAL LADDER CONSTRUCTION

The aerial ladder shall be constructed of welded, high-strength steel throughout. Each section shall be trussed diagonally, vertically and horizontally and be reinforced at critical points for extra rigidity. The ladder rungs shall be round. They shall extend through the web of each ladder section rail and be fully welded at both the inside and outside of the beam faces to provide excellent torsional rigidity. The rungs shall also be "K" braced.

The main ladder section beams or rails shall be a hollow I-beam design for superior lateral rigidity (as compared to a hollow rectangle) and a high strength-to-weight ratio. They shall be roll formed in the factory of the bidder and be welded together by a continuous-feed automatic welding machine. Holes in the rails for the rungs shall be punched through the entire web of the I-beam. The holes shall be formed outward in a "dish" shape to obtain the widest separation between the two weld points on the rung. Prior to final assembly, the interior of the I-beam shall have an under coating primer to prevent corrosion.

The ladder shall use greaseless bushings on all pivot points and sheaves. Greaseless wear strips shall be used between the ladder sections. The ladder shall include a safety guard panel located at the turntable end of the base section and mounted on both sides of the ladder to prevent personnel from placing hands, elbows, etc. in the path of the aerial ladder extension or retraction.

Ladder construction shall complement the support of heavy or unbalanced loads at horizontal or low angle positions. To allow the passing of personnel on the ladder, the minimum inside width dimensions of the four ladder sections shall be as follows: Base - 31"; Lower Mid - 28"; Upper Mid - 24" and Fly - 21". To allow for safe climbing and good "handhold" positioning at any climbing angle, the minimum height of the handrails above the center line of the rungs of the four ladder sections shall be as follows: Base - 25"; Lower Mid - 22"; Upper Mid - 18" and Fly - 15".

Y___N___

RUNG COVERS

All rungs shall be covered with deeply serrated, replaceable, heavy-duty rubber sheaths, glued and clamped securely to the rungs.

Y___N___

AERIAL EXTENSION NUMERIC LABELS

Numeric labels shall be applied to the inside rail of the base section opposite the pedestal to indicate ladder extension feet.

Y___N___

AERIAL LADDER SLIDES

The aerial ladder slide rocker pads shall consist of Teflon impregnated polyethylene wear pads between each section. They shall be provided to reduce the frictional forces between the individual sections of the ladder. No exceptions to this requirement.

Y___N___

REMOVABLE TIP

A 4-1/2' removable tip on the fly section shall be provided and installed to allow for easy repair or replacement.

Y___N___

FOLDING STEPS - LIGHTED

One (1) pair of extreme duty cast aluminum folding steps with cam locking feature shall be installed to provide substantial footing for a firefighter stationed at the tip of the fly section. Each step area shall be a minimum of 7" x 7" square. An aggressive serrated tread shall be provided to keep a foot from sliding off the top of the step. Each step shall come standard with a LED light built into the base of the step right above the stepping surface. The steps shall not protrude more than 1.50" into the climbing area of the ladder when in the stowed position. The step lights shall activate with the aerial master.

Y___N___

A weatherproof deutsch plug will be provided at the ladder tip to control and power a ladder pipe.

Y___N___

MONITOR PEDESTAL CONTROL

A toggle switch shall be located at the pedestal to control the monitor.

Y___N___

MONITOR TIP CONTROL

A toggle switch shall be located at the pinnable waterway bracket to control the monitor.

Y___N___

AERIAL LADDER BASE LIGHT(S)

Two (2) Unity AG 6" LED spotlight(s) shall be installed on the base section of the ladder.

Y___N___

Ladder base lights shall be mounted on the both sides of the ladder.

Y___N___

Two (2) aerial light(s) shall be switched at the turntable pedestal.

Y___N___

No Ladder Fly-Stream Tracking Light Required- NFPA 1901 Covered By Another Light

Y___N___

AERIAL LADDER FLY LIGHT(S)

Two (2) HiViz FT-MB-15-FT-W 12v Spot/Flood, 12 volt 7,290 lumen combination spot/flood light(s) shall be installed on the fly section of the ladder near the tip. The light(s) shall be controlled by the same controls as the light(s) on the base.

Y___N___

Ladder fly lights shall be mounted on the both sides of the ladder.

Y___N___

The finish of the light head shall be white.

Y___N___

120 VOLT SYSTEM ON LADDER

120 volt wiring shall be provided to the tip of the fly section of the aerial device. The wiring shall run from a junction box mounted below the turntable through the collector ring assembly. 12 gauge, type SJO, 3 conductor cable shall be run up the aerial.

Y___N___

TWIST-LOCK RECEPTACLE(S)

One (1) 120 volt 3-wire twist lock receptacle(s) shall be provided and mounted on the aerial in a weatherproof box with spring loaded cover, on the right side of the ladder tip, opposite to the intercom.

Y___N___

NEMA Rating: L5-15R (15 Amp) Twist-Lock, Duplex.

Y___N___

One (1) aluminum flip lid duplex receptacle cover(s) shall be installed.

Y___N___

One (1) 20 amp breaker(s) shall be installed. It shall not have a ground fault interrupter.

Y___N___

RUNG LIGHTING

One (1) side(s) of each aerial ladder section shall have Wes Garde flexible, weatherproof LED strip lights installed. The light strips shall be mounted on the inside of the hand rail with mechanical fasteners and adhesive

Y___N___

The rung lights shall be red in color.

Y___N___

The rung lights shall be installed on both sides.

Y___N___

One (1) aerial light(s) shall be switched at the turntable pedestal.

Y___N___

Additional Cat Track for 100'/105' Aerials

Y___N___

AERIAL DEVICE LIFTING ANCHOR POINTS

A steel eye shall be welded to the bottom of each aerial ladder tip bottom rail and shall provide a lifting capacity of 250 pounds each. A removable crossbar shall be provided to center the load when necessary, providing a combined anchor point lifting capacity of 500 pounds. The removable crossbar shall be held in place with quick pins on the outside of each eye. The aerial device lifting anchor points and removable crossbar are designed and rated to be used with a single strand of rope or webbing. Using these anchor points in conjunction with any type of mechanical advantage system may overload the aerial device, and is not recommended.

Y___N___

LADDER MOUNTED PIKE POLE

A RH-6 shall be mounted on the left hand side of the fly section of the ladder.

Y___N___

LADDER MOUNTED FLAT HEAD AXE

A 6 lb. flat head axe with fiberglass handle shall be mounted on right hand side of the fly section of the ladder.

Y___N___

LADDER MOUNTED HALLIGAN

A 30" FHU Pro-Bar Halligan PB-30 shall be provided and mounted on right hand side of the fly section of the ladder.

Y___N___

LADDER BRACKET ON BASE SECTION

A ladder bracket shall be provided and mounted to the outside of the aerial base section, opposite the pedestal, to accommodate one (1) roof ladder.

Y___N___

LADDER SIGN

Two (2) 132" x 16.25" painted metal placards for department identification signs shall be provided. One shall be installed on each side of the bed section of the ladder. Placards shall be made of smooth aluminum sheet metal and be securely fastened to the ladder. The center of the metal placards shall be mounted approximately 160" from the pivot point of the aerial device. Ladder mounted options may affect the location of the ladder sign.

Y___N___

The sign shall be painted to match the body.

Y___N___

ILLUMINATED SIGN BOARDS

There shall be (2) Flanges painted job color to match the ladder sign on bottom of the ladder signs with 3M strip lights White shining up on the ladder signs (REF E1475350 & P3432288 for starting point concepts)--Lights will activate with marker lights on chassis

Y___N___

Hydraulic Generators - Manufacturer Stick Aerials

Y___N___

HYDRAULIC GENERATOR

A Harrison 10.0 kW hydraulic generator system shall be provided installed on the apparatus. The system shall be capable of producing the nominal output power of 10.0 kW, 120V/240V, single phase, 60 Hz. The generator shall be installed per the manufacturer recommendations and shall be capable of supplying full power during all engine speeds or operation modes.

The generator shall be placed in a tray frame assembly which affords protection to the components and provides a unitized mounting module containing the motor/generator, reservoir, oil cooler, filtration system, and a manifold containing a cross-port check valve plus system relief valve. The generator shall be a commercial type with a heavy-duty bearing and of brushless design to ensure low maintenance. The reservoir shall include an oil level gauge, oil temperature gauge, fill cap, fill strainer, and a boost unit to provide a positive pressure to the pump suction port. The generator and hydraulic motor shall be close coupled and permanently aligned using a Morse taper with a through bolt to secure the motor to the generator.

The PTO driven hydraulic pump and motor shall be of axial piston design to provide low internal leakage and a high degree of frequency stability. The pump will match to the system with the proper orifice, pressure compensator and load sensing to provide a stable output over the rated speed range of the pump and with electrical loads from no load to full-load. The PTO ratio shall be selected to allow operation throughout the entire engine RPM range; idle to full throttle.

A display meter consisting of (4) numeric LED displays shall be used. The meter shall simultaneously display system voltage, frequency and amperage in each of the two 120V legs. The display meter shall be located in close proximity to the breaker box.

A high temperature visual indicator and audible alarm shall be provided and installed.

Y___N___

GENERATOR/INVERTER TEST AND CERTIFICATION

The generator/inverter shall be tested by Underwriter's Laboratory (UL) at the manufacturer's facility and shall conform to NFPA requirements and standards. Copies of all tests shall be provided with the delivery documentation.

Y___N___

The generator enable switch shall be installed in the LS tractor compartment

Y___N___

Generator Located Less Than 12 Ft from Load Center - Circuit Protection Not Req

Y___N___

HARRISON HYDRAULIC GENERATOR WARRANTY

The Harrison hydraulic generator shall have a 6 year / 1000 hour limited warranty from the manufacturer. See warranty certificate for complete details.

Y___N___

BREAKER BOX

A twelve (12) place Square D brand, or approved equal, gray colored breaker box shall be provided and installed in the front upper left hand side compartment. Manual reset circuit breakers, matching the rated output of each specific outlet or device, shall be provided. All power supply assembly conductors, including neutral and grounding conductors from the line voltage power source to the circuit breaker box shall have an equivalent amperage rating and shall be sized to carry not less than 115 percent of the amperage of the nameplate current rating of the power source. Power supply conductors shall be run in nonmetallic liquid tight flexible conduit or type SO/SEO cord with a WA suffix. Conduit shall have a temperature range of -67°F (-55°C) to 221°F (105°C). Wiring conductors from the circuit breaker box to the individual outlets and devices shall be sized in accordance with NFPA 70, *National Electrical Code* requirements. Branch circuit wiring conductors shall be run in (1) metallic or nonmetallic liquid tight flexible conduit rated for use in a temperature range of -67°F (-55°C) to 221°F (105°C) with stranded copper wire rated for wet locations and temperatures not less than 194°F (90°C) or (2) Type SOW, SOOW, SEOW, or SEOOW flexible cord, rated at 600 volts and at temperatures not less than 194°F (90°C). A power source specification label shall be permanently attached to the apparatus near the operators control panel.

The door of the breaker box shall have a side hinge.

Y___N___

The hydraulic generator shall be located in the tractor compartment.

Y___N___

KUSSMAUL AUTO TRANSFER SWITCH

A Kussmaul 091-134 Auto Interlock II switch shall be provided and installed to allow the receptacle to be fed from shorepower through the Auto Eject when the generator is not in use.

Y___N___

One (1) 20 amp breaker(s) shall be installed. It shall not have a ground fault interrupter.

Y___N___

CORD REEL(S)

One (1) Hannay Model ECR1618-17-18 power rewind cord reel(s) for live electric cable shall be provided. The reel(s) shall be 12 volt electric rewind and be equipped with an electrical collector ring with a minimum #10 gauge, 3-conductor wiring. Capacity of each reel shall be a minimum of 200 feet 10/3 gauge or 250 feet of 12/3 gauge electric cable.

Cord Reels will have ATP cover with rollers and a hinged lift up covers for service.

Y___N___

CORD REEL CABLE(S)

One (1) 200 foot length(s) of 10/3 type SO electric cable shall be provided and installed on the cord reel.

Y___N___

The color of the cord cable shall be yellow.

Y___N___

The AN250 motor shall take 60 seconds to rewind 100 feet.

Y___N___

The reel shall be painted Hannay Graphite.

Y___N___

REEL REWIND SWITCH

The reel shall be equipped with a reel rewind rocker switch.

Y___N___

The reel rewind switch shall be located at: _____

Y___N___

The reel shall be located on top of the body.

Y___N___

The reel shall be located, as specified: Above LS Tractor Compartment

Y___N___

ROLLER ASSEMBLY

The reel shall be equipped with a captive roller assembly mounted directly on reel frame. It shall be supplied by Hannay and have a 4-way roller assembly with stainless steel rollers mounted in a stamped steel housing.

Y___N___

CABLE STOP

A molded plastic spherical type stop shall be provided near the end of the cable/hose.

Y___N___

CORD REEL(S)

One (1) Hannay Model ECR1618-17-18 power rewind cord reel(s) for live electric cable shall be provided. The reel(s) shall be 12 volt electric rewind and be equipped with an electrical collector ring with a minimum #10 gauge, 3-conductor wiring. Capacity of each reel shall be a minimum of 200 feet 10/3 gauge or 250 feet of 12/3 gauge electric cable.

Cord Reels will have ATP cover with rollers and a hinged lift up covers for service.

Y___N___

CORD REEL CABLE(S)

One (1) 200 foot length(s) of 10/3 type SO electric cable shall be provided and installed on the cord reel.

Y___N___

The color of the cord cable shall be yellow.

Y___N___

The AN250 motor shall take 60 seconds to rewind 100 feet.

Y___N___

The reel shall be painted Hannay Graphite.

Y___N___

REEL REWIND SWITCH

The reel shall be equipped with a Hannay Reel Rewind Push-Button Control #90030.

Y___N___

The reel rewind switch shall be located at the manufacturer's discretion in a position where the operator can safely observe the rewinding operation.

Y___N___

The reel shall be located on top of the body.

Y___N___

The reel shall be located, as specified: Above RS Tractor Compartment

Y___N___

ROLLER ASSEMBLY

The reel shall be equipped with a captive roller assembly mounted directly on reel frame. It shall be supplied by Hannay and have a 4-way roller assembly with stainless steel rollers mounted in a stamped steel housing.

Y___N___

CABLE STOP

A molded plastic spherical type stop shall be provided near the end of the cable/hose.

Y___N___

TWIST-LOCK FEMALE PLUG(S) ON CORD REEL CABLE

Two (2) Hubbell model HBL2313SW 120V/20A heavy duty twist-lock female plug(s) with watertight safety-shroud and Insulgrip® connector body shall be provided. The plug(s) shall be installed on the working end of the cord reel cable(s).

Y___N___

ELECTRICAL JUNCTION BOX(ES)

Two (2) Akron Brass 4-receptacle junction box(es) shall be provided for distribution of electrical power on the fire ground. Each box shall be constructed of aluminum and shall be completely powder coated gray with gray hinged protective receptacle covers and the full length carry handle. Internally lighted faceplates shall provide sufficient light to make connections and alert the crew that the box is in "power-on" status. Each junction box shall have dimensions of 9.25" long x 5.5" wide x 8.5" high. Each box shall be equipped with a 12-inch pigtail and a L5-20 connection.

For each total of four (4) single receptacles shall be provided; two (2) NEMA L5-20R twist-lock and two (2) NEMA 5-20R household, straight blade. Each receptacle shall be rated for 20 amps at 125 Volts.

A mounting box, with brushed stainless finish, shall be provided for each junction box.

Y___N___

The junction box mount shall be shipped loose.

Y___N___

The junction box mount shall be placed vertically.

Y___N___

CAB 12V FRONT BROW MOUNT LIGHT(S)

Two (2) Whelen Pioneer Plus™ PFH1 single panel LED floodlight(s) shall be installed on the cab front brow, using a Whelen PBHSEAGR mounting bracket. The light head shall provide 8,875 lumens and draw 6.5 amps. It shall operate at 12 volts DC.

The light head and mounting bracket shall be powder coated white.

Y___N___

The mount shall be on the left and right sides of the cab front brow.

Y___N___

Two (2) 12 volt light(s) shall be switched at the cab dash and a second location with a 3-way momentary switch.

The second location for the switch shall be: LS Tractor Compartment

Y___N___

CAB 12V SURFACE MOUNT LIGHT(S)

Two (2) Whelen model PCPSM1C, single panel LED combination flood/spot surface mount light head(s) shall be installed on the cab side(s). The light head shall provide 8,000 lumens and draw 6.0 amps. It shall operate at 12 volts DC.

The flange shall be chrome.

Y___N___

The cab surface mounted lights(s) shall be located between the front cab door and the crew cab side window.

Y___N___

Two (2) 12 volt light(s) shall be switched at the cab dash and a second location with a 3-way momentary switch.

The second location for the switch shall be: LS Tractor Compartment

Y___N___

The light shall not activate when a cab door on that side opens.

Y___N___

CAB 12V PEDESTAL MOUNT LIGHT(S)

Two (2) Whelen Pioneer Plus™ LED PCH2P dual panel combination flood/spot light(s) shall be installed on the cab roof using the top mount fixed pedestal mount, PBAPEDD. It shall operate at 12 volts DC, draw 13 amps, and generate 17,750 lumens of light.

The light head shall be white and mounting bracket shall be chrome.

Y___N___

The cab pedestal light(s) shall be located as follows:

Cab Roof - Both Sides - Over Crew Door - As rearward as possible.

Y___N___

Two (2) 12 volt light(s) shall be switched at the cab dash and a second location with a 3-way momentary switch.

The second location for the switch shall be: LS Tractor Compartment

Y___N___

BODY REAR 12V SURFACE MOUNT LIGHT(S)

One (1) Whelen model PCPSM2C, dual panel LED flood/spot surface mount light head(s) shall be installed on the body rear. The light head shall provide 16,000 lumens and draw 12.0 amps. It shall operate at 12 volts DC.

The flange shall be chrome.

Y___N___

The surface mounted light shall be centered on the rear of the body and as high as possible. Other equipment and light selections may affect placement.

Y___N___

One (1) 12 volt light(s) shall be switched at the cab dash and a second location with a 3-way momentary switch.

The second location for the switch shall be: LS Tractor Compartment

Y___N___

REVERSE ENABLE SWITCH

A reverse enable switch shall be installed on the cab dash which when activated shall allow the rear scene lights to engage any time the apparatus transmission is placed into reverse. This is in addition to the standard switch which shall allow the driver to engage the lights anytime the battery is on.

Y___N___

BODY 12V PEDESTAL MOUNT LIGHT(S)

One (1) Whelen Pioneer Plus™ LED PCH2P dual panel combination flood/spot light(s) shall be installed on the body roof using the top mount fixed pedestal mount, PBAPEDD. It shall operate at 13 volts DC, draw 12.2 amps, and generate 17,750 lumens of light.

The light head shall be white and mounting bracket shall be chrome.

Y___N___

The pedestal lights shall be located on the body as follows:

Centered over tiller wheel - Top of Body.

Y___N___

One (1) 12 volt light(s) shall be switched at the cab dash and a second location with a 3-way momentary switch.

The second location for the switch shall be: LS Tractor Compartment

Y___N___

PORTABLE 120V MOUNT LIGHT(S)

Two (2) Whelen Pioneer Plus ™ PFP2AP1 dual panel flood light(s) on a Whelen model 3300 portable ground tripod shall be provided

The 30" cast aluminum tripod assembly includes a 20" legs, an inner coil cord, bottom wire exit, body mount cradle and pole/pedestal mount adapter with handle and quick disconnect.

The light shall operate at 120 volts AC, draw 1.2 amps, and generate 15,000 lumens of light.

The light head shall be powder coated white.

Y___N___

RECEPTACLE(S)

Two (2) 120 volt 3-wire flat blade non-twist-lock receptacle(s) shall be provided and installed in weatherproof boxes with spring loaded covers.

Location of each 120V duplex receptacle shall be: _____

Y___N___

NEMA Rating: 5-15R (15 Amp) Non-Twist-Lock, Single.

Y___N___

Two (2) aluminum flip lid single receptacle cover(s) shall be installed.

Y___N___

Two (2) 15 amp breaker(s) shall be installed. It shall not have a ground fault interrupter.

Y___N___

The portable mount and light shall be located as follows:

Centered over LS1/RS1

Y___N___

A Whelen Nema 5-15, straight (household) plug shall be installed.

Y___N___

The receptacle shall be switched in LS Tractor Compartment

Y___N___

GROUND LADDERS

Ladders shall be provided in full compliance with NFPA 1901 requirements for aerial trucks. Ladders shall be individually mounted under the aerial ladder and tiller cab and properly labeled. **Two hundred Eighty Four (284) feet of Duo-Safety ladders** shall be provided as follows:

-One 45 ft., 3-Section	**-Model 1525-A**
-Two 35 ft., 2-Section	**- Model 1200-A**
-Two 24 ft., 2-Section	**- Model 900-A**
-Two 18 ft., 2-Section	**-Model 875-A**
-Two 16 ft., 2-Section	**-Model 875-A**
-One 10 ft., Folding	**- Model 585-A**
-One 20 ft., Roof	**-Model 875-A**
-One 13 ft. Little Giant	**-M13**

Y___N___

NON-STANDARD LADDERS

The following ladders shall be provided:

10' Roof: Model 775-A

Y___N___

LITTLE GIANT LADDER SYSTEM(S)

One (1) Little Giant Velocity M13, aluminum ladder system(s) shall be provided.

Little Giant ladder shall be located on the officer's above the RS1 and RS2 body compartments.

Y___N___

Pike Pile Storage - Below Turntable

Four (4) stainless steel pike pole tubes shall be installed below the turntable for ease of access. Four accessible from the LS. Tulip clips shall also be installed to secure the head of the pike pole.

Y___N___

GROUND LADDERS MOUNTED HORIZONTALLY

The specified ground ladders shall be horizontally mounted.

Y___N___

LADDER COMPARTMENT DOORS

Aluminum double doors shall be provided at the rear of the ground ladder compartment. The doors shall be constructed of smooth aluminum, to accommodate the installation of chevron striping. The doors shall be double panel construction, shall include gas operated door stays and shall be held shut with a "D" ring positive lock. The door hinge shall be located on the right side. The compartment lights shall automatically be activated by a door switch when door is opened. The door switch shall be integrated with the door ajar/hazard warning system.

Y___N___

GROUND LADDER SPLASH SHIELD

A splash shield shall be provided below the entire ground ladder stake assembly to shield the ladders from road splash. The shield shall be made of 3CR12 stainless steel and painted the same color as the ladder stakes.

Y___N___

LADDER BAY LIGHTS

The ladder bay opening shall be illuminated by two (2) LED lights from Triton, model TLPC. Each weatherproof light shall have 15 LED bulbs and a lens that measures 1.125" in diameter. The lights shall be activated by opening the ladder bay doors. The door switch shall be integrated into the door ajar hazard warning system.

Y___N___

PIKE POLES/MOUNTING

The following pike poles shall be furnished:

Y___N___

PIKE POLE(S)

Two (2) 6 ft. Fire Hooks Unlimited APH-6 pike pole(s) shall be provided. The handles shall be solid fiberglass with stainless steel wear sleeves. There shall be a gas shutoff on the end of the pole opposite the hook.

Y___N___

PIKE POLE(S)

Two (2) 10 ft. Fire Hooks Unlimited APH-10 pike pole(s) shall be provided. The handles shall be solid fiberglass with stainless steel wear sleeves. There shall be a gas shutoff on the end of the pole opposite the hook.

Y___N___

PIKE POLE(S)

Two (2) 12 ft. Fire Hooks Unlimited APH-12 pike pole(s) shall be provided. The handles shall be solid fiberglass with stainless steel wear sleeves. There shall be a gas shutoff on the end of the pole opposite the hook.

Y___N___

PIKE POLE(S)

Two (2) 8 ft. Fire Hooks Unlimited APH-8 pike pole(s) shall be provided. The handles shall be solid fiberglass with stainless steel wear sleeves. There shall be a gas shutoff on the end of the pole opposite the hook.

Y___N___

ALUMINUM TUBE PIKE POLE MOUNT(S)

Nine (9) aluminum tube(s) shall be mounted to facilitate storage of pike poles.

The mounting tube(s) shall be located at pre-construction.

Y___N___

PIKE POLE TUBE FINISH

Nine (9) pike pole tube(s) shall have a mill finish.

Y___N___

ZICO WHEEL CHOCKS

Four (4) Zico Model AC-44 wheel chocks shall be furnished and shipped loose with the apparatus. Four (4) QCH-44-V vertical mount holders shall be installed in the body compartments.

Compartment(s) to contain wheel chock holder(s) shall be:

Under the Tractor compartment Two (2) each side

Y___N___

SPARE HARDWARE KIT

An assortment of nuts, bolts, cap screws, washers and other hardware used in vehicle construction shall be provided.

Y___N___

SPARE HARDWARE KIT

An assortment of nuts, bolts, cap screws, washers and other hardware used the in construction of the aerial device shall be provided.

Y___N___

Y___N___

PROCESSES

The following processes shall be employed in the finishing of the apparatus:

Manual Surface preparation – All metal surfaces on all custom body and cabs shall be thoroughly cleaned and prepared for paint. Surfaces that shall not be painted include all chrome plated, polished stainless steel and bright aluminum tread plate. As required, weld seams and other areas shall be caulked to prevent water leaks or for appearance reasons. Each imperfection on the exterior metal surface shall be removed or filled and then sanded for a smooth flat appearance.

Chemical Cleaning and Treatment – All painted surfaces shall be washed with a chemical degreaser, cleaner and surface conditioner to allow for proper adherence of primer coat. Then they shall be washed with a neutralizer product. All products used are approved by paint supplier and applied under strict process control to meet performance requirements on corrosion prevention and chip resistance.

Primer/ Surface Coating for Top Coat application – a minimum of 2 coats of Epoxy based primer shall be applied to surfaces inside and outside of cabs and bodies and all other parts of apparatus that shall receive a Top color coat to achieve required corrosion protection. After that a minimum of 2 coats of sealer shall be applied over the primer surface. The overall thickness of the primer/sealer coat shall be between 3 to 8 mils wet. Once dried and cured all surfaces that shall receive a top coat shall be hand sanded to achieve a flat and smooth surface to meet gloss and other paint quality standards. All products used are approved by paint supplier and applied under strict process control to

meet performance and appearance requirements according with Manufacturer's Paint Quality Standard. The underside of the cab and body shall be finished with one coat of epoxy primer specifically designed for this application to prevent corrosion and provide chip resistance to typical paved road conditions.

Top Coat Application – Each Top Coat final color on the apparatus is applied using a two stage paint process. The unit shall be thoroughly hand cleaned to eliminate dust residues and to detect any imperfection in the surfaces to be painted. A fast drying 3.5 VOC polyurethane basecoat color shall be applied using a cross coat application technique. Additional coats may be applied as required until the coat thickness reaches 2.0 to 6.0 mils wet and a full hide appearance. If a second color is required, proper masking shall be applied to the unit and the basecoat application process shall be repeated for the second color. A slow drying low VOC High Build clear coat shall be applied using a cross coat application technique until a minimum of 5.0 mils wet is achieved. The unit is then properly heated to assure flash and cure of the paint before leaving the paint booth. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements according to Manufacturer's Paint Quality Standard.

Each batch of color topcoat shall be tested for precise color match following paint supplier color matching process. A visual color match shall be checked prior to paint using customer approved paint chips.

The cab and body shall be primed and finish painted prior to installation on the chassis to ensure paint coverage in all areas including the difficult to reach places. The exterior and interior of the cab shall be finish painted before the doors are installed or any assembly is started to ensure a finish painted surface beneath all trim items.

Primer/ Surface Coating for Single Coat application – a minimum of 2 coats of Epoxy based primer shall be applied to all surfaces of the apparatus that shall receive a single color coat to achieve required corrosion protection. This is a wet coat process and it shall achieve a 3.0 to 8.0 mills wet thickness and complete coverage of all bare metal. All products used are approved by paint supplier and applied under strict process control to meet performance and appearance requirements according with Manufacturer's Paint Quality Standard.

Single Coat Application – A minimum of 2 coats of direct gloss paint shall be applied over all primed surface to achieve corrosion protection and appearance in accordance with Manufacturer's Paint Quality Standard. This application shall be used for Gloss Black, Job Color and Color finishes in parts of the apparatus such as frame rails, outriggers, ladders and other aerial devices, suspension and other chassis parts, etc. as defined in the sales order.

Zolatone Coat Application – All areas to receive a Zolatone coat shall be primed following the primer/surface coating for top coat application. A high pressure coat of Zolatone paint shall be applied in a cross pattern technique to achieve smooth finished surface. A second low pressure coat of Zolatone paint shall be applied in a single pattern to achieve a textured appearance.

Zolatone Clear Coat Application – Starting with a completed and dry Zolatone coat application 2 to 3 coats of Zolatone clear coat shall be applied until a thickness of 5.0 mills wet is achieved.

PAINTERS

All painters shall be paint supplier certified. They shall be re-certified periodically in order to keep up to current standards and procedures required by the coatings manufacturer. This certification is performed independently by the paint supplier.

FACILITY

The finishing facility shall be certified independently by the paint supplier by meeting or exceeding its extensive and stringent requirements. The paint facility shall be audited quarterly by the paint supplier to ensure proper equipment, procedures and safety regulations are being used and adhered to in addition to the controls implemented by Manufacturer to assure paint quality requirements are met in every job.

QUALITY STANDARDS

The finish quality and appearance shall be in accordance with the Manufacturer's Paint Quality Standards for dirt, gloss, reflectivity, clarity and depth of image. The standard is available to the customer at any time upon request.

Y___N___

FRAME & UNDERCARRIAGE FINISH

The chassis frame, bumper extension, suspension, axles, air tanks, fuel tank, battery boxes, etc., shall have an additional coat in the color selected in this order applied over the primed surface as supplied by the component manufacturer. Single Coat application process shall be used to apply the color selected in this order using direct gloss paint on identified parts, as listed below:

Tractor & trailer frame rails, cross members.
Tractor fifth wheel.
Trailer gooseneck.
Front bumper extension.
Tractor & trailer axles and suspension.
Fuel tank.
Air reservoir tanks.
Hydraulic reservoir tank.
Body mounting brackets.
Tractor & trailer steering gear box and steering link arm.
Drive shafts.
Ground ladder storage stakes.

The following items shall always be furnished with the finish as provided by their respective manufacturer.

Engine, transmission and accessories.
Exhaust system.
Retarder (when furnished).
PTO & hydraulic pump.
Cab lift cylinders & hydraulic pump.
Shock absorbers.
Fuel filter.
Air drier and air cleaner.
Electric wiring and loom.
Air brake lines, valves and mounting brackets.

Paint number is #71528 Color: Red.

Y___N___

PAINT INSIDE OF CAB

The inside of the cab shall be provided with gray Zolatone paint following the Zolatone Coat application process.

The following components shall be painted:
Exposed interior surfaces of the cab structure
Exposed interior surfaces of the driver/officer/crew doors
All interior "Metal" access/wire covers of the cab
Head bumper brackets
Miscellaneous brackets, if present: camera mounts, non-recessed radios, charger covers.

Y___N___

PAINT INSIDE OF CAB

The inside of the full tilt cab shall be clear coated following the Zolatone Clear Coat application process in the same components that received a Zolatone application.

Y___N___

SINGLE COLOR CAB PAINT

The cab shall be painted one color. The paint shall follow the Top Coat application process for a single color.

Cab exterior paint number is #71528 Color: Red.

Note: Paint prices do not allow for metallic or pearlescent paint colors.

Y___N___

No cab trim molding shall be required.

Y___N___

CAB INTERIOR PAINT FINISH

The inside of the tiller cab shall be painted job color. The paint shall follow the Top Coat application process for a single color.

The following components shall be painted:
Exposed interior surfaces of the cab structure, including the dash area

Exposed interior surfaces of the doors
All interior "metal" access/wire covers of the cab
Interior surface of the vents, manual 2-way
Miscellaneous brackets, if present: camera mounts, non-recessed radios, charger covers

Tiller cab interior paint number is #71528 Color: Red.

Y___N___

SINGLE COLOR TILLER CAB PAINT

The exterior of the tiller cab shall be painted one color. The paint shall follow the Top Coat application process for a single color.

Tiller cab exterior paint number is #71528 Color: Red.

Note: Paint prices do not allow for metallic or pearlescent paint colors.

Y___N___

BODY PAINT, SINGLE COLOR

The body of the apparatus shall be painted to match the primary cab color. The paint shall follow the Top Coat application process for a single color.

Body exterior paint number is #71528 Color: Red.

Y___N___

Y___N___

ACORN NUTS

Acorn nuts shall be installed on all exposed screws and bolts in areas where personal injury may result and/or damage to equipment may occur. For further details, please refer to the enclosed standards document.

Y___N___
Y___N___

OUTRIGGERS & JACKS PAINT

The outriggers and jacks shall be painted shall be painted **PPG 35913 silver blue metallic** according to Manufacturer paint standards. All paint shall follow the Single Coat application process.

Y___N___

LADDER AND COMPONENTS PAINT

The ladder sections, turntable, lift cylinders and ladder rest shall be painted PPG 35913 silver blue metallic. Single Coat application process shall be used to apply the color selected in this order using direct gloss paint on identified parts.

Y___N___

LADDER STAKES & HYDRAULIC RESERVOIR FINISH

The ground ladder storage stakes and hydraulic reservoir tank shall be painted job color. Single Coat application process shall be used to apply the color selected in this order using direct gloss paint on identified parts.

Paint number is #71528 Color: Red.

Y___N___

PAINT AERIAL TIP

The top three feet of the fly section of the aerial ladder shall be painted with One-Shot fluorescent red-orange paint number 203F. Clear coat shall be applied over the fluorescent red-orange paint. Top Coat application process shall be used to apply the color selected.

Y___N___

REFLECTIVE STRIPING

Reflective striping shall be provided by the Sales Representative in accordance with the current version of NFPA 1901.

Y___N___

CHEVRON STRIPING

The trailer rear face, as indicated by the fire department, shall be covered with 6" wide reflective striping in an alternating Scotchlite™ Red #680-72 and Scotchlite™ Yellow #680-71 chevron pattern. The stripes shall run at a 45 degree downward angle from the top center of the vehicle.

Y___N___

The ladder compartment door shall be covered with chevron.

Y___N___

PIN STRIPING

A black 1/4" pin stripe shall be located between each color of chevron.

Y___N___

REAR CORNER GUARDS

Brushed stainless steel 0.75" x 0.75" corner guards shall be installed after the Chevron is applied to protect the edges.

Y___N___

The corner guards shall be applied to the outside vertical edges where the body sides meets the body rear.

Y___N___

GRAPHICS FILES FORMATS

In order to produce the desired lettering, seals and/or emblems, the customer shall provide graphics files of the lettering, seals and/or emblems in the following file formats:

- Vector images (Ai or EPS file types)
- Full Color (CMYK) version or
- Full color Pantone version, if exact color matching is required

The customer shall also provide the name and size of font for any graphics text, if specific font is desired.

Y___N___

Y___N___

MANUFACTURER'S LIMITED WARRANTY

A Manufacturer limited two (2) year warranty for parts and labor shall be provided.

Y___N___

CAB FIFTEEN YEAR STRUCTURAL LIMITED WARRANTY

A Manufacturer cab limited fifteen (15) year structural warranty shall be provided.

Y___N___

STAINLESS STEEL BODY FIFTEEN YEAR STRUCTURAL LIMITED WARRANTY

A Manufacturer limited stainless steel body fifteen (15) year structural warranty shall be provided.

Y___N___

AERIAL DEVICE TWENTY YEAR STRUCTURAL LIMITED WARRANTY

A Manufacturer limited aerial twenty (20) year structural warranty shall be provided.

Y___N___

CHASSIS FRAME RAIL & CROSS MEMBER STRUCTURAL LIMITED LIFETIME WARRANTY

A Manufacturer limited lifetime frame rail and cross members structural warranty shall be provided.

Y___N___

PAINT/CORROSION LIMITED WARRANTY

A Manufacturer limited pro-rated paint six (6) year warranty shall be provided.

Y___N___

WEIGHT ANALYSIS - LOOSE EQUIPMENT

It shall be the responsibility of the purchaser to specify the details of the apparatus; its required performance, including where operations at elevations above 2000 ft (610m) or on grades greater than 6 percent are required; the maximum number of fire fighters to ride within the apparatus; specific added continuous electrical loads which exceed the minimum of this standard; and any hose, ground ladders, or equipment to be carried by the apparatus that exceed the minimum requirements of this standard.

Y___N___

ELECTRONIC OPERATOR'S & PARTS MANUAL

A binder shall be supplied that has electronic copies and paper documents as listed below.

The binder shall contain 2 duplicate electronic copies. Each electronic copy shall have:

- Operations & maintenance instructions for items on the vehicle, except all purchased components
- Material Safety Data Sheets.
- Electrical diagrams including charts illustrating the individual wire color, number code, and function.
- Parts manuals.
- Parts drawings and an overall vehicle layout.
- Certificates
- Warranties

Printed documents shall include:

- Operations & maintenance instructions for items on the vehicle, not including the vendor literature.
- Operations & maintenance instructions for engine.
- Certificates of independent test results.
- Warranty documents.
- Manufacturer's record of construction details and engine power curve.
- Vehicle final alignment report.
- Vendor literature provided by the manufacturer that arrives with the purchased component.

One (1) to two (2) manual electronic copies for the water pump shall be included, if there is a pump on the unit, and as provided by the pump manufacturer. Additional electronic copies and paper documents, as provided by other equipment suppliers, shall also be included.

Y___N___

MOUNTING OF LOOSE EQUIPMENT

Mounting of loose equipment supplied by the fire department shall be included.

Y___N___

COMMUNICATION EQUIPMENT - INSTALLATION

The fire department supplied radios shall be installed:

Y___N___

HAAS COLLISION ALERT

HAAS Collision Alerting System with 5 Year Subscription shall be installed and supplied.

Y___N___

LETTERING & STRIPING

The sign gold leaf lettering and reflective striping shall be included:

GOLD LEAF LETTERING

The sign gold lettering shall match the current fire department apparatus as best as possible.

REFLECTIVE STRIPING

A 6" reflective stripe shall be provided around the perimeter of the vehicle. At least 50 percent of the cab and body sides, at least 50 percent of the rear body width and at least 25 percent of the width of the cab front shall have reflective material affixed to it per NFPA standards.

1" REFLECTIVE STRIPING

A one inch border shall be provided just above and below the large reflective apparatus striping.

Y___N___

FRONT GRILL BACK-LIGHTING

The front grill shall have back light with **red** lighting.

SECTION 3 - GENERAL INFORMATION

NOTE: SECTION 3 - GENERAL INFORMATION contains the City's Standard Terms and Conditions. You are responsible for obtaining a copy prior to bidding. If you do not have a revision dated 08/08/2013, or later on file you may obtain a copy over the Internet at http://www.norwalkct.org . Adobe Acrobat reader is required to view this document. If you do not have this software you may down load it for free from Adobe.

Document number 1002. http://www.norwalkct.org/documentcenter/view/868

PURCHASING DEPARTMENT

The bid listed below has had addenda issued. Documents are available over the Internet at http://www.norwalkct.org Adobe Acrobat reader is required to view this document. If you do not have this software you may download it free from Adobe. The document number to request will be the same as the project number indicated below.

Project #	Addendum #	# of Pages	Original Issue Date
4021	1	1	April 30, 2020

Addendum Issued Date	May 6, 2020	
Project Number	4021	
Addenda Number	1	
Deadline	2:00 PM	~~May 20, 2020~~ June 3, 2020
Project Title	Norwalk Fire Department – Ladder Truck	

This Addendum is a contract document modifying previously issued documents, which remain in full force except as specifically modified below.

Quotations appearing on the Proposal are to reflect the provisions of this Addendum. Failure to acknowledge receipt of this Addendum in the space provided on the response sheet may subject candidate to disqualification.

NEW INFORMATION:

- **The Bid submission deadline is being extended to June 3, 2020 2:00 PM.**

PURCHASING DEPARTMENT

The bid listed below has had addenda issued. Documents are available over the Internet at http://www.norwalkct.org Adobe Acrobat reader is required to view this document. If you do not have this software you may download it free from Adobe. The document number to request will be the same as the project number indicated below.

Project #	Addendum #	# of Pages	Original Issue Date
4021	3	4	April 30, 2020

Addendum Issued Date	May 13, 2020	
Project Number	4021	
Addenda Number	3	
Deadline	2:00 PM	June 3, 2020
Project Title	Norwalk Fire Department - Ladder Truck	

This Addendum is a contract document modifying previously issued documents, which remain in full force except as specifically modified below.

Quotations appearing on the Proposal are to reflect the provisions of this Addendum. Failure to acknowledge receipt of this Addendum in the space provided on the response sheet may subject candidate to disqualification.

RESPONSES TO SUBMITTED QUESTIONS		
1	**Question:**	Pg. 6 of 128 / Pg. 36 – TURNING RADIUS DRAWING: The City of Norwalk specification states a turning radius drawing has been provided. Is this information provided by the City on a separate attachment?
	Response:	Turning Radius Drawing to be provided by the bidder of the vehicle being submitted.
2	**Question:**	Pg. 8 of 128 / Pg.37 – GENERAL DESIGN REQUIREMENTS: The City of Norwalk specification requires the cab and body to be constructed of stainless steel material. Spartans top of the line Gladiator chassis design is of aluminum material. The TDA compartment material is formed aluminum material as well. Will aluminum tractor cab, tiller cab and body compartment material be acceptable to the City of Norwalk?

RESPONSES TO SUBMITTED QUESTIONS		
	Response:	An exception must be made if not bidding to the stainless steel material
3	**Question:**	Pg.9 of 128 / Pg. 38 – IN SERVICE WEIGHT CALCULATION: Spartan will design the TDA for a customer supplied equipment load of 2,500lb per NFPA 1901 – 2016 edition Chapter 12.1.2 and Annex A.8.9.3. Please advise if City of Norwalk Fire Department intends to carry more than 2,500lb of equipment as well as anticipated compartment locations to be carried on apparatus if exceeding 2,500 lb. equipment load.
	Response:	In service weight can be calculated based on NFPA weights
4	**Question:**	Pg. 9 of 128 / Pg. 39 - APPARATUS OVERALL HEIGHT - **CRITICAL MEASUREMENT**: The City of Norwalk specifies overall height shall not exceed 131" (10'-11"). Additionally, Pg. 88 of 128 / Pg. 18 specifies overall height at the tiller cab shall be 128.5" (10' – 8 ½") Spartan's lowest available travel height at tiller cab is 138" (11' - 6") Is a travel height of 138" (11' -6") acceptable to the City of Norwalk?
	Response:	Overall height critical measurement will be a large factor in the decision making of bidders. Exceptions must be submitted if outside the bid specification.
5	**Question:**	Pg. 9 of 128 / Pg. 39 - APPARATUS OVERALL LENGTH - **CRITICAL MEASUREMENT**: The City of Norwalk specifies the apparatus overall length shall not exceed 672" (56'). Based on cab length and bumper extension, our overall length will exceed 672" however estimated overall length should be under 696". Would this be acceptable to the City of Norwalk Fire Department?
	Response:	#4 also applies for vehicle OAL
6	**Question:**	Pg. 11 of 128 / 41 – The City of Norwalk references fire pump test and certification in this section. Another section of the specification references a water tank. The apparatus Spartan is proposing does not include a fire pump or water tank. Please clarify if the City of Norwalk Fire Department requires a fire pump and tank for this apparatus?
	Response:	The truck will not have a pump or tank.
7	**Question:**	Pg. 25 of 128 / Pg. 55 – The City of Norwalk specifies a Telma Focal mounted driveline retarder. The specified wheelbase and recommended driveline angles for the Telma installation do not allow for a good application of this combination. Would an engine brake or Allison transmission retarder be an acceptable alternative to the Telma Focal mounted driveline retarder?
	Response:	An engine brake can be submitted in place of a Telma just as any other difference from bid spec please specify in the exceptions.
8	**Questions:**	Pg. 29 of 128 / Pg. 59 – The City of Norwalk specifies a Dana brand tiller trailer axle. Would a Meritor brand axle be acceptable to the City of Norwalk Fire Department?

RESPONSES TO SUBMITTED QUESTIONS		
	Response:	A Meritor Axle is acceptable. As any other difference from bid spec please specify in the exceptions.
9	**Question:**	Pg.'s. 30-32 of 128 / Pg's. 60-62 – The City of Norwalk specifies the cab, subframe and components be constructed of stainless steel material (No Exception). The Spartan Gladiator cab is manufactured from aluminum. Is aluminum material acceptable to the City of Norwalk Fire Department?
	Response:	An exception must be made if not bidding to the stainless steel material
10	**Question:**	Pg's. 60-61 of 128 / Pg. 90-91 – The City of Norwalk specifies an INTELEX™ Plus onboard load manager and electrical diagnostics systems. These are proprietary systems not available to Spartan. Please state if alternate systems (i.e. Class One, Weldon, etc.) are acceptable to the City of Norwalk Fire Department. Also, please clarify that a multiplex electrical system is desired for the cab and body wiring.
	Response:	Class One or Weldon is acceptable for bidding. An exception must be made if not bidding to the stainless steel material. Multiplex would be preferred.
11	**Question:**	Pg's 80 – 86 of 128 / Pg's 110-116 – The City of Norwalk specifies trailer compartments and compartment doors to be constructed of stainless steel material. Spartan utilizes aluminum material in our body construction. Would aluminum material for body compartments and doors be acceptable to the City of Norwalk Fire Department?
	Response:	An exception must be made if not bidding to the stainless steel material
12	**Question:**	Pg. 88 of 128 / Pg. 118 – The City of Norwalk specifies a stainless-steel tiller cab with height of 128.5". Spartans tiller cab is manufactured of aluminum material and is compliant with NFPA 1901 (2016 edition). Spartan's lowest available travel height at tiller cab is 138" (11' - 6") Is aluminum material and a travel height of 138" (11' -6") acceptable to the City of Norwalk?
	Response:	Please refer back to #2 & #4
13	**Question:**	Pg. 98 of 128 / Pg. 128 – The City of Norwalk specifies the outrigger vertical jack cylinders require mechanical locking pins. Spartan's outrigger design utilizes holding valves that do not require mechanical locking pins. Would this be acceptable to the City of Norwalk Fire Department?
	Response:	Holding Valves will be accepted in place of locking pins
14	**Question:**	Pg. 108 of 128 / Pg. 138 – The City of Norwalk specifies monitor tip controls at the pinnable waterway to control the monitor. The aerial device Spartan is proposing does not include a pre-piped waterway on the aerial ladder, therefore these switches are not required and there is no pinnable waterway. Please clarify if this meets the City of Norwalk Fire Department intent for no aerial pre-piped waterway.

RESPONSES TO SUBMITTED QUESTIONS		
	Response:	A non pre piped waterway is preferred. The switches are proposed for a temporary mounted water appliance.
15	**Question:**	Clarifications of Specifications assume no pump,no pre piped waterway pg. 11 refers to fire pump test?,,pg. 58 section not stowed indicator, DeckGun Raised?,,,pg. 63 outllet box usb charger port and recepticle are not included in cost,? pg 81, mentions Ladder Pipe hose storage compartment ?,,,,pg. 108 mentions monitorpedestal control,monitor tip control, a toggle switch at the pinnable waterway bracket to control monitor?
	Response:	Pg 11- no pump no pump testing. Pg 58- vehicle does not have a deck gun. Has a pinable / removable ladder tip water appliance. Pg 63- usb charger port should be included in cost. Pg 81- Hose storage compartment located on rear of cab for removable water appliance. Pg 108- monitor controls at pedestal and ladder tip to control electronic water appliance.

PURCHASINGDEPARTMENT

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Project#	Addendum#	# of Pages	Original Issue Date
4021	2	1	April 30, 2020

Addendum Issued Date	May 13, 2020	
Project Number	4021	
Addenda Number	2	
Deadline	2:00 PM	June 3, 2020
Project Title	Norwalk Fire Department - Ladder Truck	

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RESPONSES TO SUBMITTED QUESTIONS		
1	**Question:**	Will a standard two year limited warranty document provided by the vendor be sufficient in lieu of the Maintenance Bond?
	Response:	A 2YR limited warranty for the Fire Truck cannot be used in lieu of a maintenance bond. For the successful bidder only, a maintenance bond will need to be purchased by the contractor/vendor from a Surety agency.
2	**Question:**	I have also noticed that you requested a performance bond. Would this still be required under the COD payment contract?
	Response:	For Successful bidders only, this would be Yes.

Norwalk Police Department
Administration

Memo

To: Health, Welfare and Public Safety Committee

From: Deputy Chief Susan Zecca

Date: June 18, 2020

Re: Radio system console upgrade

Motorola Centracom Gold Elite dispatch consoles are currently used to dispatch both Police and Fire. These consoles do not provide seamless interoperability between other Local, State and Federal public safety agencies and have essentially obsolete. The radio consoles are no longer supported by Motorola and parts are no longer readily available.

The purchase of the new 8-position MCC 7500E IP based dispatch console subsystem provides seamless interoperability between other local, state, and federal public safety agencies. This system is also provides state-of-the-art secure communications, seamless IP based connectivity, flexible system architecture with scalable components, and centralized console management. The new radio console system will also be able to interface seamlessly with the ASTRO 25 State Core radio system that we will be upgrading to in the near future. This union between new radio infrastructure and console equipment has significant operational benefits.

Funding for the project was previously approved in the capitol budget. I am requesting the following authorization:

1a. Authorize the Mayor, Harry W. Rilling, to execute an agreement with Motorola Solutions, Inc. for the supply, installation, and service of radio system dispatch console equipment for the Police and Fire radio system, pricing as per State of Connecticut Master Contract #A-99-001 and # 967-A-23-0338C, for an amount not to exceed $895,184; from Account # 09203620 5777 C0638 and remainder from Account #01013071 5262.

1b. Authorize Chief Thomas Kulhawik to execute change order(s) to the above agreement for the amount not to exceed $32,743. Account #09203620 5777 C0638 and 01013071 5262.

MOTOROLA SOLUTIONS

NORWALK POLICE DEPARTMENT

NORWALK PD CONSOLE PROJECT

JUNE 4, 2020

Motorola Solutions, Inc.
123 Tice Boulevard, Suite 202
Woodcliff Lake, NJ 07677

Telephone: +1 201.949.5500
Fax: +1 201.949.5799

June 4, 2020

Deputy Chief Susan Zecca
Norwalk Police Department
1 Monroe Street
Norwalk, CT 06854

RE: Norwalk PD Console Project

Dear Deputy Chief Zecca:

Motorola Solutions, Inc., by and through its Government and Public Safety business ("Motorola"), is pleased to have the opportunity to provide Norwalk with this proposal for mission critical communications equipment and services. The Motorola project team has taken great care to propose a solution that will meet your needs and provide unsurpassed value.

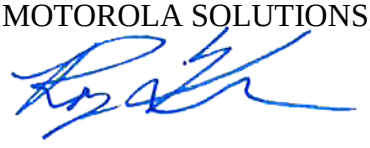
The proposed system will consist of adding a MCC 7500E series dispatch console subsystem to the State of Connecticut ASTRO P25 Core. The Motorola MCC 7500E Dispatch Console is Motorola's mission critical IP based radio dispatch console system. The MCC 7500E dispatch Console features an intuitive, easy-to-use Graphical User Interface (GUI) that runs under a Microsoft Windows® operating system, utilizing the industry standard PC platform. MCC 7500E's highly recognizable icons are designed to reduce user training time, and allow dispatchers to manage information more productively.

All equipment and services being offered in our proposal are consistent with the State of Connecticut's Master Contract #A-99-001 for Two-Way Radio Equipment, Contract #967-A-23-0338C. Our proposal will remain valid for a period of ninety days from the date of this letter.

If you have any questions, please contact Bob Prince, Motorola Senior Account Manager, at (203) 799-1450 or Andrew Langlais, Motorola Manufacturers Representative, at (203) 568-6963.

Our goal is to provide you with the best products and services available in the communications industry. Motorola Solutions appreciates your interest in our company, products, and services.

Sincerely,
MOTOROLA SOLUTIONS, INC.



Roy Kirchner
MSSSI Vice President

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SECTION 1

SYSTEM DESCRIPTION

1.1 INTRODUCTION

The Norwalk Police Department (hereinafter NPD) has requested a proposal to replace the existing dispatch console system with a Project 25, standards-based Internet Protocol (IP) dispatch console that will interface directly with the existing State of Connecticut Department of Emergency Services and Public Protection (hereinafter DESPP) Connecticut Land Mobile Radio (hereinafter CLMRN) ASTRO 25 Core to provide mission critical voice communications with NPD public safety users and enhance interoperability between other Local, State and Federal public safety agencies.

1.2 OVERVIEW – CURRENT SYSTEM

The Norwalk Police Department is currently the primary dispatch center for Norwalk Police, Norwalk Fire and Norwalk Hospital EMS.

The NPD radio system currently consists of three (3) 800MHz conventional channels; Norwalk fire utilizes a single channel VHF voted repeater system and Norwalk Hospital EMS utilizes a single channel analog VHF repeater system. A Zetron wireline Fire Station Alerting (FSA) system is in use and is also interfaced to the dispatch console.

The current dispatch console system is a Motorola Centracom Gold Elite dispatch console that is used to dispatch both Police and Fire. The 8-position dispatch console has reached End-of-Life and does not provide seamless interoperability between other Local, State and Federal public safety agencies.

1.3 PROPOSED SOLUTION

Motorola Solutions, Inc. (hereinafter Motorola Solutions) has worked closely with both Norwalk Police Department and the State to design an eight (8) position MCC 7500E IP-based dispatch console subsystem to be added to the CLMRN ASTRO 25 Core.

The dispatch console subsystem will be installed in the NPD dispatch center, utilizing the existing dispatch furniture and in existing racks located in the adjacent equipment room.

The existing NPD UPS will be used to provide backup power for the dispatch console equipment. The existing CT Public Safety Services Data Network (CPSSDN) will be used for network backhaul to connect the dispatch console subsystem to the CLMRN ASTRO 25 Core.

This console subsystem will be connected to the core with a single backhaul link. We have included a Conventional Site Controller to allow local backup of the conventional channels.

1.4 FEATURES / FUNCTIONALITY

The following sections describe the features and functionality of the components that comprise the console subsystem.

1.4.1 Dispatch Console Subsystem

Motorola Solution's dispatch solution is the MCC 7500E Dispatch Console, providing state-of-the-art secure communications, seamless IP-based connectivity, flexible system architecture with scalable components, and centralized console management.

Motorola Solutions designs its console to help reduce the total cost of owning an IP-based, feature-rich dispatch system without compromising quality and reliability. The console provides sophisticated network management and easy migration to future capabilities.

The dispatch console will interface seamlessly with the ASTRO® 25 Core and provides a small form factor, familiar GUI, and advanced features.

Figure 1-1: MCC 7500E Dispatch Position

1.4.1.1 Integration with the ASTRO 25 Network

The dispatch console seamlessly integrates into the ASTRO 25 system without interface boxes, digital voice gateways, or backroom electronics for an integrated,

mission-critical network. This tight union between radio infrastructure and console equipment has several operational benefits.

The physical space to accommodate the dispatch console is comparable to that required for a personal computer. The dispatch console can access both trunked talkgroups and conventional radio channels over the same network. This architecture reduces overall transport costs and the need for duplicate fixed network equipment.

1.4.1.2 Connection to ASTRO 25 System

The flexibility of the ASTRO 25 system architecture allows the connection of the dispatch console based on specific needs.

Single Site Link

A single site gateway will provide an interface that handles the IP traffic between the dispatch console site and the ASTRO 25 core site.

Dual Site Link

Redundant site gateways provide path diversity. The dispatch console site has two logical connections to the core site with each connection using a different core router.

1.4.1.3 Conventional Base Station Interfaces

The dispatch consoles access and control analog and digital conventional base stations through the use of Enhanced Conventional Channel Gateways (ECCGW). The console processes audio received from the station and controls various features on the stations, such as frequency selection, private line selection, and repeater on/off.

Additionally, the ECCGWs allow for recovery of MDC 1200 and digital signaling, such as unit ID and emergency alarm.

1.4.1.4 Making Consoles Easy to Operate

Motorola Solutions designs its dispatch console to provide mission-critical audio between the dispatcher and users in the field. It is optimized for real-time audio, prioritizing emergency calls over other traffic, and minimizing voice queuing. Using robust error mitigation to maintain call quality even when the system is heavily loaded, the dispatch console reduces communication errors that may force dispatchers or radio users to repeat their transmissions.

1.4.1.4.1 Customizable Dispatch Interface

The dispatch console provides dispatchers with a graphical user interface (GUI) that can be customized by agency or by individual users to optimize user efficiency. Based on dispatcher preference, the GUI can be customized to show details of trunked and conventional RF channels on a per-channel basis.

Busy dispatchers can respond to a missed call by simply clicking on an entry in the Activity Log. The number of calls and call information displayed in the Activity Log is customizable to suit the needs of the user.

The Elite Dispatch GUI is an enhanced version of Motorola Solutions' Gold Elite Dispatch GUI. For existing Gold Elite users, the GUI allows a smooth transition and minimal training for dispatchers. For new users, the graphical icons and customization options make the dispatch console GUI easy to learn and operate.

1.4.1.4.2 Auxiliary Inputs/Outputs

The dispatch console supports Global Auxiliary Inputs/Outputs (Aux I/Os) for remote status indications or remote control through dispatch positions. Global Aux I/Os are typically implemented by hardware that is independent of the dispatch positions in a system and may be accessible to multiple dispatch positions. Aux I/O Servers provide the Aux I/O feature for the consoles.

1.4.1.4.3 Standard Radio Transmission and Reception

A typical dispatch console position has a headset and a minimum of two speakers. One speaker is for selected audio and the second speaker is for all remaining unselected audio. Additional speakers can be added to a dispatch console allowing dispatchers to configure a specific speaker for a set of designated audio sources. This simplifies multitasking between multiple audio sources and allows flexibility in the way the audio is presented to the dispatcher.

Receiving Calls from the Field and Other Dispatchers

The dispatch console provides dispatchers with greater flexibility for how to hear calls from field radio users and other dispatchers. Each dispatcher can define his or her own audio reception profile by selecting a single audio source, whether conventional or talkgroup, to be heard on a selected speaker or headset (Single Select). The dispatcher can also define groups of radio resources that can all be heard on a selected speaker or headset (Multi- Select).

Initiating Calls to the Field and Other Dispatchers

The dispatcher has several different ways of initiating a call. In most circumstances, a General Transmit is appropriate. With the General Transmit, the dispatcher selects a resource on the console and activates the transmission through a footswitch, headset transmit button, or a microphone transmit button. If the dispatcher needs to quickly transmit on a resource that is not selected, the dispatcher uses the Instant Transmit function.

Audio Communication to the Field and Other Dispatchers

The dispatcher can transmit audio in different ways. They can make calls to all users listening to a specific conventional radio resource or a specific trunking talkgroup. When multiple resources are required, the dispatcher can select additional talkgroups and/or conventional channels, as needed using the Multi-Select feature.

The dispatch console also enables dispatchers to make private calls to individual field radio users or dispatchers. Once a private call is established, it can be patched in with another resource at the dispatcher's discretion.

Controlling Console Audio

The dispatch console offers dispatchers several different ways of controlling or muting the audio on their dispatch consoles, such as the following:

- Audio volume can be changed for any specific resource.
- All non-selected resources on the console can be muted for 30 seconds (All Mute) or unmuted, if already muted.
- A dispatcher can transmit on a resource while receiving audio from the same resource or other resources.
- A dispatch position can be configured to automatically mute the other dispatch audio on a shared resource to prevent acoustic feedback when a co-located dispatch position transmits.
- RF Cross Mute automatically mutes the receive audio from a specified channel when the dispatcher transmits on another specified channel to prevent acoustic feedback.

1.4.1.4.4 Emergency Radio Transmission and Reception

As part of a mission-critical communications network, the dispatch console facilitates immediate prioritization and resolution of emergency communications between dispatch and first responders in the field.

Receiving an Emergency Call

When a user in the field or another dispatcher initiates an emergency call, the console emits both visual and audible indications (Emergency Alarm). The audible indication alerts the dispatcher that an emergency is underway; the visual indication directs the dispatcher's attention to the specific resource making the emergency call.

Responding to an Emergency Call

A dispatcher can bypass the standard console interface to auto-open a quick list, which contains specific controls for recognizing an emergency call, initiating an emergency call, and ending an emergency call (Auto-Open of Quick List). The dispatcher can then recognize the emergency call, which ends the audible emergency indication and notifies all dispatchers that the emergency is being addressed (Emergency Recognize).

Ending an Emergency Call

When an emergency is over, the dispatcher can end the Emergency Alarm. The visual indication on the dispatch position GUI is removed, and the console informs the other dispatch positions that the emergency is over (Emergency End/ Knockdown).

1.4.1.4.5 Radio Patch Control

The dispatcher can patch communication between trunked and/or conventional radios that are normally unable to communicate with each other due to different features, programming, or even different frequency bands. A patch group is a group of linked resources that can both receive messages from a console and transmit to all other members of the patch group.

1.4.1.4.6 Multi-Select Feature

The Multi-Select feature allows a dispatch position to define groups of selected radio resources. When a Multi- Select group is opened, all of the resources in the group are simultaneously selected. Resources can be added or removed from a Multi-Select group while the group is open. The dispatcher can transmit on several resources simultaneously or can listen to multiple resources simultaneously in their headset or select speakers.

1.4.1.5 Secure Encrypted Communications

The dispatch console enables end-to-end encryption from the dispatcher to the ASTRO 25 network, so that communications will not be undermined by unencrypted transmissions. Each dispatcher is able to fully participate in secure communications while being confident that sensitive, vital information is not heard by unauthorized individuals.

1.4.1.5.1 Secure Communications at the Console

The dispatch console encrypts and decrypts radio voice messages. Thus, radio voice messages are encrypted from end-to-end between the radio user to the dispatch position. The dispatcher can choose whether to encrypt their transmissions on a particular resource.

1.4.1.5.2 Over-the-Ethernet Keying (OTEK)

Key management through OTEK provides the ability to manage the encryption keys for a dispatch position using a Key Management Facility (KMF). In OTEK, the management and distribution aspects of key management are all performed by the KMF. Distribution of the key management information is done across the radio system's IP network from the KMF to each dispatch console.

1.4.1.6 Incorporating Console Configuration and Management

The dispatch console system is configured and managed by the same configuration manager, fault manager, and performance reporting applications as the radio system. The user can define exactly which resources are available and how they are presented to the dispatcher. This provides a single point for configuring and managing the entire ASTRO 25 system. Changes are automatically distributed throughout the system.

This centralized approach saves valuable time and effort for system administrators and technicians and reduces the errors that can occur when radio IDs and other data are entered at multiple locations. In addition, call traffic and performance reports for each dispatch position can be generated from the system's network manager, enabling administrators to quickly and easily ensure optimal effectiveness and efficiency.

1.4.1.7 Dispatch Console Subsystem Component Descriptions

An MCC 7500E Dispatch Console subsystem consists of the following elements:

- Network Equipment
- MCC 7500 Dispatch Console Operator Position
- Conventional Site Controller (CSC)
- Enhanced Conventional Channel Gateway
- Auxiliary Input/Outputs

The dispatch console components are connected together and to the rest of the ASTRO 25 system on an IP network through console site routers and switches. The dispatch console functions as an integrated component of the total radio system.

The dispatch console connects directly to the radio system's IP transport network without gateways or interface boxes. Audio processing, encryption, and switching intelligence for dispatch are performed within each software-based dispatch position without centralized electronics.

Since the network is IP-based, the system interfaces and components can be distributed physically throughout the network. This section describes the various components that make up the MCC 7500E Dispatch Console subsystem.

1.4.1.7.1 Networking Equipment

The dispatch site router provides an interface that handles all of the IP Network Management traffic between the MCC 7500E Dispatch Console subsystem and the ASTRO 25 core site.

The dispatch site LAN switches provide LAN interfaces for dispatch site equipment and a LAN port for the dispatch site router.

1.4.1.7.2 MCC 7500E Dispatch Console Operator Position

The dispatch position supports commercially available accessories, including a USB microphone, USB headset, and USB footswitch.

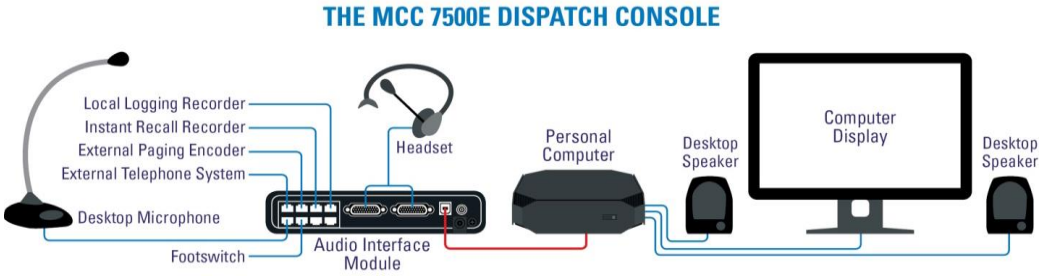


Figure 1-2: MCC 7500E Dispatch Position

Audio Interface Module (AIM)

The USB Audio Interface Module (AIM) acts as an interface between analog devices and the dispatch position and as a general purpose input/output module. The USB AIM supports audio routing between the dispatcher and Motorola Solutions standard peripherals.

Personal Computer (PC)

The personal computer included with the dispatch position is Windows-based and certified by Motorola Solutions.

Computer Display

The dispatch position can include a color LED Computer Display with or without touch screen.

Enhanced Integrated Instant Recall Recorder (IRR)

The Enhanced IRR is seamlessly integrated with the dispatch position's software, allowing audio and call data from any radio or telephony resource to be recorded and easily played back. Call data includes PTT IDs, name of resource, start time and date, and stop time and date. Two analog inputs are available for use with recording audio from external devices.

Desktop USB Speakers

Up to 8 speakers can be included with each dispatch console position. Each speaker is a self-contained unit, with individual volume controls.

Headset Jack

The dispatch position supports up to two (2) headset jacks, both push-to-talk (PTT) and non-PTT-enabled, for simultaneous use by the dispatcher and a supervisor. The headset jack contains two volume controls for the separate adjustment of received radio and telephone audio (if interfaced).

Gooseneck Microphone

The microphone controls the dispatch position's general transmit and monitor features through two buttons on its base.

Footswitch

Each dispatch console position can include a dual-pedal footswitch that controls general transmit and monitor functions.

Telephone Headset Interface Port

The telephone/headset port provides a connection for an external telephone to the dispatch position. This allows the operator to use a single headset to communicate on both the radio system and a compatible telephone system.

> Note: Combined radio/telephone operations requires a NENA compliant telephone instrument. Interface to a non-NENA compliant instrument is not supported.

Redundant Ethernet Connection

A redundant Ethernet connection increases MCC 7500E console availability by protecting against the loss of multiple dispatch positions. In the event of a LAN switch failure, the system will automatically detect and switchover with no manual intervention required.

1.4.1.7.3 Conventional Site Controller (CSC)

In the event connectivity to the ASTRO 25 master site is lost, the dispatch console site will lose communications with the remainder of the ASTRO 25 system. In such situations, the GCP 8000 Conventional Site Controller (CSC) maintains local dispatch console operations. It allows dispatchers to maintain communications with any conventional resource interfaced through a local CCGW, as well as any local Aux I/O's installed at the site. This mode of operation is often called "fallback operation" or "site conventional operation."

Activation of the CSC is automatic upon failure of the dispatch console site link, and no operator action is necessary. The dispatch console site components will recognize when communications with the Master Site has been lost and revert to the CSC. When a dispatch console operator position is in fallback operation, it will provide a visual indication on the dispatch GUI on every non-local conventional channel and every trunked resource, indicating the channel or resource is not available for use. The local resources are shown as being fully available for use.

While in fallback operation, the dispatch console operator positions and GGM 8000's continuously check to see if connectivity to the master site has been restored. When connectivity to the master site has been restored, the dispatch console operator positions and CCGWs will automatically switch out of fallback operation and into normal operation. Calls on all conventional channels (local and in other sites) and all trunked resources will be re-established after the switchover finishes.

1.4.1.7.4 Enhanced Conventional Channel Gateway

Enhanced Conventional Channel Gateways (Enhanced CCGWs) are used to interface analog and ASTRO 25 conventional channels to the ASTRO 25 radio system infrastructure. Enhanced CCGWs provide 4-wire analog interfaces for analog channels and V.24 and IP digital interfaces for ASTRO 25 conventional channels.

The enhanced CCGW can support combinations of analog, ACIM Link, digital and mixed mode channels simultaneously. Low density and high density versions of the enhanced CCGW are available.

The low density version contains four analog ports and four V.24 ports plus an Ethernet port. Up to 4 analog conventional channels and 4 digital conventional channels can be connected to the analog and V.24 ports. The eight channels can be mixtures of analog, ACIM Link, digital or mixed mode. In addition to the eight channels connected to ports, up to 16 IP based channels can be supported.

The high density version contains eight analog ports and eight V.24 ports plus an Ethernet port. Up to 8 analog conventional channels and 8 digital conventional channels can be connected to the analog and V.24 ports. The 16 channels can be mixtures of analog, ACIM Link, digital or mixed mode. In addition to the 16 channels connected to ports, up to 16 IP based channels can be supported.

1.4.1.7.5 Auxiliary Inputs and Outputs

An Auxiliary Input/Output server enables dispatch console operators to control and monitor external devices, such as doors and lights, from the console user interface. Multiple dispatch console operator positions anywhere in the network may monitor

and control the same relay output and/or external inputs. Changes are indicated across all dispatch console operator positions simultaneously. Customizable graphic icons are also used to provide a visual indication of both the function and state of external inputs and relay outputs.

The contact closures and input buffers required to interface to these devices are housed in Remote Terminal Units (RTUs). These RTUs can be physically located close to where they are needed, at any console site or RF site. The dispatch console operator positions and RTUs communicate with each other across the radio system's IP transport network. Individual relay outputs can be configured so that they require a safety switch to be pressed before they respond to any commands from the dispatch console operators.

Supported Aux I/O Configurations

The following Aux I/O configurations are supported:

Aux I/O Configuration	Description
Momentary Input	This is an input where the user interface always shows the true state of the input.
Latched Input	This is an input where the user interface does not necessarily show the true state of the input. When the input goes active, the user interface shows the state as active. The display will continue to show the state as active even if the input changes to the inactive state. A dispatch console user must manually reset the display to return it to the inactive state.
Momentary Output	This output relay is activated when the dispatch console user presses the button on the user interface and deactivated when the dispatch console user releases the button.
Latched Output	This output relay changes state only when the dispatch console user presses the button.
Interlocked Latched Output	This latched output relay is part of a group of latched output relays. Only one of the relays in the group may be active at a time. Interlocked relays work in a "break before make" fashion; that is, the previously active relay is deactivated before the new relay is activated.

1.5 PROPOSED EQUIPMENT

The following sections describe the equipment configuration that will be provided/upgraded as part of this proposal.

1.5.1 Dispatch Console Subsystem

An eight (8) operator position MCC 7500E IP-based dispatch console subsystem will be provided to replace the current Centracom Gold Elite dispatch console system at the Norwalk Police Department. The MCC 7500E IP-based dispatch console subsystem will be added to the existing CLMRN ASTRO 25 Core to provide the

Norwalk Police Department dispatch operators mission critical voice communications.

1.5.1.1 The Norwalk Police Department Equipment Room

The following is a brief description of the equipment that will be provided and located in the Norwalk Police Department (PD) equipment room.

Network Equipment

- Two (2) Aruba 2930F 24-port dispatch site LAN switches will be provided and installed in an existing equipment rack.
- Two (2) GGM 8000 dispatch site gateways will be provided and installed in an existing equipment rack.

The GGM 8000 dispatch site gateways will be connected to the dispatch site LAN switches and the existing CT Public Safety Services Data Network (CPSSDN), providing the Ethernet interface between the PD dispatch site and the CLMRN Core Sites.

The following outlines the network requirements for the customer provided IP backhaul between the PD dispatch site and Master Sites for the dispatch site links:

- The site link must be an Ethernet (IP) site link.
- A 10/100/1000 Base-T Ethernet physical interface to the dispatch site gateway is required.
- The throughput required is approximately 4 Mbps Full Duplex.
- The latency should not exceed 20 milliseconds.
- The backhaul is required to meet a minimum of 99.999% link availability.
- The jitter introduced by the backhaul network should be less than 10 milliseconds.
- The backhaul network packet loss should not exceed 0.01%.
- The backhaul network must support QoS via Layer 2(802.1p Priority) or Layer 3(DSCP or ToS) with a minimum of two service levels up to a recommended four service levels.

Conventional Site Controller (CSC)

A GCP 8000 Conventional Site Controller (CSC) will be provided and installed in the equipment rack with the dispatch site LAN switches.

Auxiliary Input/Output

An SDM3000 Aux I/O RTU will be provided and installed in the equipment rack with the dispatch site LAN switches.

Two (2) SDM3000 Aux I/O Expansion RTUs will also be provided and installed in the equipment rack with the dispatch site LAN switches.

The SDM3000 Aux I/O RTU and the SDM3000 Aux I/O Expansion RTU will be connected to punch blocks mounted on the existing punch block frame in the equipment room and will be connected to existing customer provided auxiliary relays.

The proposed configuration provides:

- 38 Outputs
- 144 Inputs

Enhanced Conventional Channel Gateway (ECCGW)

Three (3) GGM 8000 (8 port) Enhanced High Density CCGWs will be provided and installed in the equipment rack with the dispatch site LAN switches. The GGM 8000 CCGWs will be connected to the dispatch site LAN switches. A fourth GGM8000 8 port CCGW is being included for future expansion but will not be activated at time of install.

Instant Recall Recorder (IRR)

Instant recall recorder functionality has not been included.

Dispatch Logging Recorder

The analog recorder output of the ECCGW will be interfaced to the customer's existing logging recorder demark to provide audio from locally interfaced analog resources only.

Note: No provisions have been included to provide IP logging of P25 radio resources.

System Spares

On site system spares have been included and are detailed in the equipment list section of this proposal.

1.5.1.2 The Norwalk Police Department Dispatch Center

The following is a brief description of the equipment that will be provided and located in the Norwalk Police Department (PD) dispatch center.

MCC 7500E Dispatch Console

Eight (8) dispatch operator positions and will be installed in/on the existing dispatch furniture.

The dispatch operator position workstations will include Windows® operating system, standard keyboard, mouse, and redundant ethernet adapter.

The following will be provided with each operator position:

- 45 Radio resource licenses
- Advanced conventional operation
- Trunking Operation
- AES Encryption with OTEK
- One (1) 22-inch LCD non-touchscreen display
- One (1) Audio Interface Module (AIM)
- Two (2) 7-port USB Hubs
- Four (4) USB desktop speakers
- One (1) MCC series desktop gooseneck microphone
- One (1) MCC series dual pedal footswitch

- Two (2) MCC series headset jacks

Each workstation will be connected to the dispatch site LAN switches in the equipment room.

1.5.1.3 The CLMRN Core Site(s)

The following Licensing has been included to support the console site add-on

- Two (2) five-position console license packs

1.5.2 Control Stations

Three (3) APX consolettes will be provided and installed in an existing equipment rack and connected to existing antennas. One each 7/800MHz, UHF and VHF.

The VHF and UHF APX consolettes include:

- ASTRO Digital CAI
- AES
- Conventional Operation

The 7/800 APX consolette include:

- ASTRO Digital CAI
- AES with OTAR
- P25 Trunking
- Smartzone
- TDMA
- ASK – Hardware Key
- OTAP (for future use)
- Group Services (for future use)

Console Failure - Backup Operation:

Two (2) MCD5000 remote controllers with desk mics have been provided and will be interfaced to the 7/800 and VHF control stations utilizing tone remote control. The MCD5000 units along with the control stations will provide backup of the primary police and fire channels in the event of a catastrophic dispatch console failure.

The Norwalk Hospital EMS system does not have a current backup; therefore, we have not included a backup control station for this system.

1.5.3 Other System Information

- Subscribers to operate on the CLMRN are not being provided as part of this proposal.
  - Norwalk Police and Fire departments will continue to utilize their existing conventional radio systems.

SECTION 2

SYSTEM DIAGRAM

The system diagram for the Norwalk Police Department Console site appears on the next page.

Dispatch Floor

Dispatch Equipment Room

Op 1

Op 2

Op 3

Op 4

Op 5

Op 6

Op 7

Op 8

Console Site RNI

CPSSDN

Optional secondary core connection

Site Router 2

Site Router 1

Site Switch 2

Site Switch 1

Conventional Site Controller (Fallback controller)

Aux I/O

CCGW 1

CCGW 2

CCGW 3

CCGW 4

Analog connections to existing conventional radio infrastructure(s) and logger

Existing CS Antenna

7/800 MA / Backup Control Station

Existing CS Antenna

UHF MA Control Station

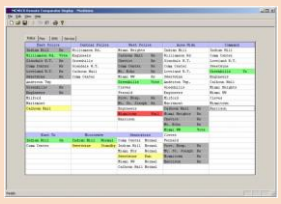
Existing CS Antenna

VHF MA Control Station

Existing

MCN Server

KVM



MCN Comparator Display

NORCOM CT℠

7 Great Hill Road
Naugatuck, CT 06770
(203) 575-9008
www.norcomct.com

Drawing Name: **DIAGRAM**

System: **Norwalk PD State Core Add**

Scale: **N/A**

Revision: **1.5**

By: **R. Cihkey**

Date: **Feb 28, 2020**

REV.	DESCRIPTION	DATE	BY
1.5	REWORK / ALIGN WITH EQL	2/28/20	PG
1.	ORGINAL	10/18/19	RC

SECTION 3

STATEMENT OF WORK

3.1 OVERVIEW

This Statement of Work (SOW) describes the deliverables to be furnished to the Norwalk Police Department. The tasks described herein will be performed by Motorola Solutions, its subcontractors, DESPP, and The Norwalk Police Department to implement the solution described in the System Description. It describes the actual work involved in installation, identifies the installation standards to be followed, and clarifies the responsibilities for Motorola Solutions, DESPP, and the Norwalk Police Department during the project implementation. Specifically, this SOW provides:

- A description of the responsibilities for Motorola Solutions, DESPP, and The Norwalk Police Department.
- The assumptions taken into consideration during the development of this project.

This SOW provides the most current understanding of the work required by all parties to ensure a successful project implementation. Motorola Solutions has made assumptions of the sites to be used for the new system. Should any of the sites change, a revision to the SOW and associated pricing will be required. It is understood that this SOW is a working document, and that it will be revised as needed to incorporate any changes associated with contract negotiations, and any other change orders that may occur during the execution of the project.

Motorola Solutions will install and configure the proposed equipment. Table 3 describes the tasks involved with installation and configuration.

Table 3-1: Installation/Configuration Tasks

Tasks	Motorola Solutions	Norwalk PD	DESPP
Project Initiation			
Contract Finalization and Team Creation			
Execute contract and distribute contract documents.	X	X	
Assign a Project Manager as a single point of contact.	X	X	X
Assign resources.	X	X	X
Schedule project kickoff meeting.	X	X	X
Deliverable: Signed contract, defined project team, and scheduled project kickoff meeting.			
Project Kickoff			
Introduce team, review roles, and decision authority.	X	X	X
Present project scope and objectives.	X		
Review SOW responsibilities and project schedule.	X	X	X
Schedule Design Review.	X	X	X
Deliverable: Completed project kickoff and scheduled Design Review.			
Design Review			

Tasks	Motorola Solutions	Norwalk PD	DESPP
Present the system design and operational requirements for the solution.	X		
Present installation plan.	X		
Present preliminary cutover plan and methods to document final cutover process (as required).	X		
Present configuration and details of site(s) required by system design.	X		
Validate that Customer site(s) can accommodate proposed equipment.	X	X	
Review safety, security, and site access procedures.	X		
Present equipment layout plans and system design drawings.	X		
Provide heat load and power requirements for new equipment.	X		
Provide information on existing system interfaces.		X	X
Review and update design documents, including System Description, Statement of Work, and Acceptance Test Plan, based on Design Review agreements.	X		
Execute Change Order in accordance with all material changes to the Contract resulting from the Design Review.	X	X	
Deliverable: Finalized design documentation based upon "frozen" design, along with any relevant Change Order documentation.			
Equipment Order and Manufacturing			
Create equipment order and reconcile to contract.	X		
Manufacture Motorola Solutions-provided equipment necessary for system based on equipment order.	X		
Procure non-Motorola Solutions equipment necessary for the system.	X		
Deliverable: Equipment procured and ready for shipment.			
System Staging			
Ship equipment needed for staging to NorcomCT	X		
Provide information on existing system interfaces, room layouts, or other information necessary for the assembly to meet field conditions.		X	X
Set up and rack the solution equipment as it will be configured in the field.	X		
Complete the cabling/connecting of the subsystems ("connectorization" of the subsystems).	X		
Power up, load application parameters, program, and test all staged equipment (Functional Acceptance Test Performed [FATP])	X		

Tasks	Motorola Solutions	Norwalk PD	DESPP
Inventory the equipment with serial numbers and installation references.	X		
Perform factory functional acceptance tests of system features	X		
Conduct site and system level testing.	X		
Perform 24-hour, system burn-in, during staging to isolate and capture any defects.	X		
Deliverable: System staged and ready for shipment.			
Equipment Shipment and Storage			
Provide secure location for solution equipment (up to 3 months).	X		
Inventory solution equipment.	X		
Deliverable: Solution equipment received and ready for installation			
General Installation			
Deliver solution equipment to installation location.	X		
Coordinate receipt of and inventory solution equipment with designated contact.	X		
Install all proposed fixed equipment as outlined in the System Description, connecting equipment to the power panels or receptacles, and audio/control line connection points. Installation performed in accordance with R56 standards and state/local codes.	X		
Provide system interconnections that are not specifically outlined in the system design, including dedicated phone circuits, microwave links, or other types of connectivity.		X	X
Install and terminate all network cables between site routers and network demarcation points	X		
Connect installed equipment to the provided ground system.	X		
Label equipment, racks, and cables.	X		
Perform preliminary audit of installed equipment to ensure compliance with requirements and R56 standards.	X		
Note any required changes to the installation for inclusion in the “as-built” system documentation.	X		
Decommission and remove existing console equipment in dispatch center and back room.	X		
Remove, transport, and dispose of decommissioned equipment.		X	
Detailed Installation			

Tasks	Motorola Solutions	Norwalk PD	DESPP
Install console equipment in dispatch equipment room in existing racks	X		
Install control stations and interface to customer provided antenna systems	X		
Connect console router equipment to the CPSSDN Network	X		
Install operator positions on existing furniture utilizing existing network cabling -One console will be installed for training before cutover Dual console LAN links	X		
Interface MCC7500E to NG911 phone	X		
Interface CCGWs to existing resources	X		
Utilize CCGW logging port to feed existing customer provided analog recorder demark	X		
Interface SDM to existing console I/O points	X		
Install expansion licenses in the core	X		
Configure the console site and parameters in the core	X		
Provide UPS protected power at dispatch consoles and equipment room as required (existed during site walk)		X	
Provide R56 complaint ground points (existed during site walks)		X	
Provide antenna systems for new control stations (existing during site walks)		X	
Test operation of training console		X	
Interface logging audio from demark to recorder, configure recorder, and test operation		X	
Provide IP backhaul links as required		X	
Deliverable: Installation of Equipment Completed			
Deliverable: Equipment installed			
Console Installation and Configuration			
Configure console link to CLMRN core(s) and activate.	X		
Perform configuration on Firewall at CLMRN equipment.			X
Provide the necessary access and permission to connect to the server at CLMRN core.		X	
Training			
Deliver (1) up to a 4-hour session of dispatch admin training, to up to three individuals, adjacent to the FATP while the system is in staging	X		
Deliver (1) up to a 4-hour session of dispatch user “train the trainer” training, to up to four individuals	X		

Tasks	Motorola Solutions	Norwalk PD	DESPP
Attend “train the trainer” training		X	
Deliver required training to end users		X	
Deliverable: Console equipment installation completed			
SYSTEM OPTIMIZATION AND TESTING			
R56 Site Audit			
Perform R56 site-installation quality-audits, verifying proper physical installation and operational configurations.	X		
Create site evaluation report to verify site meets or exceeds requirements, as defined in Motorola Solutions’ R56 Standards and Guidelines for Communication Sites.	X		
Deliverable: R56 Standards and Guidelines for Communication Sites audits completed successfully.			
Optimization			
Verify that all equipment is operating properly and that all electrical and signal levels are set accurately.	X		
Verify that all audio and data levels are at optimized settings.	X		
Verify communication interfaces between devices for proper operation.	X		
Ensure that functionality meets manufacturers’ specifications and complies with the final configuration established during design review or system staging.	X		
Deliverable: Completion of System Optimization			
Project Transition			
Cutover			
Finalize Cutover Plan.	X	X	X
Input user radio information into the system database and activate, as required.			X
Notify the personnel affected by the cutover of the date and time planned for cutover.		X	X
Provide ongoing communication with users regarding the project and schedule.	X	X	X
Deliverable: Migration to new system completed.			
Transition to Warranty			
Review the items necessary for transitioning the project to warranty support and service.	X		
Motorola Solutions to provide services during year 1 warranty which align with the proposed services.	X		

Tasks	Motorola Solutions	Norwalk PD	DESPP
Provide a Customer Support Plan detailing the warranty support associated with the contract equipment.	X		
Participate in the Transition Service/Project Transition Certificate (PTC) process.	X	X	X
Deliverable: Service information delivered and approved by Customer			
Finalize Documentation and System Acceptance			
Provide manufacturer's installation material, part list and other related material to Customer upon project completion.	X		
Provide an electronic as-built system manual on CD or other Customer preferred electronic media. The documentation will include the following:	X		
Site Block Diagrams.	X		
Site Equipment Rack Configurations.	X		
ATP Test Checklists.	X		
Equipment Inventory List.	X		
Drawings will be delivered in Adobe PDF format	X		
Receive and approve documentation		X	X
Execute Final Project Acceptance.	X	X	X
Deliverable: All required documents are provided and approved. Final Project Acceptance.			
Deliverable: Installation			
Execute Final Project Acceptance.		X	

3.2 CIVIL WORK - SITE DEVELOPMENT

3.2.1 Motorola Responsibilities

There is no Civil Work included in this proposal

3.2.2 Customer Responsibilities

- Provide UPS protected power as required
- Provide R56 Compliant ground point
- Provide environmental conditioning of installation locations

3.3 ASSUMPTIONS AND OTHER NOTES

- Assumes customer provides protected, UPS power as required.
- Assumes R56 compliant ground terminated in a ground buss bar with multiple attachment points will be provided by the customer within 6’ of the equipment installation location, transmission line entry (outside) and antenna mounting location.
- Does not include the cost of permits or permit fees, planning and zoning, inspection assistance or any monies associated with the aforementioned, if required.
- Does not include prevailing wage.
- Assumes work is performed during normal business hours.
- Assumes reuse of existing customer provided network cabling.
- Operator positions will be installed on existing customer provided furniture.
- Radio telephone functionality will be integrated into the provided NG911 equipment via the NENA interface.

SECTION 4

WARRANTY AND MAINTENANCE PLAN

Motorola Solutions has over 90 years of experience supporting mission critical communications for public safety and public service agencies. Motorola Solutions' technical and service professionals use a structured approach to life cycle service delivery and provide comprehensive maintenance and support throughout the life of the system. The value of support is measured by system availability, which is optimized through the use of proactive processes, such as preventive maintenance, fault monitoring and active response management. System availability is a function of having in place a support plan delivered by highly skilled support professionals, backed by proven processes, tools, and continuous training.

4.1 THE MOTOROLA SOLUTIONS SERVICE DELIVERY TEAM

4.1.1 Account Services Manager

Your Motorola Solutions Account Services Manager provides coordination of support resources to enhance the quality of service delivery and to ensure your satisfaction. The Account Services Manager (ASM) is responsible to oversee the execution of the Warranty and Service Agreement and ensure that Motorola Solutions meets its response and restoration cycle time commitments. The ASM will supervise and manage the Motorola Solutions Authorized Servicer's functions.

4.1.2 Motorola Solutions System Technologists

The Motorola Solutions System Technologists (ST) are available to assist Motorola Solutions' Authorized Servicers when needed for network health and operations.

4.1.3 Motorola Solutions System Support Center

Located in Schaumburg, Illinois, the System Support Center (SSC) is a key component to the overall management and system maintenance. As detailed in this Customer Support Plan, the following services are provided by the System Support Center:

- Network Monitoring
- Dispatch Service
- Infrastructure Repair with Advanced Replacement
- Technical Support

4.1.4 Motorola Solutions Local Service Provider

Motorola Solutions' authorized service centers are staffed with trained and qualified technicians. They provide rapid response, repair, restoration, installations, removals, programming, and scheduled preventive maintenance tasks for site standards compliance and RF operability. Motorola Solutions' authorized service centers are assessed annually for technical and administrative competency.

Motorola Solutions places great emphasis on ensuring that communications systems meet high standards for design, manufacture, and performance. To enhance the value of the communications system being acquired, Motorola Solutions offers customized warranty and post-warranty services as outlined in this section.

4.2 WARRANTY SERVICES

The Motorola Warranty and Maintenance Program provides comprehensive maintenance and support services during the warranty and post warranty of the Project. The system warranty will commence upon acceptance or beneficial use, whichever occurs first, not to exceed 18 months from date of shipment.

Please note that the warranty services are for the equipment proposed and do not include any existing equipment. Response and repair excludes third party equipment not shipped by Motorola Solutions.

Please note that civil and site system components such as, but not limited to, Generators, Shelters, and Antenna Systems are only covered by their manufacturer's warranty. Any services provided by Motorola Solutions for these items will be considered above contract and will be billed on a Time and Materials basis.

4.2.1 Dispatch Service

Motorola Solutions' Dispatch Service ensures that trained and qualified technicians are dispatched to diagnose and restore your communications network. Following proven response and restoration processes, the local authorized service center in your area is contacted and a qualified technician is sent to your site. An automated escalation and case management process is followed to ensure that technician site arrival and system restoration comply with contracted response and restore times. Once the issue has been resolved, the System Support Center verifies resolution and with your approval, closes the case. Activity records are also available to provide a comprehensive history of site performance, issues, and resolution.

4.2.2 On-Site Infrastructure Response

Motorola Solutions On-Site Infrastructure Response provides local, trained and qualified technicians who arrive at your location to diagnose and restore your communications network.

4.2.3 Network Preventative Maintenance

Network Preventative Maintenance provides an operational test and alignment on your infrastructure or fixed network equipment to ensure that it meets original manufacturer's specifications. Trained technicians:

- Physically inspect equipment.
- Remove dust and foreign substances.
- Clean filters.
- Measure, record, align and adjust equipment to meet original manufacturer's specifications.

This service is performed based on a schedule agreed upon between you and Motorola Solutions. Network Preventative Maintenance proactively detects issues that may result in system malfunctions and operational interruptions.

4.2.4 Infrastructure Repair

Infrastructure Repair service provides for the repair of all Motorola Solutions-manufactured equipment, as well as most equipment from third-party infrastructure vendors that has been supplied by Motorola Solutions as part of the system. All repair management is handled through a central location eliminating your need to send equipment to multiple locations.

Comprehensive test labs replicate your network in order to reproduce and analyze the issue. State-of-the-art, industry-standard repair tools enable our technicians to troubleshoot, analyze, test, and repair your equipment. Our ISO9001 and TL9000-certified processes and methodologies ensure that your equipment is quickly returned maintaining the highest quality standards.

Service agreements allow you to budget your maintenance costs on an annual basis. Equipment covered under service agreements also receives higher service priority, which results in quicker repair times.

4.2.5 Technical Support Service

Motorola Solutions Technical Support service provides an additional layer of support through centralized, telephone consultation for issues that require a high level of communications network expertise and troubleshooting capabilities. Technical Support is delivered by the System Support Center (SSC). The SSC is staffed with trained, skilled technologists specializing in the diagnosis and swift resolution of network performance issues. These technologists have access to a solutions database as well as in house test labs and development engineers. Technical Support cases are continuously monitored against stringent inbound call management and case management standards to ensure rapid and consistent issue resolution. Technical Support service translates into measurable, customer-specific metrics for assured network performance and system availability.

4.2.6 Network Monitoring Service

Network Monitoring Service can help keep your network at optimum availability, so it is ready to serve mission critical communications needs. By watching over the network continuously, Network Monitoring Service takes action whenever needed, and resolves network problems. We often intervene and correct the problem before you even know a problem exists. Network Monitoring Service provides improved productivity and enhanced network performance, which in turn helps to increase your technology Return-On-Investment.

Using a combination of network monitoring software, automated alerts, and remote diagnostics inquiries, our System Support technologists actively monitor your network to maximize network uptime and overall preparedness for the expected and unexpected. Upon receiving an alert, our team immediately performs a series of diagnostics to assess the problem. Often the situation can be resolved remotely, but when additional attention is required, local field technicians are dispatched immediately to your site to achieve restoration.

Motorola Solutions' Network Monitoring service is a vital component of an intelligent communication support plan that keeps your system operating smoothly, your costs down, and assures maximum preparedness at all times.

Specifically, Network Monitoring Service provides:

- Improved network availability
- Remote and timely resolution to minimize downtime
- Cost efficiencies
- Optimize time at site due to assessment and knowledge transfer before dispatch
- Minimize unnecessary trips to site
- Detailed Reports

4.2.7 System Upgrade Agreement II (Required for CLMRN Core Connected Equipment)

The Motorola Solutions System Upgrade Agreement II (SUA II) is a complete package of hardware, software and implementation services required to update the ASTRO 25 system up to one upgrade in a two-year period.

Updates to OEM components ensure availability of repair services support and may also provide increased capacity and processing speed. Regular updates enable system expansion (i.e., expansion of RF sites, dispatch positions, data sub-systems, and network management positions). Professional implementation services guarantee live system upgrades are performed with minimal interruption to system operation and with minimal reliance on owner resources. Motorola Solutions SUA II ensures your system continues to perform at the highest level of operation, allows for expansion and feature enhancement, and maximizes the lifespan of the investment. For owners committed to upgrading their system on a regular basis, SUA II provides a consistent, budgeted solution that delivers complete coverage.

Table 4-1: Included Features

	SUA II
Minor Release (patch release)	✓
Major Release (system release)	✓
Implementation Services	✓
Major upgrade in a 2-year period[1]	✓
Hardware Refresh[2]	✓

[1] As major system releases become available, Motorola Solutions agrees to provide the system owner with the software, hardware and implementation services required to execute up to one system infrastructure upgrade in a two-year period for their ASTRO 25 system.

[2]Hardware refresh includes version updates and/or replacements for Motorola Solutions field replaceable units (FRU) and third-party networking and computing hardware. Note that replacement of Gold Elite consoles and QUANTAR base radios are not included in this refresh.

- Minor releases may include commercial operating system (OS) and application security updates, patches and service pack updates for Microsoft Windows and Server OS, Red Hat Linux, Sun Solaris and any Motorola Solutions software service packs that may be available.
- Major releases include commercial OS and application software updates as well as Motorola Solutions system release software to improve the system functionality and operation from previous releases as well as significant new feature enhancements that are available for purchase.
- Implementation services include all in-house and on-site resources to implement and test the major release update.

4.3 POST WARRANTY SERVICES

As Motorola Solutions' continuing commitment to supporting your system, warranty services can be extended after the first year to provide maintenance and service support in future years. Any of the services that we identify can be customized in future years, and are available for purchase either in "System Support Services" packages or as individual service offerings. These system support services significantly benefit our customers because the system can be effectively supported after the warranty period, thereby maximizing the operational capabilities and useful life of the system and protecting your investment in the system.

Post-warranty support is an optional cost, but required for CLMRN Core connected equipment in order to provide for system wide maintenance of all sites and components.

4.4 SUMMARY

Whether it's a routine service call, or a disaster situation, Motorola Solutions understands its responsibility and takes pride in its commitment to deliver proven response service to the public safety community. Motorola Solutions has the capability to provide the technical, administrative, consultative, and maintenance repair services needed to support, enhance, and maintain the effectiveness of your communications network. Motorola Solutions' goal is to provide the Customer with the qualified resources, to maintain and improve system operation and availability, and to deliver world-class service support.

Warranty and Post Warranty Service support services to be delivered are outlined in Table 4-2.

Table 4-2: Warranty and Post Warranty Service Overview

Warranty and Post Warranty Service Overview	Warranty Year	Post Warranty Years 2-6
Dispatch Service	✓	✓
On Site Infrastructure Response	✓	✓
Network Preventative Maintenance	✓	✓
Infrastructure Repair	✓	✓
Technical Support Service	✓	✓
Network Monitoring Service	✓	✓
System Upgrade Agreement (SUA/SUA II)		✓

SECTION 5

PRICING

5.1 PRICING SUMMARY

Solution Component	Value
Equipment & Freight (A-99-001 Pricing)	$ 402,647.40
Implementation Services	$ 236,227.00
Total Investment	**$ 638,874.40**
System Discount	$ -
Total Investment with Discount	**$ 638,874.40**
CDR Budget	$ 15,971.86
Proposal Total	**$ 654,846.26**
Years 2-6 of Maintenance & Lifecycle Services	$ 240,337.45
Total Investment with Discount & Post-Warranty Services	**$ 895,183.71**

5.2 TERMS AND CONDITIONS

The terms and conditions are based upon the State of Connecticut's DAS Master Contract A-99-001.

5.3 PRICE VALIDITY

The proposed pricing is valid for 90 days.

5.4 MILESTONE PAYMENT SCHEDULE

The total contract value is $654,846.26 with discount, exclusive of post-warranty services and $895,183.71 inclusive of post-warranty services. Customer will make payment when due in the form of a check, cashier's check or wire transfer drawn on a U.S. financial institution and in accordance with the following milestone payment schedule.

	Milestone	Milestone Details	Payment (no post warranty)	Payment (with post warranty)
1	Factory Testing, Certification and Delivery to the Customer	Aggregate payments upon completion of Delivery to the customer shall be in an amount equal to 48% of the Contract Price of the System, payable upon delivery of equipment. The aggregate payment upon completion of this Delivery Milestone shall not exceed the amount presented.	$314,326.20	$ 429,688.18
2	System Installation	Aggregate payments upon receipt of equipment in an amount equal to 20% of the Contract Price of the System, payable on a site by site basis. The aggregate payment upon completion of this Installation Milestone shall not exceed the amount presented.	$130,969.25	$ 179,036.74
3	Acceptance Testing	Aggregate payments upon completion of System Product Testing shall be in an amount equal to 18% of the Contract Price of the System, payable on a site by site basis.	$117,872.33	$ 161,133.07
4	Final System Acceptance	Payments of all "hold back" funds upon Final System Acceptance. An amount equal to 14% of the Contract Price of the System. The payment upon completion of the system shall not exceed the amount presented.	$ 91,678.48	$ 125,325.72

5.5 SERVICE MAINTENANCE AND LIFECYCLE COST

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Service and Maintenance	Included	$28,112.40	$28,955.77	$29,824.45	$30,719.18	$31,640.75
System Upgrade Agreement (SUAII)	N/A	$18,129.96	$18,172.71	$18,215.46	$18,260.11	$18,306.66
Total		**$46,242.36**	**$47,128.48**	**$48,039.91**	**$48,979.29**	**$49,947.41**

The pricing is based upon the continuation of the annual maintenance and lifecycle contract between the Customer and Motorola Solutions and is additive to that contract. Pricing valid for post-warranty (years 2-6) services at the time of order or prior to final system acceptance.

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5.6 DETAILED PRICING

BLOCK	QTY	NOMENCLATURE	DESCRIPTION	UNIT LIST	APC	DISC (%)	UNIT SC	Ext SC
CORE	1	SQM01SUM0273	MASTER SITE CONFIGURATION	$-	877	20%	$-	$-
CORE	2	UA00156AA	ADD: MCC7500 CONSOLE LICENSES (QTY 5)	$5,000.00	877	20%	$4,000.00	$8,000.00
CORE	1	CA02629AC	ADD: EXPAND 7.17 M CORE	$-	877	20%	$-	$-
OP_POS	8	B1948	MCC 7500E DISPATCH POSITION LICENSES	$-	244	20%	$-	$-
OP_POS	8	UA00249AA	ADD: 15 RADIO RESOURCES LICENSE	$3,500.00	244	20%	$2,800.00	$22,400.00
OP_POS	8	UA00660AA	ADD: OTEK OPERATION	$4,020.00	244	20%	$3,216.00	$25,728.00
OP_POS_LIC	8	UA00653AA	ADD: BASIC CONSOLE OPERATION	$4,800.00	244	20%	$3,840.00	$30,720.00
OP_POSIT	8	UA00654AA	ADD: ASTRO 25 TRUNKING OPERATION	$6,000.00	244	20%	$4,800.00	$38,400.00
OP_POSIT	8	UA00655AA	ADD: ADVANCED CONVENTIONAL OPERATION	$3,600.00	244	20%	$2,880.00	$23,040.00
OP_POSIT	8	UA00659AA	ADD: ADP/AES/DES-OFB ENCRYPTION	$2,160.00	244	20%	$1,728.00	$13,824.00
OP_POSIT	8	UA00658AA	ADD: SECURE OPERATION	$3,900.00	244	20%	$3,120.00	$24,960.00
OP_POSIT	8	UA00250AA	ADD: 30 RADIO RESOURCES LICENSE	$6,250.00	244	20%	$5,000.00	$40,000.00
OP_POSIT	1	B1949	MCC 7500E SOFTWARE DVD	$250.00	244	20%	$200.00	$200.00
OP_POSIT	8	DSTG221B	TECH GLOBAL EVOLUTION SERIES 22INCH NON TOUCH	$2,540.00	708	15%	$2,159.00	$17,272.00

BLOCK	QTY	NOMENCLATURE	DESCRIPTION	UNIT LIST	APC	DISC (%)	UNIT SC	Ext SC
OP_POSIT	8	TT3492	Z2 G4 MINI WORKSTATION NON RETURNAB	$2,500.00	708	15%	$2,125.00	$17,000.00
OP_POSIT	32	B1952	SPEAKER, DESKTOP, USB	$485.00	244	20%	$388.00	$12,416.00
OP_POSIT	32	CA03405AA	ADD: POWER SUPPLY WITH DC CORD	$75.00	754	20%	$60.00	$1,920.00
OP_POSIT	32	CA03406AA	ADD: AC LINE CORD, NORTH AMERICA	$13.00	754	20%	$10.40	$332.80
OP_POSIT	32	CA03413AA	ADD: USB CABLE, TYPE A TO TYPE C, 4.5M	$29.00	754	20%	$23.20	$742.40
OP_POSIT	8	B1941	USB AUDIO INTERFACE MODULE	$1,900.00	443	20%	$1,520.00	$12,160.00
OP_POSIT	8	B1914	MCC SERIES DESKTOP GOOSENECK MICROPHONE	$250.00	443	20%	$200.00	$1,600.00
OP_POSIT	16	B1913	MCC SERIES HEADSET JACK	$200.00	443	20%	$160.00	$2,560.00
OP_POSIT	8	DSTWIN6328A	PROVIDES ONE DUAL PEDAL FOOTSWITCH FOR USE WITH MOTOROLA MCC 7500 DISP	$290.00	708	15%	$246.50	$1,972.00
OP_POSIT	8	T7885	MCAFEE WINDOWS AV CLIENT	$165.00	580	10%	$148.50	$1,188.00
OP_POSIT	8	DSUSB31000S	STARTECH USB 3.0 TO GIGABIT ETHERNET ADAPTER	$34.00	708	15%	$28.90	$231.20
OP_POSIT	1	DSF2B56AA	USB EXTERNAL DVD DRIVE	$172.00	708	15%	$146.20	$146.20
OP_POSIT	16	DSST7300U3M	STARTECH 7 PORT USB 3.0 HUB	$93.00	708	15%	$79.05	$1,264.80
OP_POSIT	8	T7449	WINDOWS SUPPLEMENTAL TRANS CONFIG	$50.00	877	20%	$40.00	$320.00
OP_POSIT	8	DSISOBAR6ULTRAHG	SPD, 6 HOSPITAL-GRADE OUTLETS, 15-FT. CORD, 3300 JOULES	$155.00	207	10%	$139.50	$1,116.00
SWITCH	2	CLN1868	2930F 24-PORT SWITCH	$2,500.00	147	15%	$2,125.00	$4,250.00

BLOCK	QTY	NOMENCLATURE	DESCRIPTION	UNIT LIST	APC	DISC (%)	UNIT SC	Ext SC
SWITCH	2	CLN1866	FRU: 1M DAC CABLE	$200.00	147	15%	$170.00	$340.00
ROUTER	2	SQM01SUM0205	GGM 8000 GATEWAY	$5,250.00	147	15%	$4,462.50	$8,925.00
ROUTER	2	CA01616AA	ADD: AC POWER	$-	147	15%	$-	$-
AUX_IO	1	F4543	SITE MANAGER BASIC	$1,855.00	469	10%	$1,669.50	$1,669.50
AUX_IO	1	VA00874	ADD: AUX I-O SERV FW CURR ASTRO REL	$175.00	469	10%	$157.50	$157.50
AUX_IO	1	V266	ADD: 90VAC TO 260VAC PS TO SM	$120.00	469	10%	$108.00	$108.00
AUX_IO	3	V592	AAD TERM BLCK & CONN WI	$90.00	469	10%	$81.00	$243.00
AUX_IO	2	F4547	SM IO EXPANSION BASIC	$900.00	469	10%	$810.00	$1,620.00
AUX_IO	2	V266	ADD: 90VAC TO 260VAC PS TO SM	$120.00	469	10%	$108.00	$216.00
AUX_IO	6	V592	AAD TERM BLCK & CONN WI	$90.00	469	10%	$81.00	$486.00
GCP8000	1	T7038	GCP 8000 SITE CONTROLLER	$3,000.00	112	20%	$2,400.00	$2,400.00
GCP8000	1	CA00718AA	ADD: ASTRO SYSTEM RELEASE 7.18	$-	595	20%	$-	$-
GCP8000	1	CA00303AA	ADD: QTY (1) SITE CONTROLLER	$2,500.00	112	20%	$2,000.00	$2,000.00
GCP8000	1	CA01136AA	MCC 7500 CONVEN SITE OPER	$6,500.00	595	20%	$5,200.00	$5,200.00
GCP8000	1	X153AW	ADD: RACK MOUNT HARDWARE	$50.00	112	20%	$40.00	$40.00
CCGW	4	SQM01SUM0205	GGM 8000 GATEWAY	$5,250.00	147	15%	$4,462.50	$17,850.00
CCGW	4	CA01616AA	ADD: AC POWER	$-	147	15%	$-	$-
CCGW	4	CA02086AA	ADD: HIGH DENSITY ENH CONV GATEWAY	$6,000.00	147	15%	$5,100.00	$20,400.00

BLOCK	QTY	NOMENCLATURE	DESCRIPTION	UNIT LIST	APC	DISC (%)	UNIT SC	Ext SC
CAM	1	BVN1013	MKM 7000 Console Alias Manager Software	$250.00	443	20%	$200.00	$200.00
CAM	1	TT3492	Z2 G4 MINI WORKSTATION NON RETURNAB	$2,500.00	708	15%	$2,125.00	$2,125.00
CS 7/800	1	L37TSS9PW1 N	ALL BAND CONSOLETTE	$8,040.00	681	25%	$6,030.00	$6,030.00
CS 7/800	1	GA05509	DEL: DELETE UHF BAND	$(800.00)	681	25%	$(600.00)	$(600.00)
CS 7/800	1	GA05508	DEL: DELETE VHF BAND	$(800.00)	681	25%	$(600.00)	$(600.00)
CS 7/800	1	G298	ENH: ASTRO 25 OTAR W/ MULTIKEY	$740.00	656	25%	$555.00	$555.00
CS 7/800	1	G806	ENH: ASTRO DIGITAL CAI OP APX	$515.00	681	25%	$386.25	$386.25
CS 7/800	1	G51	ENH: SMARTZONE OPERATION APX	$1,500.00	656	25%	$1,125.00	$1,125.00
CS 7/800	1	G361	ENH: P25 TRUNKING SOFTWARE APX	$300.00	656	25%	$225.00	$225.00
CS 7/800	1	GA00580	ADD: TDMA OPERATION APX	$450.00	656	25%	$337.50	$337.50
CS 7/800	1	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY	$5.00	655	25%	$3.75	$3.75
CS 7/800	1	G996	ENH: OVER THE AIR PROVISIONING	$100.00	656	25%	$75.00	$75.00
CS 7/800	1	GA09008	ADD: GROUP SERVICES	$150.00	656	25%	$112.50	$112.50
CS 7/800	1	G843	ADD: AES ENCRYPTION APX	$475.00	656	25%	$356.25	$356.25
CS 7/800	1	G90	ADD: NO MICROPHONE NEEDED	$-	656	25%	$-	$-
CS 7/800	1	CA01598	ADD: AC LINE CORD US	$-	761	25%	$-	$-
CS 7/800	1	L999	ADD: FULL FP W/05/KEYPAD/CLOCK/VU	$789.00	761	25%	$591.75	$591.75

BLOCK	QTY	NOMENCLATURE	DESCRIPTION	UNIT LIST	APC	DISC (%)	UNIT SC	Ext SC
CS 7/800	1	GA00318	ADD: 5Y ESSENTIAL SERVICE	$319.00	185	0%	$319.00	$319.00
CS 7/800	1	HKN6233C	APX CONSOLETTE RACK MOUNT KIT	$200.00	761	25%	$150.00	$150.00
CS UHF	1	L37TSS9PW1 N	ALL BAND CONSOLETTE	$8,040.00	681	25%	$6,030.00	$6,030.00
CS UHF	1	GA05507	DEL: DELETE 7/800MHZ BAND	$(800.00)	681	25%	$(600.00)	$(600.00)
CS UHF	1	GA05508	DEL: DELETE VHF BAND	$(800.00)	681	25%	$(600.00)	$(600.00)
CS UHF	1	G806	ENH: ASTRO DIGITAL CAI OP APX	$515.00	681	25%	$386.25	$386.25
CS UHF	1	G48	ENH: CONVENTIONAL OPERATION	$800.00	656	25%	$600.00	$600.00
CS UHF	1	L999	ADD: FULL FP W/05/KEYPAD/CLOCK/VU	$789.00	761	25%	$591.75	$591.75
CS UHF	1	G90	ADD: NO MICROPHONE NEEDED	$-	656	25%	$-	$-
CS UHF	1	G298	ENH: ASTRO 25 OTAR W/ MULTIKEY	$740.00	656	25%	$555.00	$555.00
CS UHF	1	CA01598	ADD: AC LINE CORD US	$-	761	25%	$-	$-
CS UHF	1	GA00318	ADD: 5Y ESSENTIAL SERVICE	$319.00	185	0%	$319.00	$319.00
CS UHF	1	G843	ADD: AES ENCRYPTION APX	$475.00	656	25%	$356.25	$356.25
CS UHF	1	HKN6233C	APX CONSOLETTE RACK MOUNT KIT	$200.00	761	25%	$150.00	$150.00
CS VHF	1	L37TSS9PW1 N	ALL BAND CONSOLETTE	$8,040.00	681	25%	$6,030.00	$6,030.00
CS VHF	1	GA05507	DEL: DELETE 7/800MHZ BAND	$(800.00)	681	25%	$(600.00)	$(600.00)
CS VHF	1	GA05509	DEL: DELETE UHF BAND	$(800.00)	681	25%	$(600.00)	$(600.00)
CS VHF	1	G806	ENH: ASTRO DIGITAL CAI OP APX	$515.00	681	25%	$386.25	$386.25

BLOCK	QTY	NOMENCLATURE	DESCRIPTION	UNIT LIST	APC	DISC (%)	UNIT SC	Ext SC
CS VHF	1	G48	ENH: CONVENTIONAL OPERATION	$800.00	656	25%	$600.00	$600.00
CS VHF	1	L999	ADD: FULL FP W/05/KEYPAD/CLOCK/VU	$789.00	761	25%	$591.75	$591.75
CS VHF	1	G90	ADD: NO MICROPHONE NEEDED	$-	656	25%	$-	$-
CS VHF	1	G298	ENH: ASTRO 25 OTAR W/ MULTIKEY	$740.00	656	25%	$555.00	$555.00
CS VHF	1	CA01598	ADD: AC LINE CORD US	$-	761	25%	$-	$-
CS VHF	1	GA00318	ADD: 5Y ESSENTIAL SERVICE	$319.00	185	0%	$319.00	$319.00
CS VHF	1	G843	ADD: AES ENCRYPTION APX	$475.00	656	25%	$356.25	$356.25
CS VHF	1	HKN6233C	APX CONSOLETTE RACK MOUNT KIT	$200.00	761	25%	$150.00	$150.00
CAM	1	T7885	MCAFEE WINDOWS AV CLIENT	$165.00	580	10%	$148.50	$148.50
RACK	1	TRN7343	SEVEN AND A HALF FOOT RACK	$495.00	509	10%	$445.50	$445.50
RACK	1	DSRM116	HEAVY-DUTY SHELVES, VENTED	$120.00	708	15%	$102.00	$102.00
SPD	1	DSAPEXIMAX809	SPD, TYPE 2A, 120/208VAC, 3 PHASE NEMA 4X ENCLOSURE, SAD/MOV	$2,678.00	207	10%	$2,410.20	$2,410.20
SPD	2	DSISOBAR12ULTRA	SURGE SUPPRESSOR, 12 OUTLETS 15' CORD 1280 JOULES ISOBAR ULTRA	$191.00	207	10%	$171.90	$343.80
SPARES	1	B1914	MCC SERIES DESKTOP GOOSENECK MICROPHONE	$250.00	443	20%	$200.00	$200.00
SPARES	1	B1913	MCC SERIES HEADSET JACK	$200.00	443	20%	$160.00	$160.00
SPARES	1	TT3492	Z2 G4 MINI WORKSTATION NON RETURNAB	$2,500.00	708	15%	$2,125.00	$2,125.00

BLOCK	QTY	NOMENCLATURE	DESCRIPTION	UNIT LIST	APC	DISC (%)	UNIT SC	Ext SC
SPARES	1	CLN1868	2930F 24-PORT SWITCH	$2,500.00	147	15%	$2,125.00	$2,125.00
SPARES	1	CLN1866	FRU: 1M DAC CABLE	$200.00	147	15%	$170.00	$170.00
SPARES	1	DSUSB31000S	STARTECH USB 3.0 TO GIGABIT ETHERNET ADAPTER	$34.00	708	15%	$28.90	$28.90
SPARES	1	B1941	USB AUDIO INTERFACE MODULE	$1,900.00	443	20%	$1,520.00	$1,520.00
SPARES	1	B1952	SPEAKER, DESKTOP, USB	$485.00	244	20%	$388.00	$388.00
SPARES	1	CA03405AA	ADD: POWER SUPPLY WITH DC CORD	$75.00	754	20%	$60.00	$60.00
SPARES	1	CA03413AA	ADD: USB CABLE, TYPE A TO TYPE C, 4.5M	$29.00	754	20%	$23.20	$23.20
SPARES	1	CA03406AA	ADD: AC LINE CORD, NORTH AMERICA	$13.00	754	20%	$10.40	$10.40