



PUBLIC SAFETY COMMITTEE

City Hall - Large Conference Room
300 W. Crowell Street
Monroe, NC
November 6, 2023
4:15 PM

AGENDA

1. Minutes from August 7, 2023
2. Code of Ordinances Amendment to Schedule I(B) titled Speed Limits to add entire length of Crawford Street
3. Cod of Ordinances Amendment to Schedule I(B) titled Speed Limits to reduce speed limits on Chancellor Lane, Drake Lane, Duck Point Drive and Legacy Lake Drive in Mallard Landing
4. Code of Ordinances Amendment to Schedule III titled Stop Intersections of Chapter 75 titled Traffic Schedules to rename four way stop intersections to All Way Stop intersections at Patton Avenue and CM Human Court
5. Fire Department Administrative Captain Position
6. Fire Department 2022 Accreditation Annual Compliance Report
7. Fire Department Rescue 1 Truck
8. Fire Department Logistics
9. Fire Department donation from Wincrest Homeowners Association

**PUBLIC SAFETY COMMITTEE
MEETING MINUTES
August 7, 2023**

The Public Safety Committee met on August 7, 2023, at 4:15 p.m. in the City Hall Large Conference Room.

Members Present: Chairman Gary Anderson, Committee Member Charles Perry, Council Member James Kerr, Committee Member Chip Wardwell

Absent: Council Member Freddie Gordon, Committee Member Hayden Desio-Munn, Committee Member David Beckwith

Staff Present: City Manager Mark Watson, Fire Chief Ron Fowler, Engineering Director Sarah McAllister, Fire Administrative Assistant Alice Withers, Monroe Police Attorney Ken Honeycutt

Guests: Union County Emergency Management Director Andrew Ainsley, Ashley Casanova

Chairman Gary Anderson called the meeting to order at 4:16 p.m.

Item 1. Approval of Minutes of June 5, 2023 Meeting

Council Member Kerr made a motion to approve the minutes of the Public Safety Committee meeting of April 3, 2023. Committee Member Wardwell seconded the motion and the motion passed unanimously.

Item 2. Staff Report– Leary Firefighters Foundation Grant

Fire Chief Ron Fowler presented to the Committee a request to apply for a grant from Leary Firefighters Foundation in the amount of \$23,849.31. The funds would be used to purchase a Personal Protection Equipment (PPE) washer and dryer for the training grounds. This is a non-matching grant; thus the City would not be responsible for any of the funding. Committee Member Wardwell made a motion to recommend Council to authorize staff to apply for Leary Firefighters Foundation Grant in the amount of \$23,849.31. Council Member Kerr seconded the motion and the motion passed unanimously.

Item 3. Budget Amendment for Donations Received for Fire Camp 1872 and Interlocal Agreement Funds

Fire Chief Ron Fowler presented to the Committee a request to accept donations totaling \$1,180 from Council Member Anderson, Council Member Kerr and Monroe Rotary Club to be used for Fire Camp 1872. The Fire Department has also received \$40,000 per an Interlocal Agreement, approved by Council on 1/11/2022, with Union County for Swift Water Rescue and Hazardous Materials Response mutual aid assistance, for a total of \$41,180.

Committee Member Wardwell made a motion to recommend Council to approve the budget amendments and appropriate the funds to the Fire Department expenditure accounts. Council Member Kerr seconded the motion and the motion passed unanimously.

4. Resolution to Adopt Union County Emergency Operations Plan

Union County Emergency Management Director, Andrew Ainsley presented to the Committee the updated Emergency Operations Plan (EOP), of which the City of Monroe has various responsibilities within the plan. Committee Member Wardwell made a motion to approve the Resolution and recommend said item be placed on the Consent Agenda for Council to approve and adopt Union County Emergency Operations Plan. Council Member Kerr seconded the motion and the motion passed unanimously.

Adjournment

There being no further business, Council Member Kerr made a motion to adjourn the meeting. Committee Member Wardwell seconded the motion which passed unanimously, and the meeting was adjourned at 5:05 p.m.

Respectfully submitted,

Alice Withers – Committee Secretary



STAFF REPORT

TO: Public Safety Committee

VIA: Mark Watson, City Manager

DATE: November 6, 2023

FROM: Sarah McAllister, P.E., Engineering Director

PREPARED BY: Sarah McAllister, P.E., Engineering Director

SUBJECT: Crawford Street Speed Limit Reduction and Speed Cushions

SUMMARY STATEMENT

The Public Safety Committee is requested to consider a request to install a speed cushion on Crawford Street between Franklin Street and Jefferson Street and to lower the speed limit from 35 mph to 25 mph.

REVIEW

The Engineering Department received a request from Council Member Kerr to install a speed cushion on Crawford Street between Franklin Street and Jefferson Street. The current Traffic Calming policy has a Special Provisions section that states “The Public Safety Committee can waive the petition requirement and can order installations based on a public need to protect the general welfare and safety of Monroe Citizens. This action is limited to requests concerning facilities opened to the general public, including but not limited to churches, schools, and recreational facilities.” This section of Crawford Street is located near the new Phil Bazemore Active Adult Center and is adjacent to a parking lot that serves the center. The block is approximately 235 feet in length and therefore, only one speed cushion is recommended to be installed in the middle of the block.

The Traffic Calming policy requires the posted speed limit to be 25 mph to be eligible for speed cushions. Therefore, Staff is recommending lowering the speed limit on this block from 35 mph to 25 mph. A map is provided with the new proposed placement of the speed cushion. A letter has been sent to the one residence located on this block notifying them of the proposed change being brought before the Public Safety Committee on November 6, 2023 and Council on November 14, 2023.

RECOMMENDATION

Staff is proposing one speed cushion as shown on the attached map and a reduction in the speed limit between Franklin Street and Jefferson Street per Ordinance Amendment O-2023-62. If approved, the speed limit reduction on Crawford St will be placed on the consent agenda for the next Council meeting.

Attachments:

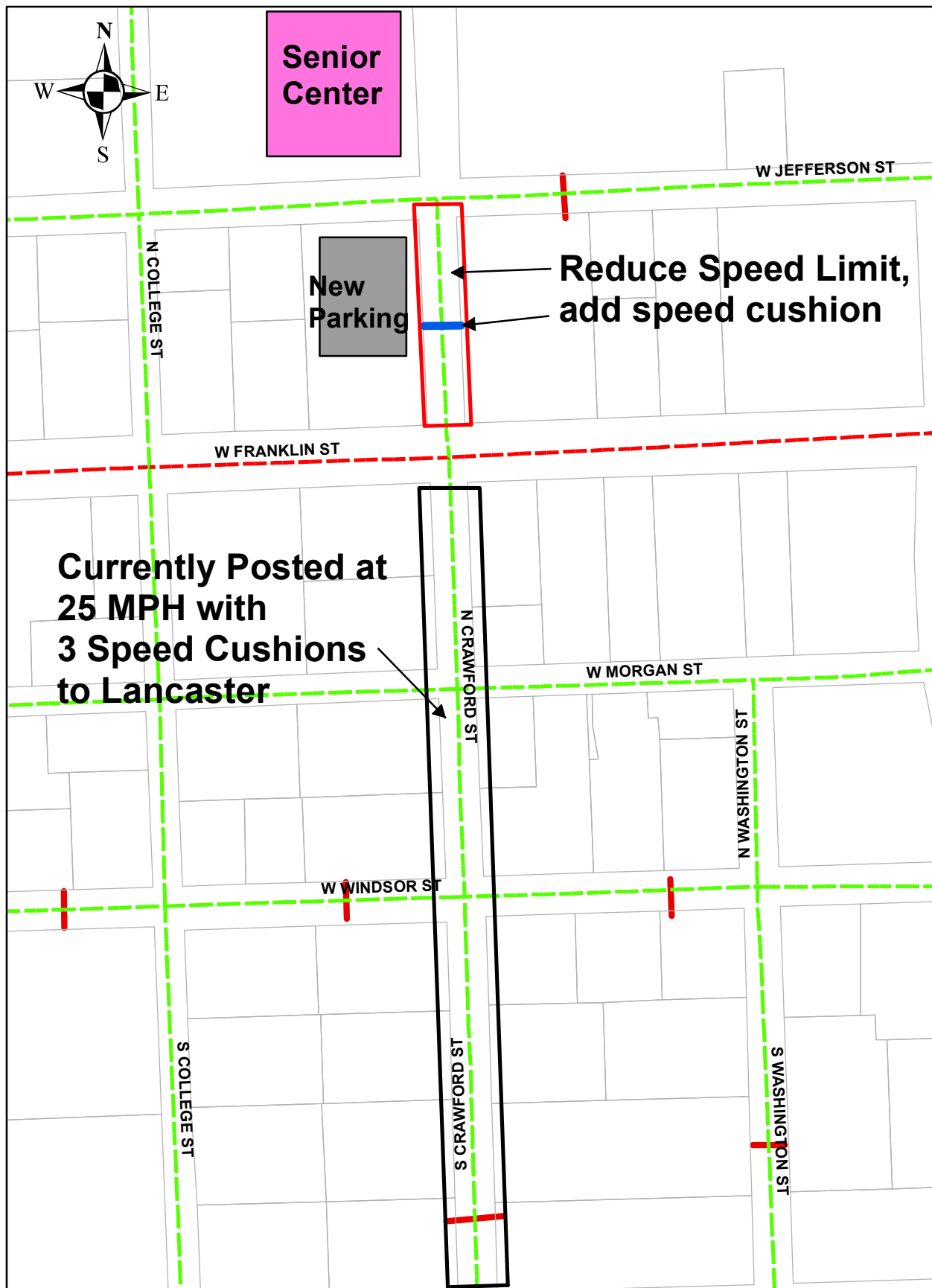
Map of Crawford Street

Letter to Resident

Traffic Calming in Residential

Neighborhoods Policy

Ordinance Amendment O-2023-62



N Crawford St Block Traffic Control Change

October 27, 2023

Mr. Alan Parker
406 W Franklin Street
Monroe, NC 28112

RE: CRAWFORD STREET SPEED CUSHION

Dear Mr. Parker:

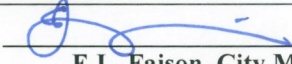
A request has been received to install traffic calming on Crawford Street between Franklin Street and Jefferson Street. The current policy on Traffic Calming in Residential Neighborhoods includes a Special Provisions section that states "The Public Safety Committee can waive the petition requirement and can order installations based on a public need to protect the general welfare and safety of Monroe Citizens. This action is limited to requests concerning facilities opened to the general public, including but not limited to churches, schools, and recreational facilities." This section of Crawford Street is located near the new Phil Bazemore Active Adult Center and is adjacent to a parking lot that serves the center. The block is approximately 235 feet in length and therefore only one speed cushion is being recommended.

The Traffic Calming Policy requires the posted speed limit to be 25 mph to be eligible for speed cushions. Therefore, Staff is recommending the speed limit be reduced to 25 mph on this block. The enclosed map is provided with the new proposed placement of the speed cushion. Staff will be presenting this item to the Public Safety Committee on November 6, 2023. If approved, the ordinance to amend the speed limit will go before City Council meeting at their next meeting on Tuesday, November 14, 2023. Please contact me at (704) 282-4532 or smcallister@monroenc.org if you have any questions or concerns regarding the proposed locations.

Sincerely,



Sarah McAllister, P.E.
Engineering Director

	Policy: Traffic Calming in Residential Neighborhoods	Effective Date: November 3, 1998
		Revision Effective Date: August 17, 1999; April 2, 2002; May 6, 2008; March 21, 2016
	Policy Number: ED-01	Page 1 of 4
	 E.L. Faison, City Manager	Engineering Responsible Party

TRAFFIC CALMING IN RESIDENTIAL NEIGHBORHOODS

A traffic calming device is a physical device used along city-maintained streets to calm traffic within residential neighborhoods. A speed hump/cushion is a raised area of pavement that extends transversely across a roadway surface. Speed humps normally have a height of 5 inches and a travel length of 22 feet. Speed cushions are typically 13 feet long and 3.75 inches high, installed as three separate panels across the width of the roadway, leaving a separation between panels to accommodate the wheel path of emergency response vehicles which are wider than typical passenger vehicles. The speed cushion reduces speeds for normal vehicles, but allows vehicles with a broader wheelbase, such as fire trucks, to straddle the speed cushion without slowing and is the primary design installed. Traffic calming is typically installed in sets of three and serves as a deterrent and physical reminder that the speed limit is 25-mph. The following policy is to govern the installation and placement of traffic calming within residential neighborhoods.

Policy Creation

Creation of a Policy for Traffic Calming in Residential Neighborhoods is the responsibility of the City of Monroe Engineering Department. The Public Safety Committee shall oversee preparation and implementation of the traffic calming policy. Once the policy has been drafted, it is the responsibility of the City Council to review and approve/disapprove said policy. In the event of disapproval, the City Council will recommend policy changes and direct the Public Safety Committee to revise and resubmit. This process shall continue until a policy is approved.

Execution of Policy

Once the Traffic Calming Policy has been approved by the City Council, it is the responsibility of the Engineering Department to execute and enforce the policy. Only in cases where the Engineering Director has determined special circumstances to exist shall the Public Safety Committee be asked to evaluate individual traffic calming requests.

Traffic Calming Process

The process is initiated when the Engineering Department receives a request for installations. A preliminary investigation into the Pre-Study Qualifying Criteria, including horizontal and vertical alignment and roadway classification, will be completed. Roadway classifications will be determined in accordance with Section 02.01.01, Street Classifications, of the City of Monroe Standard Specifications and Detail Manual. For qualified streets that are not posted at 25-mph, the Engineering Director shall submit the street for inclusion in the City of Monroe Traffic Schedules as a designated 25-mph street and post upon approval of the Ordinance amending the Traffic Schedules by the City Council. Traffic Studies shall only be completed after the residential street has been posted at 25-mph for a period exceeding six (6) months. If these

criteria are met, the Engineering Department will conduct a field investigation. The Engineering Department will use traffic monitoring devices to determine average daily traffic, vehicle speeds, and vehicle types. If the street's Post-Study results meet the Post-Study Qualifying Criteria, a map will then be prepared detailing the best possible locations for installations. A standard petition package containing a petition form, maps, and brochures on traffic calming devices will be mailed to the requesting party. The requesting party is responsible for obtaining signatures on the petition form and returning it to the Engineering Department. If the petition requirements have been satisfied, the Engineering Department will generate and execute a work order to install the traffic calming devices. If the Pre/Post Study Qualifying Criteria have not been satisfied, the Engineering Department shall issue a letter to the applicant identifying disqualifying criteria.

The Engineering Department will approve or disapprove installations based on the "findings of fact" report generated by the traffic study.

Pre-Study Qualifying Criteria

In order for a street to be considered eligible for traffic calming devices, the following criteria must be met:

1. The street must be classified as a two-lane residential street.
2. The street must be a municipally-maintained roadway that receives Powell Bill funding. State roadways are excluded under this policy.
3. Streets in subdivisions must be at 90% lot build-out.
4. A minor residential street such as a cul-de-sac that has one end open to traffic and the other end permanently closed does not qualify due to low traffic volumes.
5. The grade of the street should not be greater than 8 percent.
6. The horizontal radius of the street must be equal to or greater than 300 feet.
7. The speed limit must be posted 25-mph. All traffic calming devices will be posted at a traverse speed of 15-mph.
8. The street should not be used as a primary emergency vehicle access route. A positive recommendation for installation must be received from Police, Fire and EMS.

If the street does not meet the above criteria, a letter will be issued defining why the street is not eligible for the traffic calming program.

Post-Study Qualifying Criteria

Once a street has met all of the Pre-Study Qualifying Criteria, the Engineering Department will conduct a traffic study. The street's study results must indicate that the 85th percentile speed is greater than or equal to eight (8) miles per hour over the posted speed limit. If the street does not meet this requirement, a letter will be issued defining why the street is not eligible for the traffic calming program. If the street has been determined qualified, the petition process will be initiated.

Petition Process

Once a request has been determined valid by meeting both the Pre/Post Study Qualifying Criteria, a standard petition packet will be mailed to the individual initiating the traffic calming request. The following requirements shall be used to administer the petition process:

1. Petitions must be completed and returned to the Engineering Department no later than 90 days (3 months) from the date the petition packet was mailed. Petitions received after this period will be considered invalid and will require reinitiating the petition process.
2. Signatures must be obtained on the standard Petition for Traffic Calming Devices provided by the City.
3. Only one signature per household can be obtained.
4. Signatures must be of the current residents within the Engineering Department defined study area.
5. Residents must provide their address in the space allotted.
6. The requesting party must distribute the provided maps and brochures while obtaining signatures.
7. Residents must acknowledge receipt of a map and brochure.
8. Signatures will be checked by Engineering using utility billing records.
9. The number of valid signatures either for or against installation must meet or exceed 75% of the total number of households within the study area. The number of valid signatures for installation must exceed 75%. The study area limits will be determined by the Engineering Department.
10. Signatures/Petitions that do not satisfy requirements 1-9 will be considered invalid.

If all of the petition requirements have been met, the street will be scheduled for traffic calming installation and the petitioner will be notified by mail of the installation date. If the requirements have not been met, the petitioner will be issued a letter clearly defining any petition deficiencies and given the opportunity to resubmit.

Placement Goals

- ◆ Traffic calming devices should be placed at least 200 feet apart.
- ◆ The stopping sight distance should be greater than or equal to 200 feet.
- ◆ Traffic calming devices should be located at least 200 feet from an intersection.
- ◆ Traffic calming devices should be located on or adjacent to property lines and at least 5 to 10 feet from driveways.
- ◆ When possible, traffic calming devices should be placed under street lighting for greater visibility.

Every attempt will be made to adhere to the placement goals. However, some streets will have special circumstances that will not allow the goals to be met.

Funding/Reports

Traffic calming devices shall be installed at no costs to the citizens making the request. Installations will be paid for using Powell Bill funds. The Engineering Department will monitor expenditure of funds and prepare a written report on a bi-annual basis for review by the Public Safety Committee.

The Engineering Department will provide the Public Safety Committee with a status report of current requests, studies, and installations on a quarterly basis.

Special Provisions

The Public Safety Committee can waive the petition requirement and can order installations based on a public need to protect the general welfare and safety of Monroe Citizens. This action is limited to requests concerning facilities opened to the general public, including but not limited to churches, schools, and recreational facilities.

Post Installation

Once installed, the traffic calming devices will not be eligible for removal for five years from the date of installation. Exceptions to this will include removal for public safety reasons or consensus of the affected residents as evidenced through a petition process in which the residents pay for the total cost of removal. Once five years have passed, the affected residents will be able to request removal of the devices through the petitioning process in which at least 51% will have to agree on the removal and 75% will have to acknowledge that they are aware of the request. Once removed, the Engineering Department will not process any new requests for that particular street for five years from the date of removal.

Summary

As with any measure implemented to reduce or calm traffic, success is directly related to the level of acceptance by the residences being affected. All traffic calming locations will be monitored by Public Safety to determine their effectiveness and to identify any safety concerns or accidents arising from their installation. The Engineering Department will be responsible for reviewing the reports, implementing corrective measures, and maintaining records for use on future installations.

**AN ORDINANCE TO AMEND
TITLE VII, CHAPTER 75
OF THE CITY OF MONROE CODE OF ORDINANCES
O-2023-62**

BE IT ORDAINED by the City of Monroe Council that Title VII: Traffic Code, Chapter 75 - Traffic Schedules of the City of Monroe Code of Ordinances is amended as follows:

DELETE

SCHEDULE I. (B) Speed Limits - City Maintained Streets

Street Name	Description	Speed Limit
Crawford Street	From Franklin Street to Lancaster Avenue	25 MPH

ADD

SCHEDULE I. (B) Speed Limits - City Maintained Streets

Street Name	Description	Speed Limit
Crawford Street	Entire Length	25 MPH

Adopted this 14th day of November, 2023.

Marion L. Holloway, Mayor

ATTEST:

Bridgette H. Robinson, City Clerk



STAFF REPORT

TO: Public Safety Committee

VIA: Mark Watson, City Manager

DATE: November 6, 2023

FROM: Sarah McAllister, P.E., Engineering Director

PREPARED BY: Sila Vlachou, Land Development & Infrastructure Engineer

SUBJECT: Ordinance to Amend Traffic Code – Chapter 75: Traffic Schedules
Schedule I. (B) Speed Limits – City Maintained Streets

SUMMARY STATEMENT

The Public Safety Committee is requested to consider amending Schedule I: (B) Speed Limits – City Maintained Streets to reduce the speed limit to 25 mph on Chancellor Ln., Drake Ln., Duck Point Dr. and Legacy Lake Dr. in the Mallard Landing Neighborhood.

REVIEW

The Engineering Department received a request from a resident of the Mallard Landing Neighborhood to add additional 25 mph speed limit signage to the neighborhood. Upon investigation of the request, it was discovered that only the entrance street to the neighborhood had a 25 mph speed limit. Therefore, after additional discussion with the City of Monroe Police Department, the Engineering Department is recommending to lower the speed limit to 25 mph in the Mallard Landing neighborhood. All streets within the neighborhood limits are designated 35 mph unless otherwise posted. The Engineering Department is recommending that the speed limits on Chancellor Ln., Drake Ln., Duck Point Dr. and Legacy Lake Dr. be reduced from 35 mph to 25 mph. Per the neighborhood speed limit policy, signs can be posted at the entrance to the neighborhood to restrict the speed limit for the entire neighborhood. By policy, a “Neighborhood” plaque would be mounted above the speed limit sign with an “Unless Otherwise Posted” plaque mounted below the speed limit sign. A map of the area is attached along with the Ordinance (O-2023-61).

RECOMMENDATION

Staff recommends amending Schedule I: (B) Speed Limits to reduce the speed limit on Chancellor Ln., Drake Ln., Duck Point Dr., and Legacy Lake Dr. from 35 mph to 25 mph by Ordinance (O-2023-61). If the Public Safety Committee is in agreement, the proposed amendment to the Traffic Schedules will be placed on the next consent agenda for approval by City Council.

Attachments:
Ordinance (O-2023-61)
Map

**AN ORDINANCE TO AMEND
TITLE VII, CHAPTER 75
OF THE CITY OF MONROE CODE OF ORDINANCES
O-2023-61**

BE IT ORDAINED by the City of Monroe Council that Title VII: Traffic Code, Chapter 75 - Traffic Schedules of the City of Monroe Code of Ordinances is amended as follows:

ADD

SCHEDULE I. (B) Speed Limits - City Maintained Streets

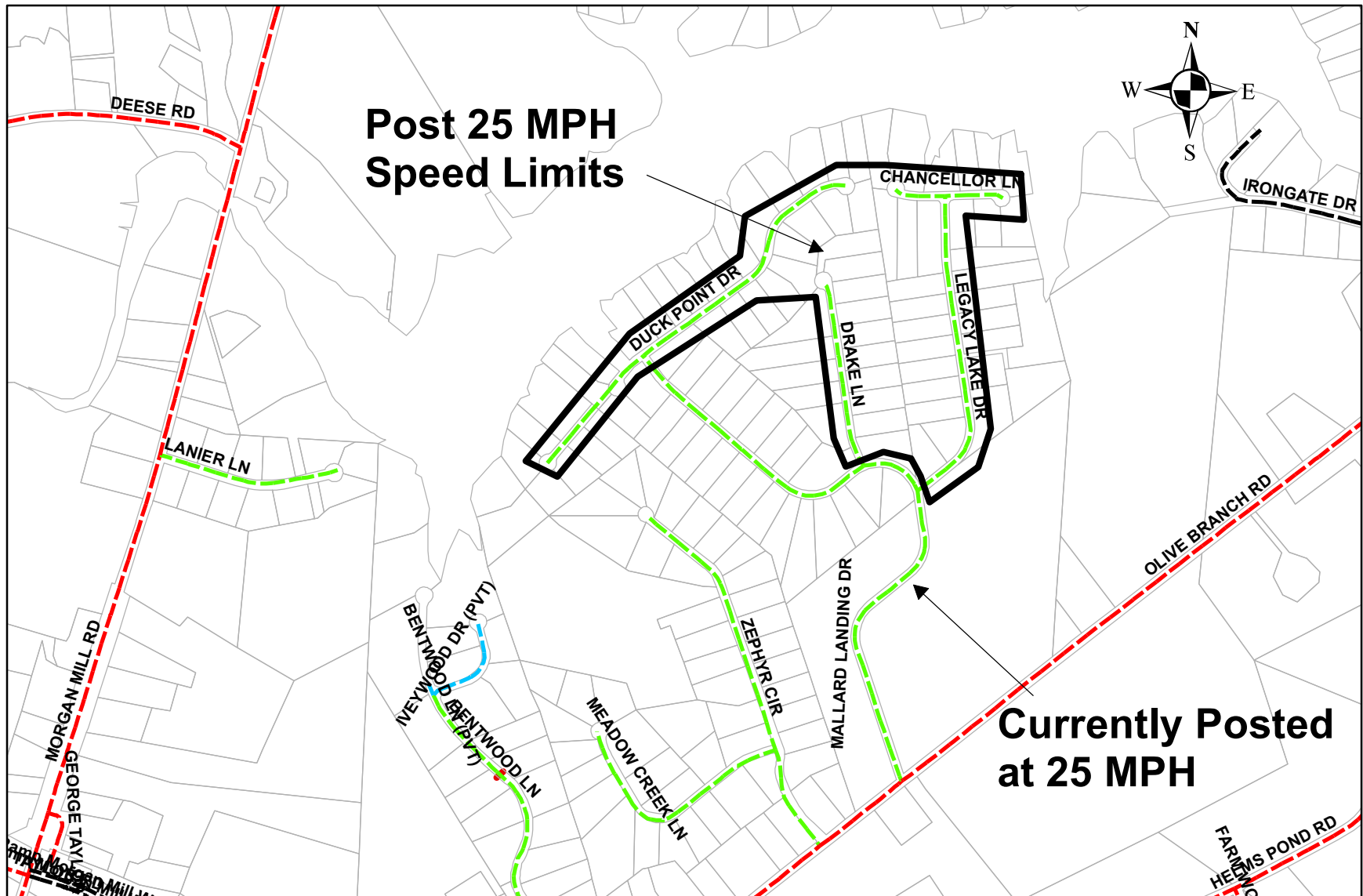
Street Name	Description	Speed Limit
Chancellor Ln.	Entire Length	25 MPH
Drake Ln.	Entire Length	25 MPH
Duck Point Dr.	Entire Length	25 MPH
Legacy Lake Dr.	Entire Length	25 MPH

Adopted this 14th day of November, 2023.

Marion Holloway, Mayor

ATTEST:

Bridgette H. Robinson, City Clerk



Mallard Landing Streets to be Added to Monroe Code of Ordinances Chapter 75, Schedule I



STAFF REPORT

TO: Public Safety Committee

VIA: Mark Watson, City Manager

DATE: November 6, 2023

FROM: Sarah McAllister, P.E., Engineering Director

PREPARED BY: Sila Vlachou, Land Development & Infrastructure Engineer

SUBJECT: Ordinance to Amend Traffic Code – Chapter 75: Traffic Schedules
Schedule III. Stop Intersections.

SUMMARY STATEMENT

The Public Safety Committee is requested to consider amending Chapter 75 Schedule III: Stop Intersections to rename the section All Way Stop Intersections and to add a three-way stop on Patton Ave. and CM Human Ct.

REVIEW

The Arborwood Townhomes subdivision currently under construction and located between Patton Avenue and Commerce Drive includes a connection to Patton Avenue. During plan review, it was determined that there was inadequate sight distance along Patton Avenue and a three-way stop intersection was proposed and approved by Engineering. Therefore, Staff is proposing to add Patton Avenue and the new neighborhood street CM Human Ct intersection to Chapter 75 Schedule III: Stop Intersections. In addition, Staff is recommending to rename the description in Chapter 75 Schedule III: Stop Intersections to All Way Stop Intersections instead of Four Way Stop Intersections.

RECOMMENDATION

Staff recommends amending the description in Chapter 75: Schedule III: Stop Intersections to All Way Stop Intersections instead of Four Way Stop Intersections and to add a three-way stop at the

intersection of Patton Ave. & CM Human Ct. by Ordinance (O-2023-63). If the Public Safety Committee is in agreement, the proposed amendment to the Traffic Schedules will be placed on the next consent agenda for approval by City Council.

Attachments:
Ordinance (O-2023-63)
Map

ORDINANCE TO AMEND CITY OF MONROE CODE OF ORDINANCES
TITLE VII: TRAFFIC CODE
CHAPTER 75: TRAFFIC SCHEDULES
O-2023-63

BE IT ORDAINED by the City of Monroe Council that Title VII: Traffic Code, Chapter 75 – Traffic Schedules, of the City of Monroe Code of Ordinances be amended as follows:

Section 1. Amend **SCHEDULE III. STOP INTERSECTIONS** to rename Four Way Stop Intersections to All Way Stop Intersections.

Section 2. Amend **SCHEDULE III. ALL WAY STOP INTERSECTIONS** to add the following:

<i>ALL WAY STOP INTERSECTIONS</i>
Patton Avenue and CM Human Court

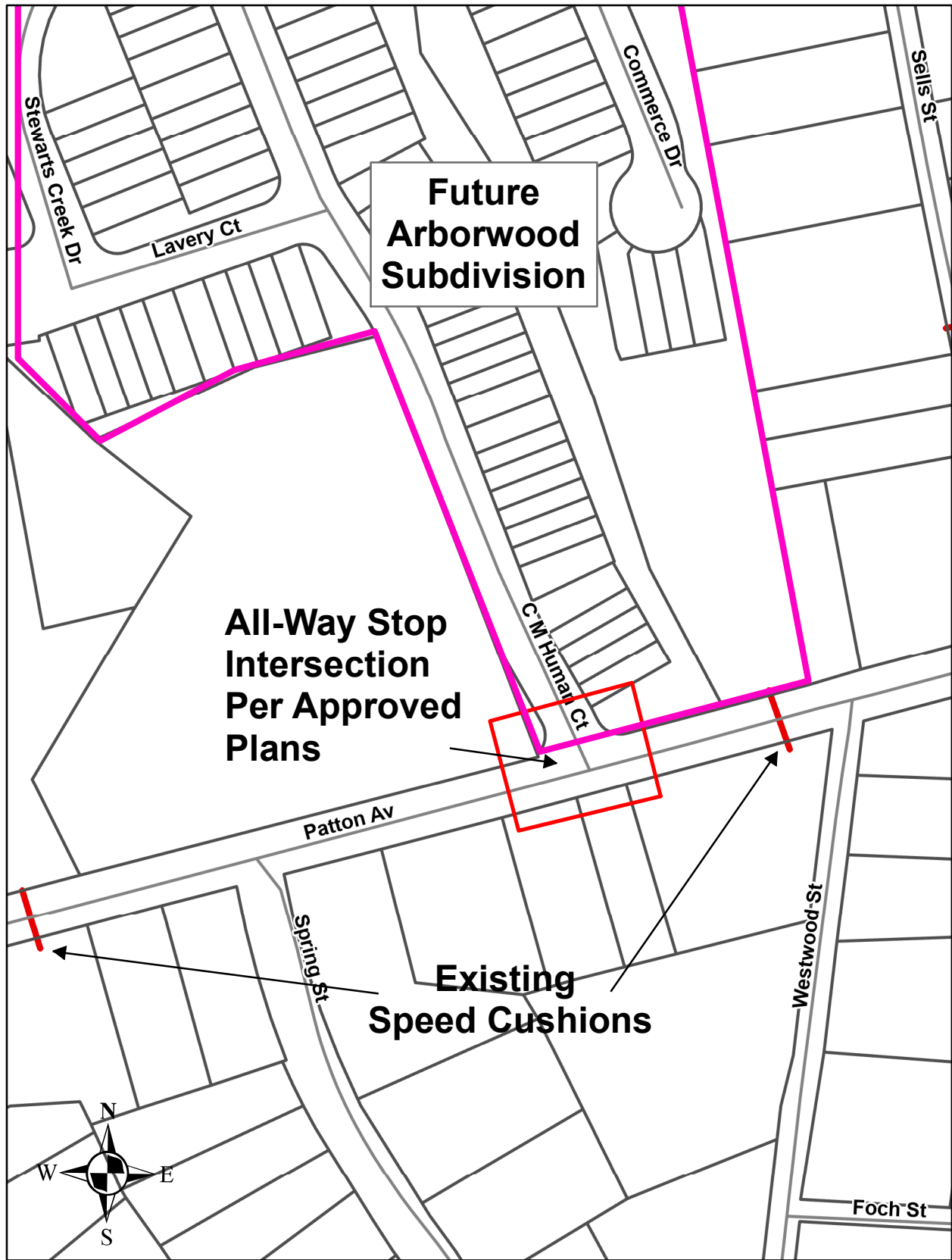
Section 3. This Ordinance shall become effective upon adoption.

Adopted this 14th day of November, 2023.

Attest:

Marion L. Holloway Jr., Mayor

Bridgette H. Robinson, City Clerk



Patton Ave and CM Human Ct All-Way Stop Intersection

STAFF REPORT

TO: Public Safety Committee

VIA: Mark Watson, City Manager

DATE: November 6, 2023

FROM: Ronald D. Fowler, Fire Chief

PREPARED BY: Bryan Kindley, Deputy Chief

SUBJECT: Administrative Captain Position

SUMMARY STATEMENT

The Fire Department proposes to consolidate two-part time positions into one full time position.

REVIEW

The Fire Department proposes to consolidate one part-time administrative assistant position and one part-time data analysis position into one full time administrative captain position. These two part-time positions are currently vacant and staff has had difficulty in filling these part-time positions.

The part-time administrative assistant is budgeted at \$24,089 and the part-time data analysis position is budgeted at \$17,759. The full-time administrative captain position is proposed at \$86,303, leaving a difference of \$48,244. This includes salary and benefits on each position. Staff proposes to hold open two vacant firefighter positions open until December 1, 2023 to offset the salary difference for the current FY 24 budget year.

RECOMMENDATION

Staff request the Public Safety Committee to recommend to Council to allocate one full time administrative captain position and rescind the two currently allocated part-time positions.



STAFF REPORT

TO: Public Safety Committee
VIA: Mark Watson, City Manager
DATE: November 6, 2023
FROM: Ronald D. Fowler, Fire Chief
PREPARED BY: Bryan Kindley, Deputy Chief
SUBJECT: 2022 Annual Compliance Report

SUMMARY STATEMENT

Staff will share with the Public Safety Committee the findings from the Monroe Fire Department's 2022 Accreditation Annual Compliance Report.

REVIEW

The Fire Department is required to submit an Annual Compliance Report (ACR) each year to the Commission on Fire Accreditation International as part of our accreditation status. The ACR is due by July 15th each year.

Staff will provide the Public Safety Committee an overview on Monroe Fire Department's 2022 Annual Compliance Report. The report contains a summary of the Fire Department's activities during the 2022 calendar year to address recommendations found during the last accreditation site visit. Staff is pleased to report that the Commission has approved our 2022 ACR.

RECOMMENDATION

For informational purposes and discussion.



STAFF REPORT

TO: Public Safety Committee

VIA: Mark Watson, City Manager

DATE: November 6, 2024

FROM: Ronald D. Fowler, Fire Chief

PREPARED BY: Greg Collins, Deputy Fire Chief

SUBJECT: Fire Department Rescue 1 Replacement Contract Award

SUMMARY STATEMENT

Staff will present to the Public Safety Committee a purchasing proposal from Pierce Manufacturing and Atlantic Emergency Solutions Inc. for the purchase of one Heavy Rescue apparatus for \$1,395,485.

REVIEW

The FY24 budget allocated \$1,400,000 for the purchase of one heavy rescue truck to replace the existing Rescue 1. Our apparatus committee has worked diligently on a design that will meet our needs and staff has received a proposal with a purchase price of \$1,585,485. Staff recommends accepting a 100% prepay option, which results in a savings of \$190,000 for a contract price of \$1,395,485. This price includes a performance bond to protect the City's interest against failure to meet the contracted agreement. Staff recommends using the HGAC (Houston-Galveston Area Council) procurement service for this purchase.

Staff has carefully evaluated the proposal submitted through HGAC by Pierce Manufacturing and Atlantic Emergency Solutions Inc. Based on this review, it is staff's opinion that Pierce Manufacturing's specifications conform substantially to the specifications as outlined by the city.

HGAC Buy is a "Government-to-Government" procurement service available nationwide. As a unit of local government assisting other local governments, HGAC Buy strives to make the

governmental procurement process compliant with state statutes. The city is a member of HGAC and has used this service for other capital purchases in the past.

RECOMMENDATION

Staff requests the Public Safety Committee to recommend that City Council award a contract to Atlantic Emergency Solutions Inc. and Pierce Manufacturing for one Pierce Velocity Heavy Duty Rescue fire apparatus (Bid # 1912) in the amount of \$1,395,485.

Attachment: Proposal Pierce Velocity Heavy Duty Rescue (Bid # 1912)

Proposal for:

Monroe Fire Department

North Carolina
October 26, 2023



Pierce Velocity Walk-in Rescue



Phil Peterson
Regional Account Manager
Tel. (704) 441-6337
ppeterson@atlanticemergency.com



Proposal for Furnishing Apparatus

Oct 26, 2023

Department: Monroe Fire Department

Attn: Deputy Chief Greg Collins

117 N. Church St. Monroe, NC 28112

Upon an order being placed by you, and final acceptance by Pierce Mfg. the apparatus and equipment herein named will be manufactured for the following prices:

	Price
One (1) Pierce Velocity Heavy Duty Rescue (Ref. Bid #1912)	\$1,585,485.00
Prepayment Option (If Paid Within 30 Days)	(\$190,000.00)

Total : **\$1,395,485.00**

Any discount(s), whether implied or explicit, will be applied upon delivery, acceptance, and final invoicing of Apparatus.

Said apparatus and equipment are to be built and shipped in accordance with the specifications hereto attached, delays due to strikes, war, or intentional conflict, failures to obtain chassis, materials, or other causes beyond our control not preventing, within about 1,338 calendar days after receipt of this order and the acceptance thereof by

Pierce Mfg.. Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.

Persistent Inflationary Environment: If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6112] ("PPI") has increased at a compounded annual growth rate of 5.0% or more between the month Pierce accepts our order ("Order Month") and a month 14 months prior to the then predicted Ready For Pickup date ("Evaluation Month"), then pricing may be updated in an amount equal to the increase in PPI over 5.0% for each year or fractional year between the Order Month and the Evaluation Month. Atlantic will document any such updated price for the customer's approval before proceeding and provide an option to cancel the order.

Taxes: Tax is not included in this proposal. In the event that the purchasing organization is not exempt from sales tax or any other applicable taxes and/or the proposed apparatus does not qualify for exempt status, it is the duty of the purchasing organization to pay any and all taxes due.

Cancellation: In the event this proposal is accepted, and a purchase order is issued then cancelled or terminated by Customer before completion, Atlantic Emergency Solutions may charge a cancellation fee of 30% of the purchase price.

Terms: The terms of this proposal will be governed by the laws of the state of Virginia. No additional terms or conditions will be binding upon Atlantic Emergency Solutions unless agreed to in writing and signed by a duly authorized officer of Atlantic Emergency Solutions.

This proposal is valid Until 11/26/2023

Sincerely,

Phil Peterson - Regional Account Manager

6809 Statesville Road
Charlotte, NC 28268
Cell: (704) 441-6337

X

Name: _____

Title: _____

Date: _____

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Atlantic Emergency Solutions is pleased to submit a proposal to Monroe Fire Department for a **Pierce® Heavy Duty Rescue** per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.

PIERCE MANUFACTURING was founded in 1913. Since then we have been building bodies with one philosophy, "BUILD THE FINEST". Our skilled craftsmen take pride in their work, which is reflected, in the final product. We have been building fire apparatus since the early "forties" giving Pierce Manufacturing over 75 years of experience in the fire apparatus market. Pierce Manufacturing has built and put into service more than 62,500 apparatus, including more than 33,900 on Pierce custom chassis designed and built specifically for fire and emergency applications. Our Appleton, Wisconsin facility has over 870,000 total square feet of floor space situated on approximately 105 acres of land. Our Bradenton, Florida facility has 300,000 square feet of floor space situated on approximately 38 acres of land.

Our beliefs in high ethical standards are carried through in all of our commitments and to everyone with whom we do business. Honesty, Integrity, Accountability and Citizenship are global tenets by which we all live and work. Consequently, we neither engage in, nor have we ever been convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.

In accordance with the current edition of applicable NFPA standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment.

Images and illustrative material in this proposal are as accurate as known at the time of publication, but are subject to change without notice. Images and illustrative material is for reference only, and may include optional equipment and accessories and may not include all standard equipment.

GENERAL DESIGN AND CONSTRUCTION

To control quality, ensure compatibility, and provide a single source for service and warranty, the custom cab, chassis, pump module and body will be entirely designed, assembled/welded and painted in Pierce owned manufacturing facilities. This includes, but not limited to the cab weldment, the pumphouse module assembly, the chassis assembly, the body and the electrical system.

QUALITY AND WORKMANSHIP

Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning and we demonstrate that ongoing commitment by: Ensuring all steel welding follows American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding follows American Welding society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding follows American welding Society B2.1-2000 requirements for structural welding of sheet metal. Our flux core arc welding uses alloy rods, type 7000 and is performed to American Welding Society standards A5.20-E70T1. Furthermore, all employees classified as welders are tested and certified to meet the American welding Society codes upon hire and every three (3) years thereafter. Pierce also employs and American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

Pierce Manufacturing operates a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that are established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance is included with this proposal.

In addition to the Quality Management system, we also employ a Quality Achievement Supplier program to insure the vendors and suppliers that we utilize meet the high standards we demand. That is just part of our overall "Quality at the Source" program at Pierce.

To demonstrate the quality of our products and services, a list of at least two (2) fire departments/municipalities that have purchased vehicles for a second time is provided.

DELIVERY

The apparatus will be delivered under its own power to insure proper break-in of all components while the apparatus is still under warranty. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.

MANUAL AND SERVICE INFORMATION

At time of delivery, complete operation and maintenance manuals covering the apparatus will be provided. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

SAFETY VIDEO

At the time of delivery Pierce will also provide one (1) 39-minute, professionally produced apparatus safety video, in DVD format. This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and safety during maintenance.

PERFORMANCE TESTS

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet the current edition of applicable NFPA standards acceleration and braking requirements.

SERVICE AND WARRANTY SUPPORT

Pierce dealership support will be provided by Atlantic Emergency Solutions by operating a Pierce authorized service center. The service center will have factory-trained mechanics on staff versed in Pierce fire apparatus. The service facility will be located within fifty (50) miles of the fire department.

In addition to the dealership, Pierce has service facilities located in both, Weyauwega, Wisconsin and Bradenton, Florida. Pierce also maintains a dedicated parts facility of over 100,000 square feet in Appleton, Wisconsin. The parts facility stocks in excess of \$5,000,000 in parts dedicated to service and replacement parts. The parts facility employs a staff dedicated solely for the distribution and shipment of service and replacement parts.

Service parts for the apparatus being proposed can be found via Pierceparts.com which, is an interactive online tool that delivers information regarding your specific apparatus as well as the opportunity to register for training classes.

As a Pierce customer you have the ability to view the complete bill of materials for your specific apparatus, including assembly drawings, piece part drawings, and beneficial parts notations. You will also have the ability to search the complete Pierce item master through a parts search function which offers all Pierce SKU's and descriptions offered on all Pierce apparatus. Published component catalogs, which include proprietary systems along with an extensive operators manual library is available for easy reference.

Pierce Manufacturing maintains a dedicated service and warranty staff of over 35 personnel, dedicated to customer support, which also maintains a 24 hour 7 day a week toll free hot line, four (4) on staff EVTs, and offers hands-on repair and maintenance training classes multiple times a year.

LIABILITY

The successful bidder will defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.

INSURANCE PROVIDED BY BIDDER

COMMERCIAL GENERAL LIABILITY INSURANCE

The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:

Each Occurrence\$1,000,000

Products/Completed Operations Aggregate\$1,000,000

Personal and Advertising Injury\$1,000,000

General Aggregate\$2,000,000

Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form and will include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy will include Owner as an additional insured when required by written contract.

COMMERCIAL AUTOMOBILE LIABILITY INSURANCE

The successful bidder will, during the performance of the contract, keep in force at least the following minimum limits of commercial automobile liability insurance and coverage will be written on a Commercial Automobile liability form:

Each Accident Combined Single Limit:\$1,000,000

UMBRELLA/EXCESS LIABILITY INSURANCE

The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Aggregate:\$3,000,000

Each Occurrence:\$3,000,000

The umbrella policy will be written on an occurrence basis and at a minimum provide excess to the bidder's General Liability and Automobile Liability policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Bidder agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as certificate holder.

INSURANCE PROVIDED BY MANUFACTURER

PRODUCT LIABILITY INSURANCE

The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of Product Liability insurance:

Each Occurrence\$1,000,000

Products/Completed Operations Aggregate\$1,000,000

Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form. The manufacturer's policy will include the owner as additional insured when required by written contract between the Owner and a Pierce authorized dealer.

UMBRELLA/EXCESS LIABILITY INSURANCE

The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Each Occurrence:\$25,000,000

Aggregate:\$25,000,000

The umbrella policy will be written on an occurrence basis and provide excess to the manufacturer's General Liability/Products policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Manufacturer agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as the certificate holder.

SINGLE SOURCE MANUFACTURER

Pierce Manufacturing, Inc. provides an integrated approach to the design and manufacture of our products that delivers superior apparatus and a dedicated support team. From our facilities, the chassis, cab weldment, cab, pumphouse (including the sheet metal enclosure, valve controls, piping and operators panel) and body will be entirely designed, tested, and hand assembled to the customer's exact specifications. The electrical system either hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer. Pierce's single source solution adds value by providing a fully engineered product that offers durability, reliability, maintainability, performance, and a high level of quality.

Your apparatus will be manufactured in Appleton, Wisconsin.

NFPA 2016 STANDARDS

This unit will comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.

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

All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points will be identified on the customer approval print and are shown as approximate. Actual location(s) will be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.

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

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

An official of the company will designate, in writing, who is qualified to witness and certify test results.

NFPA COMPLIANCY

Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".

GENERATOR TEST

If the unit has a generator, the generator will be tested, approved, and certified by Underwriters Laboratories at the manufacturer's expense. The test results will be provided to the Fire Department at the time of delivery.

BREATHING AIR TEST

If the unit has breathing air, Pierce Manufacturing will draw an air sample from the air system and certify that the air quality meets the requirements of NFPA 1989, *Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection*.

VEHICLE INSPECTION PROGRAM CERTIFICATION

To assure the vehicle is built to current NFPA 1901 standards, the apparatus, in its entirety, will be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.

A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.

INSPECTION TRIP(S)

The bidder will provide two (2) factory inspection trip(s) for four (4) customer representative(s). The inspection trip(s) will be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals will be the responsibility of the bidder.

BID BOND NOT REQUESTED

A bid bond will not be included. If requested, the following will apply:

All bidders will provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language, which assures that the bidder/principal will give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.

PERFORMANCE BOND

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.

Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current

information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.

If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6112] ("PPI") has increased at a compounded annual growth rate of 5.0% or more between the month Pierce accepts our order ("Order Month") and a month 14 months prior to the then predicted Ready For Pickup date ("Evaluation Month"), then pricing may be updated in an amount equal to the increase in PPI over 5.0% for each year or fractional year between the Order Month and the Evaluation Month.

The seller will document any such updated price for the customer's approval before proceeding and provide an option to cancel the order.

If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6112] ("PPI") has increased at a compounded annual growth rate of 5.0% or more between the month Pierce accepts the order ("Order Month") and a month 14 months prior to the then predicted Ready For Pickup date ("Evaluation Month"), then pricing may be updated in an amount equal to the increase in PPI over 5.0% for each year or fractional year between the Order Month and the Evaluation Month.

The seller will document any such updated price for the customer's approval before proceeding and provide an option to cancel the order.

APPROVAL DRAWING

A drawing of the proposed apparatus will be prepared and provided to the purchaser for approval before construction begins. The Pierce sales representative will also be provided with a copy of the same drawing. The finalized and approved drawing will become part of the contract documents. This drawing will indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce to the purchaser showing any changes made to the approval drawing.

ELECTRICAL WIRING DIAGRAMS

Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.

VELOCITY CHASSIS

The Pierce Velocity® is the custom chassis developed exclusively for the fire service. Chassis provided will be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis will be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required. The chassis will be the manufacturer's first line tilt cab.

WHEELBASE

The wheelbase of the vehicle will be 281.5".

GVW RATING

The gross vehicle weight rating will be 69,000 lbs.

FRAME

The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle. Each rail will have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle. The frame rails will be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.

FRAME REINFORCEMENT

In addition, a mainframe internal liner will be provided. The liner will be an internal "C" design that steps to an internal "L" design over the rear axle. It will be heat-treated steel measuring 12.50" x 3.00" x 0.25" through the front portion of the liner, stepping to 9.38" x 3.00" x 0.25" through the rear portion of the liner. Each liner will have a section modulus of 13.58 cubic inches, yield strength of 110,000 psi, and rbm of 1,494,042 in-lb. Total rbm at wheelbase center will be 4,391,869 in-lb.

The frame liner will be mounted inside of the chassis frame rail and extend the full length of the frame.

FRONT AXLE

The front axle will be a reverse "I" beam type with inclined king pins. It will be a Meritor™ axle, Model MFS-20, with a rated capacity of 23,000 lb.

The turning angle will be 45 degrees to the right and 45 degrees to the left.

STEERING CRAMP ANGLE CERTIFICATION

The fire apparatus manufacturer will provide, at time of bid, a letter from an independent third party testing agency stating they approve the steering cramp angle.

Highly specialized options may limit the cramp.

FRONT SUSPENSION

The front springs will be a Standens, three (3)-leaf, taper leaf design, 54.00" long x 4.00" wide, with a ground rating of 23,000 lb.

The two (2) top leaves will wrap the forward spring hanger pin. The top leaf will also wrap the rear spring hanger pin. Both the front and rear eyes will be Berlin style wraps that will place the eyes in the horizontal plane within the main leaf. This will reduce bending stress from acceleration and braking.

A steel encased rubber bushing will be used in the spring eye. The steel encased rubber bushing will be maintenance free and require no lubrication.

SHOCK ABSORBERS

To provide a smoother ride, the front axle will be furnished with Monroe® Gas-Magnum® 65 heavy-duty telescoping shock absorbers.

FRONT OIL SEALS

Oil seals with viewing window will be provided on the front axle.

FRONT TIRES

Front tires will be Goodyear radials 445/65R22.50, 20 ply all-position Armor Max MSA tread, rated for 24,600 lb maximum axle load and 68 mph maximum speed.

The tires will be mounted on Alcoa 22.50" x 13.00" polished aluminum disc type wheels with a ten (10)stud, 11.25" bolt circle.

REAR AXLE

The rear axle will be a Meritor™, Model RT-46-160, tandem axle assembly with a capacity of 46,000 pounds.

An inter-axle differential, which divides torque evenly between axles, will be provided on the rear axle with an indicator light mounted on the cab instrument panel.

TOP SPEED OF VEHICLE

A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 60 mph/96KPH.

REAR SUSPENSION

Rear suspension will be a Neway Model ADZ246, air ride with a ground rating of 46,000 lb. The suspension will have the following features:

- Outboard vertical mounted heavy-duty shock absorbers
- Integrated v-rod style control rod
- Single piece trailing arm and transverse beam to help reduce axle stress while increasing roll stability or resistance to lean
- Low spring rate air springs for excellent ride quality
- Dual height control valves to maintain level vehicle from side to side

REAR OIL SEALS

Oil seals will be provided on the rear axle(s).

DRIVER CONTROL DIFFERENTIAL LOCK (DCDL)

The rear axle of the rear tandem axle will be equipped with a driver controlled differential lock (DCDL). The control will be located within easy reach of the driver.

REAR TIRES

Rear tires will be eight (8) Goodyear 12R22.50 radials, load range H, Endurance RSA, highway tread, rated for 54,240 lb maximum axle load and 75 mph maximum speed.

The outside tires will be mounted on Alcoa® 22.50" x 8.25" polished aluminum disc wheels with a ten (10) stud, 11.25" bolt circle.

The inside tires will be mounted on Accuride® 22.50" x 8.25" steel disc wheels with a ten (10) stud, 11.25" bolt circle.

TIRE BALANCE

All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.

TIRE PRESSURE MANAGEMENT

There will be a RealWheels LED AirSecure™ tire alert pressure management system provided, that will monitor each tire's pressure. A sensor will be provided on the valve stem of each tire for a total of 10 tires.

The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor will activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.

Removing the cap from the sensor will indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED will immediately start to flash.

CHROME LUG NUT COVERS

Chrome lug nut covers will be supplied on front and rear wheels.

FRONT HUB COVERS

Stainless steel hub covers will be provided on the front axle. An oil level viewing window will be provided.

REAR HUB COVERS

Stainless steel, high hat, hub covers will be provided on the rear axle hubs.

FULL WIDTH REAR MUD FLAP

A full width black mud flap with a custom logo will be installed behind the rear wheels of the apparatus.

The mud flap will be mounted with chain to allow movement when struck by an object.

MUD FLAPS

Mud flaps with a Pierce logo will be installed behind the front and rear wheels.

AUTOMATIC TIRE CHAINS

One (1) pair of ONSPOT automatic tire chains will be provided at the rear. System will be electric over air operated with switch on cab instrument panel. System may be engaged at speeds up to 25 mph and operated at speeds up to 35 mph.

WHEEL CHOCKS

There will be one (1) pair of Worden Safety Products, Model HWG-SB, wheel chocks provided.

Heavy Duty, large molded aluminum wheel chock with solid bottom, natural cast aluminum finish.

WHEEL CHOCK BRACKETS

There will be one (1) pair of Worden Safety model U815T mounting wheel chock brackets provided. The brackets will be mounted left side rear tire, forward and rearward.

ANTI-LOCK BRAKE SYSTEM

The vehicle will be equipped with a Wabco 4S4M, anti-lock braking system. The ABS will provide a four (4) channel anti-lock braking control on both the front and rear wheels (rear tandem wheels). A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any particular wheel begins to lockup, a signal will be sent to the control unit. This control unit then will reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

BRAKES

The service brake system will be full air type by Meritor™.

Front brakes will be Model EX225 Disc Plus, disc type with automatic pad wear adjustment and 17.00" ventilated rotors for improved stopping distance.

The rear brakes will be Meritor™ 16.50" x 7.00" cam operated with automatic slack adjusters. Dust shields will be provided.

BRAKE SYSTEM AIR COMPRESSOR

The air compressor will be a Cummins/WABCO with 18.7 cubic feet per minute output.

BRAKE SYSTEM

The brake system will include:

- Bendix dual brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system capacity of 6,653 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, will be provided with an automatic spring brake application at 40 psi
- A pressure protection valve will be provided to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa).
- Quarter turn drain valves on each air tank

The air tank will be primed and painted to meet a minimum 750 hour salt spray test.

The air tanks will be black #98 .

To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.

BRAKE SYSTEM AIR DRYER

The air dryer will be WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100 watt heater.

BRAKE LINES

Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.

AIR INLET/OUTLET

One (1) air inlet/outlet will be installed with the female coupling located in the driver side lower step well of cab. This system will tie into the "wet" tank of the brake system and include a check valve in the inlet line and an 85 psi pressure protection valve in the outlet line. The air outlet will be controlled by a needle valve.

A mating male coupling will be provided with the loose equipment.

The air inlet will allow a shoreline air hose to be connected to the vehicle. This will allow station air to be supplied to the brake system of the vehicle to insure constant air pressure without the need to open the needle valve, by a series of fittings and a check valve.

All fittings will be Milton "M" brand.

ENGINE

The chassis will be powered by an electronically controlled engine as described below:

Make:	Cummins®
Model:	X15
Power:	565 hp at 1700 rpm
Torque:	1850 lb-ft at 1150 rpm
Governed Speed:	2100 rpm
Emissions Level:	EPA 2027
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	912 cubic inches (14.9L)
Starter:	Delco 39MT+™
Fuel Filters:	Frame mounted spin-on style primary filter with water separator and water-in-fuel sensor. Engine mounted secondary spin-on style filter.

The engine will include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system will give the owner or repair technician access to state of health information for various vehicle sub systems. The system will monitor vehicle systems, engine and after treatment. The system will illuminate a malfunction indicator light on the dash console if a problem is detected.

The engine will be filled with FA-4 10W30 oil as required by Cummins.

HIGH IDLE

A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation.

The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK to Engage High Idle."

ENGINE BRAKE

A Jacobs engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.

The driver will be able to turn the engine brake system on/off and have high, medium and low setting.

The high setting of the brake application will activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine.

The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.

The ABS system will automatically disengage the auxiliary braking device, when required.

CLUTCH FAN

A Horton® fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.

ENGINE AIR INTAKE

An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) will be mounted at the front of the apparatus, on the passenger side of the engine. The ember separator will be mounted in the air intake with flame retardant, roto-molded polyethylene housing. It will be easily accessible by the hinged access panel at the front of the vehicle.

EXHAUST SYSTEM

The exhaust system will be stainless steel from the turbo to the engine's aftertreatment device. The exhaust system will include an aftertreatment device to meet current EPA standards. An insulation wrap will be provided on all exhaust pipe between the turbo and the aftertreatment device to minimize the transfer of heat to the cab.

The exhaust will terminate horizontally ahead of the right side rear wheels and will be extend 2.00" past the body rub rail . The exhaust pipes will be aluminized steel.

There will be an aluminized steel exhaust diffuser with a diameter of 6.00" with a standard straight tip on the end provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

EXHAUST MODIFICATION

An adapter for the Plymovent bladder exhaust extraction system will be provided on the end of the tail pipe.

RADIATOR

The radiator and the complete cooling system will meet or exceed NFPA and engine manufacturer cooling system standards.

For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The core will be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes will be brazed to aluminum headers. The radiator core will have a minimum frontal area of 1434 square inches. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy will be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator will be compatible with commercial antifreeze solutions.

There will be a full steel frame around the entire radiator core assembly. The radiator core assembly will be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator will be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly will be isolated from the chassis frame rails with rubber isolators.

The radiator assembly will include an integral de-aeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap.

A drain port will be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

A heavy-duty fan will draw in fresh, cool air through the radiator. Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.

COOLANT LINES

Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by the chassis manufacturer.

Hose clamps will be stainless steel "constant torque type" to prevent coolant leakage. They will react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

FUEL TANK

A 75 gallon fuel tank will be provided and mounted at the rear of the chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps.

A .75" drain plug will be located in a low point of the tank for drainage.

The engine fuel fill inlet will be located adjacent to the DEF inlet and a single air bottle behind a common door on the driver side of the vehicle. The fuel fill inlet will be marked "Ultra Low Sulfur - Diesel Fuel Only."

A .50" diameter vent will be installed from tank top to just below fuel fill inlet.

The fuel tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.

All fuel lines will be provided as recommended by the engine manufacturer.

DIESEL EXHAUST FLUID TANK

A 4.5 gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the driver's side body forward of the rear axle.

A 0.50" drain plug will be provided in a low point of the tank for drainage.

A fill inlet will be provided and marked "Diesel Exhaust Fluid Only". The fill inlet will be located below the air bottle storage behind a common door on the driver side of the vehicle.

The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.

The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

FUEL PRIMING PUMP

A Cummins automatic electronic fuel priming pump will be integrated as part of the engine.

FUEL SHUTOFF

A fuel line shutoff valve will be installed on both the inlet and outlet of the primary fuel filter.

FUEL COOLER

An air to fuel cooler will be installed in the engine fuel return line.

The fuel filler cap will have a retaining chain and holder provided on the fuel fill door.

FUEL SEPARATOR

The engine will be equipped with a Racor in-line spin-on fuel and water separator in addition to the engine fuel filters.

TRANSMISSION

An Allison 6th generation, Model EVS 4500PR, electronic, torque converting, automatic transmission with retarder will be provided.

The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due.

Two (2) PTO openings will be located on left side and top of converter housing (positions eight (8) o'clock and one (1) o'clock).

A transmission temperature gauge, with amber light and audible alarm, will be installed on the cab instrument panel.

The transmission retarder control will be activated 33 percent by release of the accelerator pedal or 66 percent by slight application of the brake pedal, or 100 percent by heavy application of brake pedal. A second on/off switch is provided to activate and deactivate the auto apply portion.

The transmission will have the 1300 ft. lb. torque (low) spring setting for retardation force.

The transmission retarder will have a master "on/off" switch on the instrument panel. A red indicator light will be provided to warn that the transmission is being overworked.

The retarder will be wired to the brake lights so they are energized when the retarder is slowing the vehicle down.

The ABS system will automatically disengage the auxiliary braking device when required.

TRANSMISSION SHIFTER

A six (6)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation.

The transmission ratio will be: 1st - 4.70 to 1.00, 2nd - 2.21 to 1.00, 3rd - 1.53 to 1.00, 4th - 1.00 to 1.00, 5th - 0.76 to 1.00, 6th - 0.67 to 1.00, R - 5.55 to 1.00.

TRANSMISSION COOLER

An externally mounted Modine bar plate transmission oil cooler will be provided using engine coolant to control the transmission oil temperature. The internal bar plates will be constructed of stainless steel. The cooler's housing will be constructed of 1020 steel, coated to protect from corrosion. The cooler will be tagged with information including OEM part number, vendor serial number and date / lot code.

An externally mounted Modine bar plate transmission oil cooler will be provided using engine coolant to control the transmission retarder oil temperature. The internal bar plates will be constructed of stainless steel. The cooler's housing will be constructed of 1020 steel, coated to protect from corrosion. The cooler will be tagged with information including OEM part number, vendor serial number and date / lot code.

DOWNSHIFT MODE (W/ENGINE BRAKE)

The transmission will be provided with an aggressive downshift mode.

This will provide earlier transmission downshifts to 3rd gear from 6th gear, resulting in improved engine braking performance.

DRIVELINE

Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints.

The shafts will be dynamically balanced before installation.

A splined slip joint will be provided in each driveshaft where the driveline design requires it. The slip joint will be coated with Glidecoat® or equivalent.

STEERING

A Ross, Model TAS-85, steering gear, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and an Eaton, Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines will have wire braided lines with crimped fittings.

A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.

STEERING ASSIST CYLINDER ON FRONT AXLE

To aid in the steering of the apparatus, the front axle will be equipped with a Ross power assist cylinder.

STEERING WHEEL

The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.

LOGO AND CUSTOMER DESIGNATION ON DASH

The dash panel will have an emblem containing the Pierce logo and customer name. The emblem will have three (3) rows of text for the customer's department name. There will be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row.

The first row of text will be: Monroe

The second row of text will be: Rescue

The third row of text will be: *

FRONT WINCH

A Warn Series 15, 15,000 lb electric winch will nest below the top aluminum treadplate surface of the front bumper. A cover will be provided for maintenance and access to the winch

Direction control lever and remote control plug will be provided. The cover will be provided with a pneumatic stay arm on each side hold open device.

Winch will be mounted on a surface that will not flex when the winch is in use, since it could bind working parts of the winch.

Winch will be braced by a three (3) point mount, as recommended by the winch manufacturer.

Winch will have 70 feet of .50" synthetic rope with hook, pre spooled on drum.

Winch will have planetary gearing. Electric motor will have a thermal overload protection switch.

Wire cables to battery will be two (2) gauge or larger. Speed and amperage draw of winch will be variable depending on winch load.

Winch will have a minimum of a 30 foot remote control cable.

A polished fairlead for use with synthetic rope will be supplied of sufficient strength to accommodate the winch capacity.

A label will be placed on or near the mount that states the maximum winch load rating and the maximum rope load rating that the mount can support.

BUMPER

The bumper will be manufactured from 0.25" formed steel with a 0.38" bend radius. The bumper will be 10.00" high with a 1.50" top and bottom flange. The bumper will be one (1) piece with a front face of the bumper to be 81.00" with 9.00" 45 degree corners with side plates extending back to the cab. The bumper will be metal finished and painted job color.

Gravel Pan

A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and cab face. The gravel pan will be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.

LEFT SIDE TOOL BOX

The front bumper extension will have an aluminum tool box installed on the left side. The box will be raised 1.50" above the gravel pan.

Tool Box Cover

A bright aluminum treadplate cover will be provided.

The cover will be attached with a stainless steel hinge.

A single D-ring latch will secure the cover in the closed position and a pneumatic stay arm will hold the cover in the open position.

RIGHT SIDE TOOL BOX

The front bumper extension will have an aluminum tool/chain box installed on the right side. The box will be raised 1.50" above the gravel pan.

Tool Box Cover

A bright aluminum treadplate cover will be provided.

The cover will be attached with a stainless steel hinge.

A single D-ring latch will secure the cover in the closed position and a pneumatic stay arm will hold the cover in the open position.

NO LIFT AND TOW MOUNTS

No lift and tow package will be provided due to the quantity of hitch receivers at the front bumper.

TOW EYES

Two (2) tow eyes will be mounted through the front face of the bumper.

The inner and outer edges of the tow eyes will have a .25" radius.

The tow eyes will be mounted directly to the bumper frame.

Cutouts will be provided in the front face of the stainless steel bumper to allow the tow eyes to extend out the front.

The tow eyes will be designed and positioned to allow up to a 9,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow eyes will not be used for lifting of the apparatus.

The tow eyes will be painted job color.

PORTABLE WINCH RECEIVERS

Two (2) portable winch receivers will be installed under the front bumper extension of the apparatus. Receivers will be one each side, inline with frame rail.

The winch receiver will be constructed of heavy steel tubing, reinforced to the bumper extension framework for the receiving portion. The winch receivers will each be rated for 9,000 pounds.

12 VDC power will be provided between the two (2) receivers.

PORTABLE WINCH RECEIVERS

Two (2) portable winch receivers will be installed under the front bumper extension of the apparatus. They will be located one (1) each end, under the extension, facing the side.

The winch receiver will be constructed of heavy steel tubing and reinforced to the bumper extension framework for the receiving portion. The winch receiver will be a class IV receiver.

A single electrical plug will be provided under the center of the bumper extension, able to supply power to either receiver.

FRONT BUMPER UL-LX COATING

Protective black UL-LX® coating will be provided on the outside exterior of the top front bumper flange. It will not be sprayed on the underside of the flange.

The lining will be properly installed by an authorized UL-LX dealer.

CAB

The Velocity cab will be designed specifically for the fire service and will be manufactured by Pierce Manufacturing.

To provide quality at the source and single source customer support, the cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.

For reasons of structural integrity and enhanced occupant protection, the cab will be of heavy duty design, constructed to the following minimal standards.

The cab will have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar will be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar will also be constructed from 0.25" heavy wall extrusions. The rear wall will be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner aluminum extrusions. All main vertical structural members will run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.

The front of the cab will be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support will be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.

The cab floors will be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area will also be supported with three

(3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing will run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.

The cab will be a full-tilt style. A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

The crew cab will be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The forward cab section will have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section will have a 20.00" raised roof, with an overall cab height of approximately 122.00". The raised portion will start at the most forward point of the B-pillar and continue rearward to the back of the cab. The overall height listed will be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension will increase the overall height listed.

The cab will have an interior width of not less than 93.50". The driver and passenger seating positions will have a minimum 24.00" clear width at knee level.

To reduce injuries to occupants in the seated positions, proper head clearance will be provided. The floor-to-ceiling height inside the forward cab will be no less than 60.25". The floor-to-ceiling height inside the crew cab will be no less than 72.95" in the center position and 78.75" in the outboard positions.

The crew cab will measure a minimum of 47.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.

INTERIOR CAB INSULATION

The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.

FENDER LINERS

Full-circular, aluminum inner fender liners in the wheel wells will be provided.

PANORAMIC WINDSHIELD

A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area will be provided. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from

detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.

WINDSHIELD WIPERS

Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, will be provided. The wiper blades will be 21.65" long and together will clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather.

The windshield washer fluid reservoir will be located at the front of the vehicle and be accessible through the access hood for simple maintenance.

FAST SERVICE ACCESS FRONT TILT HOOD

A full-width access hood will be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator. The hood will also provide complete access to the windshield wiper motor and components. The hood will be contoured to provide a sleek, automotive appearance. The hood will be constructed of two (2) fiberglass panels bonded together and will include reinforcing ribs for structural integrity. The hood will include air cylinders to hold the hood in open and closed positions, and a heavy duty latch system that will meet FMVSS 113 (Hood Latch System). The spring-loaded hood latch will be located at the center of the hood with a double-action release lever located behind the Pierce logo. The two (2)-step release requires the lever first be pulled to the driver side until the hood releases from the first latch (primary latch) then to the passenger side to fully release the hood (secondary latch).

ENGINE TUNNEL

To provide structural strength, the engine tunnel sidewalls will be constructed of 0.50" aluminum plate that is welded to both the 0.25" firewall and .38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges will be tapered.

The back of the engine tunnel will be no higher than 17.50" off the crew cab floor.

The engine tunnel will be insulated on both sides for thermal and acoustic absorption. The underside of the tunnel will be sprayed with insulation. The insulation will keep noise (dBA) levels at or lower than the specifications in the current edition of applicable NFPA standards.

CAB REAR WALL EXTERIOR COVERING

The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.

CAB LIFT

A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump will have a backup manual override, for use in the event of an electrical failure.

The cab lift controls will be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls will include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch will be supplied on a coiled cord that will extend from 2.00' (coiled) to 6.00' (extended).

The cab will be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots will be located 46.00" apart to provide stability while tilting the cab.

The rear of the cab will be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.

For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.

Cab Lift Interlock

The cab lift safety system will be interlocked to the parking brake. The cab tilt mechanism will be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism will be disabled.

GRILLE

A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, will be provided on the front center of the cab, and will serve as an air intake to the radiator.

DOOR JAMB SCUFFPLATES

All cab door jambs will be furnished with a 1.00" polished stainless steel scuffplate, mounted on the striker side of the jamb.

FRONT CAB TRIM

A band of 22 gauge polished stainless steel trim will be installed across the front of the cab, from door hinge to door hinge. The trim band will be centered on the head lights and applied

with two (2)-sided tape. A 0.625" self adhesive trim strip will be applied around the perimeter of the trim band.

There will be polished stainless steel corner covers provided over the painted cab corner where the cab turn signals are located.

MIRRORS

A Retrac, Model 613423, dual vision, motorized, west coast style mirror, with chrome finish, will be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass will be heated and adjustable with remote control within reach of the driver.

FRONT CROSS VIEW MIRROR

An 8.00" diameter convex mirror will be provided over the officer's side front corner of the cab. The mirror will provide the driver with a view of the front bumper and the area several feet in front of the truck.

The mirror housing, tubing, clamps, and hardware will be constructed of corrosion resistant stainless steel.

CAB DOORS

The forward cab and crew cab doors will be the half-height style door. To enhance entry and egress to the cab, the forward cab doors will be a minimum of 43.59" wide x 64.71" high. The crew cab doors will measure a minimum of 37.87" wide x 73.75" high.

The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins will be constructed from 0.090" aluminum.

The forward cab door windows will include a 7.50" high x 10.00" wide drop area at the front to enhance visibility.

A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The finish of the door handle will be chrome/black. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands.

Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.

The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of

activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed.

A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

A chrome grab handle will be provided on the inside of each cab and crew cab door.

A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted.

The cab steps at each cab door location will be located below the cab doors and will be exposed to the exterior of the cab.

Door Panels

The inner cab door panels will be constructed out of brushed stainless steel. The cab door panels will be removable.

RECESSED POCKET WITH ELASTIC COVER

To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior will be provided with recessed storage pockets. The pockets will be 5.63" wide x 2.00" high x 4.00" deep. The pockets will be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets will be installed in all available mounting locations of the overhead console.

ELECTRIC WINDOW CONTROLS

Each cab entry door will be equipped with an electrically operated tempered glass window. A window control panel will be located on the door panel within easy reach of the respective occupant. Each switch will allow intermittent or auto down operation for ease of use. Auto down operation will be actuated by holding the window down switch for approximately 1 second. The driver control panel will contain a control switch for each cab door's window. All other door control panels will contain a single switch to operate the window within that door.

The window switches will be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.

CAB STEPS

The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 31.00"

wide, and the crew cab steps will be 24.25" wide with an 8.00" minimum depth. The inside cab steps will not exceed 18.00" in height and be limited to two (2) steps.

CAB EXTERIOR HANDRAILS

A Hansen knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress. Each handrail will be provided with red LED lights. The lights will be activated when the parking brake is applied. The LED lights may be load managed.

STEP LIGHTS

There will be four (4) white P25 LED step lights provided. The lights will be installed at each cab and crew cab door, one (1) per step. The lights will be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light.

The light(s) will have a chrome housing.

The lights will be activated when the adjacent door is opened.

FENDER CROWNS

Stainless steel fender crowns will be installed at the cab wheel openings. The fender crowns will have a radius outside corner that will allow the fender crown to extend out further than the standard width crown, thus extending beyond the sidewall of the front tires and allow the crew cab doors to open fully.

CREW CAB WINDOWS

One (1) fixed window with tinted glass will be provided on each side of the cab, to the rear of the front cab door. The windows will be sized to enhance light penetration into the cab interior. The windows will measure 20.00" wide x 20.50" high.

WINDOWS INTERIOR TRIM

For improved aesthetics, the cab side windows will include a vacuum formed ABS interior trim panel.

UPPER REAR WINDOWS ON SIDES OF CREW CAB

Two (2) windows will be provided above the crew cab door, along the sides of the raised roof section of the cab, one (1) on each side of the cab. The profile of the glass will match the painted metal side sheet opening, creating a uniform threshold appearance. The windows will be bonded to the vehicle using urethane adhesive. The visibility through each window will

measure 35.25" wide x 7.12" high. The windows will be tinted a privacy, dark gray automotive tint.

BEHIND RIGHT SIDE CAB DOOR WINDOW TINT

The window behind the right side front cab door will be tinted privacy dark gray.

RIGHT SIDE ROLLUP CREW CAB DOOR WINDOW TINT

The rollup window in the right side crew cab door will be tinted privacy dark gray.

LEFT SIDE UPPER CREW CAB DOOR WINDOW TINT

The upper window in the left side crew cab door will be tinted privacy dark gray.

LEFT SIDE ROLLUP CREW CAB DOOR WINDOW TINT

The rollup window in the left side crew cab door will be tinted privacy dark gray.

RIGHT SIDE UPPER CREW CAB DOOR WINDOW TINT

The upper window in the right side crew cab door will be tinted privacy dark gray.

BEHIND LEFT SIDE CAB DOOR WINDOW TINT

The window behind the left side front cab door will be tinted privacy dark gray.

WINDOW PROTECTOR BARS, CREW CAB DOORS

A knurled window protector bar will be installed on each crew cab door, 2.00" above the bottom of the window opening. The bar will extend from the front of the crew cab door to the rear of the crew cab door, mounted as close to the door frame as possible.

MOUNTING PLATE ON ENGINE TUNNEL

Equipment installation provisions will be installed on the engine tunnel.

A 0.25" smooth aluminum plate will be bolted to the top surface of the engine tunnel. The plate will be located to the left of the officer and on the rear of the tunnel. It will follow the contour of the engine tunnel and will run the entire length of the engine tunnel. The plate will be spaced off the engine tunnel 1.00" to allow for wire routing below the plate.

The mounting surface will be painted to match the cab interior.

CAB INTERIOR

With safety as the primary objective, the wrap-around style cab instrument panel will be designed with unobstructed visibility to instrumentation. The dash layout will provide the driver with a quick reference to gauges that allows more time to focus on the road.

The center console will be a high impact ABS polymer and will be easily removable.

The passenger side dashboard will be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash will include a flat working surface.

To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console will also be provided.

To complete the cab front interior design, painted aluminum modesty panels will be provided under the dash on both sides of the cab. The driver side modesty panel will provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners.

To provide a deluxe automotive interior, the engine tunnel, side walls and rear wall will be covered by a leather grain vinyl that is resistant to oil, grease, and mildew.

The headliner will be installed in both forward and rear cab sections. The headliner panel will be a composition of an aluminum panel covered with a sound barrier and upholstery.

The cab structure will include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways will be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor will be covered by aluminum extrusion, while the vertical and overhead raceways will be covered by painted aluminum covers. The raceways will improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses will be laid in place.

CAB INTERIOR UPHOLSTERY

The cab interior upholstery will be 36 oz dark silver gray vinyl. All cab interior materials will meet FMVSS 302 (flammability of interior materials).

CAB INTERIOR PAINT

The following metal surfaces will be painted black, vinyl textured paint:

- Modesty panel in front of driver
- Vertical surface of dash in front of the officer (not applicable for recessed dash)
- Glove box in front of the officer (if applicable)
- Power distribution in front of the officer
- Rear heater vent panels

The remaining cab interior metal surfaces will be painted fire smoke gray, vinyl texture paint.

CAB FLOOR

The cab and crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.

The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.

DEFROST/AIR CONDITIONING SYSTEM

A ceiling mounted combination heater, defroster and air conditioning system will be installed in the cab above the engine tunnel area.

Cab Defroster

A 54,000 BTU heater-defroster unit with 690 SCFM of air flow will be provided inside the cab. The heater-defrost will be installed in the forward portion of the cab ceiling. Air outlets will be strategically located in the cab header extrusion per the following:

- One (1) adjustable will be directed towards the left side cab window
- One (1) adjustable will be directed towards the right side cab window
- Six (6) fixed outlets will be directed at the windshield

The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.

Cab/Crew Auxiliary Heater

There will be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat risers with a dual scroll blower. An aluminum plenum incorporated into the cab structure used to transfer heat to the forward positions.

Air Conditioning

A 19.10 cubic inch compressor will be installed on the engine.

A roof-mounted condenser with a 78,000 BTU output at 2,400 SCFM that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover to be painted to match the cab roof.

The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit will have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.

Adjustable air outlets will be strategically located on the forward plenum cover per the following:

- Four (4) will be directed towards the seating position on the left side of the cab
- Four (4) will be directed towards the seating position on the right side of the cab

Adjustable air outlets will be strategically located on the evaporator cover per the following:

- Five (5) will be directed towards crew cab area

A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be secured with four (4) screws.

The air conditioner refrigerant will be R-134A and will be installed by a certified technician.

Climate Control

An automotive style controller will be provided to control the heat and air conditioning system within the cab. The controller will have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control.

The system will control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature.

The AC system will be manually activated by pushing the center of the temperature control knob.

Pushing the center of the air flow distribution knob will engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.

Gravity Drain Tubes

Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps will be provided.

The drain tubes will terminate under the cab, on the inboard side of the front wheelwells.

SUN VISORS

Two (2) smoked Lexan™ sun visors will be provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.

There will be a black plastic thumb latch provided to help secure each sun visor in the stowed position.

GRAB HANDLE

A black rubber covered grab handle will be mounted on the door post of the driver side and passenger side cab door to assist in entering the cab. The grab handle will be securely mounted to the post area between the door and windshield.

ENGINE COMPARTMENT LIGHTS

There will be one (1) Whelen, Model 3SC0CDCR, 12 volt DC, 3.00" white LED light(s) with Whelen, Model 3FLANGEC, chrome flange kit(s) installed under the cab to be used as engine compartment illumination.

These light(s) will be activated automatically when the cab is raised.

ACCESS TO ENGINE DIPSTICKS

For access to the engine oil and transmission fluid dipsticks, there will be a door on the engine tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the vertical surface. The door will be flush with the wall of the engine tunnel.

The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling. An additional port will be provided for filling the engine oil.

The door will have a rubber seal for thermal and acoustic insulation. One (1) flush lift and turn latch will be provided on the access door.

CAB SAFETY SYSTEM

The cab will be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and will include the following:

- A supplemental restraint system (SRS) sensor will be installed on a structural cab member behind the instrument panel. The SRS sensor will perform real time diagnostics of all critical subsystems and will record sensory inputs immediately before and during a side roll or frontal impact event.
- A slave SRS sensor will be installed in the cab to provide capacity for eight (8) crew cab seating positions.
- A fault-indicating light will be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.

- A driver side front air bag will be mounted in the steering wheel and will be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt.
- A passenger side knee bolster air bag will be mounted in the modesty panel below the dash panel and will be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.
- Air curtains will be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.
- Suspension seats will be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.
- Seat belts will be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.

Frontal Impact Protection

The SRS system will provide protection during a frontal or oblique impact event. The system will activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis will have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor will activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected.

The SRS system will deploy the following components in the event of a frontal or oblique impact event:

- Driver side front air bag
- Passenger side knee bolster air bag
- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats will be retracted to the lowest travel position
- Seat belts will be pre-tensioned to firmly hold the occupant in place

Side Roll Protection

The SRS system will provide protection during a fast or slow 90 degree roll to the side, in which the vehicle comes to rest on its side. The system will analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.

The SRS system will deploy the following components in the event of a side roll:

- Air curtains mounted in the outboard bolster of outboard seat backs

- Suspension seats will be retracted to the lowest travel position
- Seat belts will be pre-tensioned to firmly hold the occupant in place

SEATING CAPACITY

The seating capacity of the vehicle (including tiller cab and belted seat positions in the rescue body) will be six (6).

DRIVER SEAT

A Pierce PS6® seat will be provided in the cab for the driver. The seat design will be a cam action type with air suspension. For increased convenience, the seat will include electric controls to adjust the rake (15 degrees), height (1.75" travel) and horizontal (7.00" travel) position. Electric controls will be located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 20 degrees back to 45 degrees forward. Providing for maximum comfort, the seat back will be a high back style with manual lumbar adjustment lever, for lower back support, and will include minimum 7.50" deep side bolster pads for maximum support. The lumbar adjustment lever will be easily located at the lower outboard position of the seat cushion. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control).

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A suspension seat safety system will be included. When activated in the event of a side roll, this system will pretension the seat belt and retract the seat to its lowest travel position.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

OFFICER SEAT

A Pierce PS6® seat will be provided in the cab for the passenger. The seat will be a cam action type with air suspension. For increased convenience, the seat will include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not belted.

The seat back will be an SCBA back style with 7.5 degree fixed recline angle, and will include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A suspension seat safety system will be included. When activated, this system will pretension the seat belt and then retract the seat to its lowest travel position.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

REAR FACING DRIVER SIDE OUTBOARD SEAT

There will be one (1) rear facing, Pierce PS6® seat provided at the driver side outboard position in the crew cab. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle. It will activate an alarm indicating a seat is occupied but not buckled.

The seat back will be an SCBA back style with 7.5 degree fixed recline angle, and will include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A seat safety system will be included. When activated, this system will pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

REAR FACING PASSENGER SIDE OUTBOARD SEAT

There will be one (1) rear facing, Pierce PS6® seat provided at the passenger side outboard position in the crew cab. For optimal comfort, the seat will be provided with 17.00" deep dual

density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled. The seat back will be an SCBA back style with 7.5 degree fixed recline angle, and will include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity will be adjustable from front to rear in 1.00" increments to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A seat safety system will be included. When activated, this system will pretension the seat belt and firmly hold the occupant in the event of a side roll.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

FORWARD FACING CENTER SEATS

There will be two (2) forward facing flip-up seats provided at the center position in the crew cab. The seat backs will have an aluminum backing, covered with foam padded upholstery. The seat bottoms will be constructed of a piece of plywood covered with foam rubber and upholstery. The bottom cushion will have its bottom covered with brushed stainless steel, for a pleasant appearance when the seat bottom is in the up position. To ensure safe operation, the seats will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.

The seats will include the following feature incorporated into the side roll protection system:

- A seat safety system will be included. When activated, this system will pretension the seat belts around the occupants to firmly hold them in place in the event of a side roll.

The seats will be furnished with 3-point, shoulder type seat belts.

REAR FACING OVERHEAD STORAGE COMPARTMENT

There will be two (2) overhead rear facing storage compartments installed at the raised roof within the crew cab, on each side of the air conditioner. The compartments will be approximately 22.00" wide x 20.00" high x 20.00" deep at the bottom.

Each compartment will include one (1) lift up compartment door. Non-locking latch, paddle handle, and gas operated stay arms will be provided.

The compartment will be constructed of smooth aluminum and painted to match the cab interior.

COMPARTMENT LIGHT

The storage compartment lighting will consist of one (1) white LED strip light installed horizontally above each compartment door opening.

FORWARD FACING OVERHEAD STORAGE COMPARTMENT

There will be an overhead forward facing storage compartment installed at the raised roof within the crew cab. The compartment will be approximately 78.00" wide x 10.00" high x 12.00" deep.

The compartment will include two (2) lift up compartment doors. Non-locking latch paddle handle latches and gas operated stay arms will be provided. The compartment will be provided with a divider between each door opening.

The storage compartment lighting will consist of one (1) white LED strip light installed horizontally above each compartment door opening.

The compartments will be constructed of smooth aluminum, and painted to match the cab interior.

SEAT UPHOLSTERY

All seat upholstery will be leather grain 36 oz dark silver gray vinyl resistant to oil, grease and mildew. The cab will have six (6) seating positions.

AIR BOTTLE HOLDERS

All SCBA type seats in the cab will have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket will include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp will constrain the SCBA bottle in the seat and will exceed the NFPA standard of 9G.

There will be a quantity of three (3) SCBA brackets.

SEAT BELTS

All seating positions in the cab, crew cab and tiller cab (if applicable) will have red seat belts.

To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of applicable NFPA and CAN/ULC - S515 standards.

The 3-point shoulder type seat belts will also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.

Any flip up seats will include a 3-point shoulder type belts only.

SHOULDER HARNESS HEIGHT ADJUSTMENT

All seating positions furnished with 3-point shoulder type seat belts will include a height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter.

A total of six (6) seating positions will have the adjustable shoulder harness.

HELMET STORAGE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided.

There is no helmet storage on the apparatus as manufactured. The fire department will provide a location for storage of helmets.

CAB DOME LIGHTS

There will be four (4) dual LED dome lights with black bezels provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and two (2) lights will be installed and located, one (1) on each side of the crew cab.

The color of the LED's will be red and white.

The white LED's will be controlled by the door switches and the lens switch.

The color LED's will be controlled by the lens switch.

In order to ensure exceptional illumination, each white LED dome light will provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when mounted 40.00" above the seat.

ENHANCED SOFTWARE FOR CAB AND CREW CAB DOME LIGHTS

The cab and crew cab dome lights will remain on for 10 seconds for improved visibility after the doors are closed.

The dome lights will dim after 10 seconds or immediately if the vehicle's transmission is put into gear.

PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 10.9.3 requires two portable hand lights mounted in brackets fastened to the apparatus.

The hand lights are not on the apparatus as manufactured. The fire department will provide and mount these hand lights.

CAB INSTRUMENTATION

The cab instrument panel will consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels will be designed to be removable for ease of service and low cost of ownership.

Gauges

The gauge panel will include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:

- Voltmeter gauge (Volts)
 - Low volts (11.8 VDC)
 - Amber indicator on gauge assembly with alarm
 - High volts (15 VDC)
 - Amber indicator on gauge assembly with alarm
 - Very low volts (11.3 VDC)
 - Amber indicator on gauge assembly with alarm
 - Very high volts (16 VDC)
 - Amber indicator on gauge assembly with alarm
- Tachometer (RPM)
- Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)
- Fuel level gauge (Empty - Full in fractions)
 - Low fuel (1/8 full)
 - Amber indicator on gauge assembly with alarm
 - Very low fuel (1/32) fuel
 - Amber indicator on gauge assembly with alarm
- Engine oil pressure gauge (PSI)
 - Low oil pressure to activate engine warning lights and alarms
 - Red indicator on gauge assembly with alarm
- Front air pressure gauge (PSI)
 - Low air pressure to activate warning lights and alarm
 - Red indicator on gauge assembly with alarm
- Rear air pressure gauge (PSI)
 - Low air pressure to activate warning lights and alarm
 - Red indicator on gauge assembly with alarm

- Transmission oil temperature gauge (Fahrenheit)
 - High transmission oil temperature activates warning lights and alarm
 - Amber indicator on gauge assembly with alarm
- Engine coolant temperature gauge (Fahrenheit)
 - High engine temperature activates an engine warning light and alarm
 - Red indicator on gauge assembly with alarm
- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)
 - Low fluid (1/8 full)
 - Amber indicator on gauge assembly with alarm

All gauges and gauge indicators will perform prove out at initial power-up to ensure proper performance.

Indicator Lamps

To promote safety, the following telltale indicator lamps will be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols.

The following amber telltale lamps will be present:

- Low coolant
- Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Aux brake overheat (Auxiliary brake overheat)
- Air rest (air restriction)
- Caution (triangle symbol)
- Water in fuel
- DPF (engine diesel particulate filter regeneration)
- Trailer ABS (where applicable)
- Wait to start (where applicable)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- SRS (supplemental restraint system) fault (where applicable)
- DEF (low diesel exhaust fluid level)

The following red telltale lamps will be present:

- Warning (stop sign symbol)
- Seat belt

- Parking brake
- Stop engine
- Rack down

The following green telltale lamps will be provided:

- Left turn
- Right turn
- Battery on

The following blue telltale lamp will be provided:

- High beam

Alarms

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

Audible pulsing tone caution alarm: A pulsing audible tone alarm (chime/chirp) will be provided whenever a caution message is present without a warning message being present.

Alarm silence: Any active audible alarm will be able to be silenced by holding the ignition switch at the top position for 3 to 5 seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

Indicator Lamp and Alarm Prove-Out

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

Control Switches

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

Emergency master switch: A molded plastic push button switch with integral indicator lamp will be provided. Pressing the switch will activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.

Headlight / Parking light switch: A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking lights and the headlights. The second switch position will activate the parking lights. The third switch position will activate the headlights.

Panel backlighting intensity control switch: A three (3)-position momentary rocker switch will be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.

The following standard controls will be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.

High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp will be provided. The first switch position is the default switch position. The second switch position will activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.

"Ok To Engage High Idle" indicator lamp: A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

The following standard controls will be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches will have backlit labels for low light applications.

Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will deactivate vehicle ignition. The second switch position will activate vehicle ignition. The third momentary position will disable the Command Zone audible alarm if held for 3 to 5 seconds. A green indicator lamp will be activated with vehicle ignition.

Engine start switch: A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

4-way hazard switch: A two (2)-position maintained rocker switch will be provided. The first switch position will deactivate the 4-way hazard switch function. The second switch position will activate the 4-way hazard function. The switch actuator will be red and includes the international 4-way hazard symbol.

Heater, defroster, and air conditioning control panel.

Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls will be provided. The windshield wiper control will have high, low, and intermittent modes.

Parking brake control: An air actuated push/pull park brake control valve will be provided.

Chassis horn control: Activation of the chassis horn control will be provided through the center of the steering wheel.

Custom Switch Panels

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches will have backlit labels for low light applications.

Diagnostic Panel

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

The diagnostic panel will include the following:

- Engine diagnostic port
- Transmission diagnostic port
- ABS diagnostic port
- SRS diagnostic port (where applicable)
- Command Zone USB diagnostic port
- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)
- Diesel particulate filter regeneration switch (where applicable)
- Diesel particulate filter regeneration inhibit switch (where applicable)

Cab LCD Display

A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel. The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function. The upper left section will display the outside ambient temperature.

The upper right section will display, along with other configuration specific information:

- Odometer
- Trip mileage
- PTO hours
- Fuel consumption
- Engine hours

The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm. The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.

AIR RESTRICTION INDICATOR

A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm will be provided.

"DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On."

The same circuit that activates the Do Not Move Apparatus indicator will activate a pulsing alarm when the parking brake is released.

DO NOT MOVE TRUCK MESSAGES

Messages will be displayed on the Command Zone™, color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages will designate the item or items not in the stowed for vehicle travel position (parking brake disengaged).

The following messages will be displayed (where applicable):

- Do Not Move Truck
- DS Cab Door Open (Driver Side Cab Door Open)
- PS Cab Door Open (Passenger's Side Cab Door Open)
- DS Crew Cab Door Open (Driver Side Crew Cab Door Open)
- PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)
- DS Body Door Open (Driver Side Body Door Open)
- PS Body Door Open (Passenger's Side Body Door Open)
- Rear Body Door Open
- DS Ladder Rack Down (Driver Side Ladder Rack Down)
- PS Ladder Rack Down (Passenger Side Ladder Rack Down)
- Deck Gun Not Stowed
- Lt Tower Not Stowed (Light Tower Not Stowed)
- Fold Tank Not Stowed (Fold-A-Tank Not Stowed)
- Aerial Not Stowed (Aerial Device Not Stowed)
- Stabilizer Not Stowed
- Steps Not Stowed
- Handrail Not Stowed

Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved will be displayed as a caution message after the parking brake is disengaged.

SWITCH PANELS

The emergency light switch panel will have a master switch for ease of use plus individual switches for selective control. Each switch panel will contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments will include non-functioning black appliques. Documentation will be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) will be located in the overhead position above the windshield on the driver side overhead to allow for easy access.

Additional switch panel(s) will be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.

The switches will be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch will be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch will flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed in the center of the switch. The label will allow light to pass through the letters for ease of use in low light conditions.

WIPER CONTROL

For simple operation and easy reach, the windshield wiper control will be an integral part of the directional light lever located on the steering column. The wiper control will include high and low wiper speed settings, a one (1)-speed intermittent wiper control and windshield washer switch. The control will have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.

SPARE CIRCUIT

There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

- The positive wire will be connected directly to the battery power.
- The negative wire will be connected to ground.
- Wires will be protected to 20 amps at 12 volts DC.
- Power and ground will terminate driver's side EMS compartment high on the side rearward wall.
- Termination will be with heat shrinkable butt splicing.

Wires will be sized to 125 percent of the protection.

This circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT

There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

- The positive wire will be connected directly to the battery power
- The negative wire will be connected to ground
- Wires will be protected to 15 amps at 12 volts DC
- Power and ground will terminate officer side dash area
- Termination will be with 15 amp, power point plug with rubber cover
- Wires will be sized to 125 percent of the protection

The circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT

There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

- The positive wire will be connected directly to the battery power
- The negative wire will be connected to ground
- Wires will be protected to 20 amps at 12 volts DC
- Power and ground will terminate on the officer's side of the engine tunnel and on the driver's side of the engine tunnel
- Termination will be with heat shrinkable butt splicing
- Wires will be sized to 125% of the protection

This circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT

There will be four (4) Blue Sea System, Model 5032, 12 circuit total fuse block, split into two (2), 6 circuits sections with negative bus bar. The fuse block will include a cover with circuit labels.

The wires for the fuse block will have the following features:

- The positive wire to control the first 6 circuits will be protected to 10 amps and connected directly to the battery power.

- The positive wire to control the second 6 circuits will be protected to 10 amps and connected directly to the battery power.
- The negative wire will be connected to ground.
- Power, ground and fuse block(s) will terminate TBD.
- Wires will be sized to 125 percent of the protection.

This circuit(s) may be load managed when the parking brake is set.

INFORMATION CENTER

An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing.

The information center will have the following specifications:

- Operate in temperatures from -40 to 158 degrees Fahrenheit
- LCD optically bonded to hardened AR glass lens
- Five weather resistant user interface switches
- Grey with black accents
- Sunlight Readable
- Linux operating system
- Minimum of 1000nits rated display
- Display can be changed to an available foreign language
- A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area.
- Programmed to read US Customary

General Screen Design

Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used.

If a caution or warning situation arises the following will occur:

- An amber background/text color will indicate a caution condition
- A red background/text color will indicate a warning condition
- The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.

- A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.

Home/Transit Screen

This screen will display the following:

- Vehicle Mitigation (if equipped)
- Water Level (if the water level system includes compatible communications to the information center)
- Foam Level (if the foam level system includes compatible communications to the information center)
- Seat Belt Monitoring Screen
- Tire Pressure Monitoring (if equipped)
- Digital Speedometer
- Active Alarms

On Scene Screen

This screen will display the following and will be auto activated with pump engaged (if equipped):

- Battery Voltage
- Fuel
- Oil Pressure
- Coolant Temperature
- RPM
- Water Level (if equipped)
- Foam Level (if equipped)
- Foam Concentration (if equipped)
- Water Flow Rate (if equipped)
- Water Used (if equipped)
- Active Alarms

Virtual Buttons

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

Page Screen

The page screen will display the following and allow the user to progress into other screens for further functionality:

- Diagnostics

- Faults
 - Listed by order of occurrence
 - Allows to sort by system
- Interlock
 - Throttle Interlocks
 - Pump Interlocks (if equipped)
 - Aerial Interlocks (if equipped)
 - PTO Interlocks (if equipped)
- Load Manager
 - A list of items to be load managed will be provided. The list will provide a description of the load.
 - The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.
 - The screen will indicate if a load has been shed (disabled) or not shed.
 - "At a glance" color features are utilized on this screen.
- Systems
 - Command Zone
 - Module type and ID number
 - Module Version
 - Input or output number
 - Circuit number connected to that input or output
 - Status of the input or output
 - Power and Constant Current module diagnostic information
 - Foam (if equipped)
 - Pressure Controller (if equipped)
 - Generator Frequency (if equipped)
- Live Data
 - General Truck Data
- Maintenance
 - Engine oil and filter
 - Transmission oil and filter
 - Pump oil (if equipped)
 - Foam (if equipped)
 - Aerial (if equipped)
- Setup
 - Clock Setup
 - Date & Time
 - 12 or 24 hour format
 - Set time and date
 - Backlight

- Daytime
 - Night time
 - Sensitivity
- Unit Selection
- Home Screen
- Virtual Button Setup
- On Scene Screen Setup
- Configure Video Mode
 - Set Video Contrast
 - Set Video Color
 - Set Video Tint
- Do Not Move
 - The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicated
 - Driver Side Cab Door
 - Passenger's Side Cab Door
 - Driver Side Crew Cab Door
 - Passenger's Side Crew Cab Door
 - Driver Side Body Doors
 - Passenger's Side Body Doors
 - Rear Body Door(s)
 - Ladder Rack (if applicable)
 - Deck Gun (if applicable)
 - Light Tower (if applicable)
 - Hatch Door (if applicable)
 - Stabilizers (if applicable)
 - Steps (if applicable)
- Notifications
 - View Active Alarms
 - Shows a list of all active alarms including date and time of the occurrence is shown with each alarm
 - Silence Alarms - All alarms are silenced
- Timer Screen
- HVAC (if equipped)
- Tire Information (if equipped)
- Ascendant Set Up Confirmation (if equipped)

Button functions and button labels may change with each screen.

COLLISION MITIGATION

There will be a HAAS Alert®, Model HA7 Responder-to-Vehicle (R2V) collision avoidance system provided on the apparatus. The HA7 cellular transponder module will be installed behind the cab windshield, as high and near to the center as practical, to allow clear visibility to the sky. The module dimensions are 5.40" long x 2.70" wide x 1.30" high, and operating temperature range is -40 degree C to 85 degree C.

The transponder will be connected to the vehicle's emergency master circuit and battery direct power and ground.

While responding with emergency lights on, the HA7 transponder sends alert messages via cellular network to motorists in the vicinity of the responding truck that are equipped with the WAZE app.

While on scene with emergency lights on, the HA7 transponder sends road hazard alerts to motorists in the vicinity of the truck that are equipped with the WAZE app.

The HA7 Responder-to-Vehicle (R2V) collision avoidance system will include the transponder and a 5 year cellular plan subscription.

Activation of the HAAS Alert system requires a representative of the customer to accept the End User License Agreement (EULA) via an on-line portal.

VEHICLE DATA RECORDER

There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position

- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time
- Date - Year/Month/Day

Seat Belt Monitoring System

A seat belt monitoring system (SBMS) will be provided on the color display. The SBMS will be capable of monitoring up to 6 cab and 4 body interior seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated
- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm

The seat belt monitoring screen will become active on the color display when:

- The home screen is active:
 - and there is any occupant seated but not buckled or any belt buckled with an occupant.
 - and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS will be activated.

The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

INTERCOM SYSTEM

There will be digital, single radio interface, intercom located TBD in the cab. The front panel will have master volume and squelch controls with illuminated indicators, allowing for independent level setting of radio and auxiliary audio devices.

There will be one (1) radio listen only / transmit control with select, monitor, receive, and transmit indicators. There will be one (1) auxiliary audio input with select, and receive indicators.

There will be one (1) wireless base station for up to five (1-5) headset users provided.

The wireless base station will have a 100' to 1100' range, line of sight. Objects between the transmitter and receiver affect range.

The following Firecom components will be provided:

- One (1) 5100D Intercom
- One (1) WB505R wireless base station (1-5 wireless positions)
- All necessary power and station cabling

RADIO / INTERCOM INTERFACE CABLE

The apparatus manufacturer will supply and install one (1) radio interface cable before delivery of the vehicle.

The radio equipment to be used by the customer will be:

- Motorola High Power , Model number Motorola, Model APX 7500, high power.

WIRELESS UNDER HELMET, RADIO TRANSMIT ONLY HEADSET

There will be two (2) Firecom™, Model UHW-505, wireless under the helmet, radio transmit headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided driver's seat and officer seat.

Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Stereo Listen-Through Ear dome microphones
- Radio Push To Transmit button (Left or Right Side)
- Rechargeable battery operates for 24 hours on a full charge
- IP-66 when worn

WIRELESS UNDER HELMET, INTERCOM ONLY HEADSET

There will be two (2) Firecom™, Model UHW-503 wireless under the helmet, intercom only headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided (1) at each rear facing outboard crew cab seat.

Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Programmable Microphone transmit button
- Rechargeable battery operates 24 hours on a full charge
- IP-66 when worn

GPS / MULTIMODE ANTENNA INSTALLATION

There will be one (1) customer supplied GPS / Multimode antenna(s) with stud mount for thick roof material to be installed on the roof. The antenna coax cable(s) will be run per the packing list / instructions provided to the third party installer.

Specific shipping requirements will be followed. The GPS / Multimode antenna will be sent to the apparatus manufacturers preferred installer prior to cab fabrication.

TWO WAY RADIO INSTALLATION

There will be one (1) customer supplied two way radio(s) sent to the apparatus manufacturers preferred radio installer to be installed TBD per the shipping document.

No antenna mount or whip will be included in this option.

Specific radio shipping requirements will be followed.

RADIO ANTENNA MOUNT

There will be two (2) standard 1.125", 18 thread antenna-mounting base(s) installed on the right side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the instrument panel area. A weatherproof cap will be installed on the mount.

VEHICLE CAMERA SYSTEM

There will be a color vehicle camera system provided with the following:

- One (1) Analog High Definition (AHD) white camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse.
- One (1) AHD camera located on the right side of the apparatus, pointing rearward, displayed automatically with the right side turn signal.

The camera images will be displayed on a 7.00" High Definition (HD) display with sun shield located in view of the driver in the custom dash, per instrument panel layout. The display will include manual camera activation capability and audio from the rear camera only.

The following components will be included:

- One (1) HD700136DC Display
- One (1) 1080p AHD Rear camera
- One (1) 1080p AHD Side camera
- All necessary cables

CAMERA SWITCHER

A camera switcher is not required.

ELECTRICAL POWER CONTROL SYSTEM

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

Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.

Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.

Solid-State Control System

A solid-state electronics based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules, electronic control modules to include black housings, a power indicator and status indicator located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices.

The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.

For increased reliability and simplified use the control system modules will include the following attributes:

- Green LED indicator light for module power
- Red LED indicator light for network communication stability status
- Control system self test at activation and continually throughout vehicle operation
- No moving parts due to transistor logic
- Software logic control for NFPA mandated safety interlocks and indicators
- Integrated electrical system load management without additional components

- Integrated electrical load sequencing system without additional components
- Customized control software to the vehicle's configuration
- Factory and field programmable to accommodate changes to the vehicle's operating parameters

To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:

- Module circuit board will meet SAE J771 specifications
- Operating temperature from -40C to +70C
- Storage temperature from -40C to +70C
- Vibration to 50g

IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)

Operating voltage from eight (8) volts to 32 volts DC

The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.

Circuit Protection and Control Diagram

Copies of all job-specific, computer network input and output (I/O) connections will be provided with each chassis. The sheets will indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

On-Board Electrical System Diagnostics

The on-board information center will include the following diagnostic information:

- Text description of active warning or caution alarms
- Simplified warning indicators
- Amber caution indication with intermittent alarm
- Red warning indication with steady tone alarm

Advanced diagnostic feature will be provided in this control system. From the Command Zone display or connected wireless device, these features allow the user to monitor the real-time status of every input or output on the vehicle. It also allows users logged in as an administrator to force on inputs or outputs to assist the troubleshooting process.

TCU Module with WiFi

An in cab module will provide WiFi wireless interface and data logging capability. The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz.

The module will communicate through a white WiFi antenna allowing a line of site communication range of up to 300 feet with a roof mounted antenna.

The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the Command Zone™, control and information system.

The TCU capability will record faults from the engine, transmission, ABS and Command Zone™, control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data TCU will provide up to 2 Gigabytes of data storage.

The TCU will provide a means to download the TCU information and update software in the device.

Indicator Light and Alarm Prove-Out System

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

Voltage Monitor System

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

Dedicated Radio Equipment Connection Points

There will be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment. The studs will consist of the following:

- 12-volt 40-amp battery switched power
- 12-volt 60-amp ignition switched power
- 12-volt 60-amp direct battery power

There will also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

EMI/RFI Protection

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

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

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

ELECTRICAL SYSTEM PROGNOSTICS

There will be a software based vehicle tool provided to predict remaining life of the vehicles critical fluid and events.

The system will send automatic indications to the Command Zone™ information center and/or wireless enabled devices to proactively alert of upcoming service intervals.

Prognostics will include the following:

- Engine oil and filter
- Transmission oil and filter

ELECTRICAL

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

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

1. All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.
2. Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.

3. Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.
4. Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug).
5. All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.
6. All electrical terminals in exposed areas will have silicon applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests will be recorded and provided to the purchaser at time of delivery.

BATTERY SYSTEM

There will be four (4) 12 volt Stryten/Exide®, Model 31S950X5W, batteries that include the following features will be provided:

- 950 CCA, cold cranking amps
- 190 amp reserve capacity
- High cycle
- Group 31
- Rating of 3800 CCA at 0 degrees Fahrenheit
- 760 minutes of reserve capacity
- Threaded stainless steel studs

Each battery case will be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover will be manifold vented with a central venting location to allow a 45 degree tilt capacity.

The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

BATTERY SYSTEM

There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.

MASTER BATTERY SWITCH

There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.

An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.

BATTERY COMPARTMENTS

The batteries will be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments will be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments will include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries will be mounted inside of the roto-molded trays.

JUMPER STUDS

One (1) set of battery jumper studs with plastic color-coded covers will be installed on the battery box on the driver's side. This will allow enough room for easy jumper cable access.

BATTERY CHARGER

There will be a Kussmaul™, Chief Series Smart Charger 4012, product code 091-266-12-40, 40 amp battery charger with build-in touch screen display provided.

The battery charger will be wired to the AC shoreline inlet through a junction box located near the battery charger.

The battery charger will be located in the cab behind the driver seat.

AUTO EJECT FOR SHORELINE

There will be one (1) Kussmaul™, Model 091-55-20-120, 20 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.

The shoreline inlet(s) will include red weatherproof flip up cover(s).

There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.

The shoreline(s) will be connected to the battery charger.

There will be a mating connector body supplied with the loose equipment.

There will be a label installed near the inlet(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

The shoreline receptacle will be located on the driver side of bumper extension.

GENERATOR TO SHORELINE TRANSFER SWITCH

There will be an automatic transfer switch between the onboard generator and the shoreline inlet. The loads connected to the transfer switch will be power from the onboard generator when the generator is running.

ELECTRIC POWER FOR WINCH

Electric power provisions will be furnished for the portable winch from the chassis battery system.

The receiver plug will be located all receiver locations.

A total quantity of four (4) receptacles will be provided.

ALTERNATOR

A Delco Remy®, Model 55SI, alternator will be provided. It will have a rated output current of 430 amps, as measured by SAE method J56. The alternator will feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

ELECTRONIC LOAD MANAGER

An electronic load management (ELM) system will be provided that monitors the vehicle's 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.

For improved reliability and ease of use, the load manager system will be an integral part of the vehicle's solid state control system requiring no additional components to perform load management tasks. Load management systems which require additional components will not be allowed.

The system will include the following features:

- System voltage monitoring.

- A shed load will remain inactive for a minimum of five minutes to prevent the load from cycling on and off.
- Sixteen available electronic load shedding levels.
- Priority levels can be set for individual outputs.
- High Idle to activate before any electric loads are shed and deactivate with the service brake.
 - If enabled:
 - "Load Man Hi-Idle On" will display on the information center.
 - Hi-Idle will not activate until 30 seconds after engine start up.
- Individual switch "on" indicator to flash when the particular load has been shed.
- The information center indicates system voltage.

The information center, where applicable, includes a "Load Manager" screen indicating the following:

- Load managed items list, with priority levels and item condition.
- Individual load managed item condition:
 - ON = not shed
 - SHED = shed

SEQUENCER

A sequencer will be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation will allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.

For improved reliability and ease of use, the load sequencing system will be an integral part of the vehicle's solid state control system requiring no additional components to perform load sequencing tasks. Load sequencing systems which require additional components will not be allowed.

Emergency light sequencing will operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights will be activated one by one at half-second intervals. Sequenced emergency light switch indicators will flash while waiting for activation.

When the emergency master switch is deactivated, the sequencer will deactivate the warning light loads in the reverse order.

Sequencing of the following items will also occur, in conjunction with the ignition switch, at half-second intervals:

- Cab Heater and Air Conditioning

- Crew Cab Heater (if applicable)
- Crew Cab Air Conditioning (if applicable)
- Exhaust Fans (if applicable)
- Third Evaporator (if applicable)

HEADLIGHTS

There will be a HiViz part number FT-4X6-4KIT, that includes four (4) 4.00" high x 6.00" long rectangular LED lights with parking lamp illumination around the outside of the lamps mounted in the front quad style, chrome housing on each side of the cab grille:

- the outside lamp on each side will contain a part number FT-4X6-HL with low beam LEDs
- the inside lamp on each side will contain a part number FT-4X6-H with high beam LEDs
- the lights will be controlled through the headlight switch

DIRECTIONAL LIGHTS

There will be two (2) Whelen 600® series, LED combination directional/marker lights provided. The lights will be located on the outside cab corners, next to the headlights.

The color of the lenses will be the same color as the LED's.

INTERMEDIATE LIGHT

There will be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light will double as a turn signal and marker light.

CAB CLEARANCE/MARKER/ID LIGHTS

There will be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

- Three (3) amber LED identification lights will be installed in the center of the cab above the windshield.
- Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield.
- Two (2) amber LED marker lights will be installed, one (1) on each side above the cab doors.

REAR CLEARANCE/MARKER/ID LIGHTING

There will be a three (3) LED light bar used as identification lights located at the rear of the apparatus per the following:

- As close as practical to the vertical centerline

- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height

There will be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear
- All at the same height

There will be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

Per FMVSS 108 and CMVSS 108 requirements.

REAR FMVSS LIGHTING

There will be the following stop/tail and directional lighting provided at the rear of the truck:

- Two (2) Whelen®, Model 604BTT*, red LED stop/tail lights
- Two (2) Whelen, Model 604T, amber LED directional lights
- The light heads will have color lenses

The lights will be mounted in a polished combination housing.

Two (2) Whelen®, Model 604BU, LED backup lights will be provided.

LICENSE PLATE BRACKET

One (1) license plate bracket constructed of stainless steel will be provided at the rear of the apparatus.

One (1) white LED light with chrome housing will be provided to illuminate the license plate. A stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.

LIGHTING BEZEL

There will be two (2) Whelen®, Model CAST4V, quad light polished aluminum housing for vertically mounting four (4) Whelen 600 series lights provided at the rear of the apparatus.

BACK-UP ALARM

A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

CAB PERIMETER SCENE LIGHTS

There will be four (4) TecNiq, Model T10-LC00-1, 15.00" lights with white LEDs and 45 degree stainless steel brackets provided per the following:

- one (1) under the driver's side cab access step
- one (1) under the passenger's side cab access step
- one (1) under the passenger's side crew cab access step
- one (1) under the driver's side crew cab access step

The lights will be activated when the battery switch is on, when the respective door is open and by the same control selected for the body perimeter lights.

BODY PERIMETER SCENE LIGHTS

There will be two (2) TecNiq, Model T10-LC00-1, 15.00" 12 volt DC LED strip lights provided at the rear step area of the body, one (1) each side shining to the rear.

The perimeter scene lights will be activated when the parking brake is applied.

ADDITIONAL PERIMETER LIGHTS

There will be two (2) Amdor part number LB-12HW040 700 lumens 40.00" 12 volt DC light strips with white LEDs and 45 degree anodized aluminum bracket provided under the rear of the apparatus to illuminate the full width mud flap.

The light(s) will be activated when the parking brake is applied.

ENHANCED SOFTWARE FOR PERIMETER LIGHTS

All perimeter lights will be deactivated when the parking brake is released unless alternate control is selected.

The cab and crew cab perimeter lights will remain on for ten (10) seconds for improved visibility after the doors closed.

STEP LIGHTS

Two (2) white LED step lights will be provided. The step lights will be provided at the rear walk through door of body.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

The step lights will be controlled by the automatic door switch, that is located on the rear walk-in door.

All other steps on the apparatus will be illuminated per the current edition of applicable NFPA standards.

12 VOLT LIGHTING

There will be a HiViz Model FT-B-X-72-*-* , 2.56" high x 72.00" long x 3.31" deep 21,251.57 effective lumens 12 volt DC LED light provided on the front cab roof as far forward as practical. The light will include white scene LEDs. The white LEDs will be configured with a combination of flood and spot optics.

The painted parts of the light housing and brackets to be white.

The scene LEDs will be activated by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.

The white LEDs may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) HiViz®, Model FT-GESM, 20,500 equivalent lumens 8.65" high x 10.61" wide x 2.78" deep light(s) with white LEDs installed on the cab high on right side, between cab and crew cab doors. The light(s) to include chrome optic holders, chrome bezel and white fixture body paint and white circuit boards.

The light(s) will be activated by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) HiViz®, Model FT-GESM, 20,500 equivalent lumens 8.65" high x 10.61" wide x 2.78" deep light(s) with white LEDs installed on the cab high on left side, between cab and crew cab doors. The light(s) to include chrome optic holders, chrome bezel and white fixture body paint and white circuit boards.

The light(s) will be activated by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING - BODY

There will be two (2) HiViz®, Model FT-GESM, surface mount, 20,500 equivalent lumens, 8.65" high x 10.61" wide x 2.78" deep with white LED's installed on the body (1) forward and (1) rearward on LS body. The light(s) to include chrome optic holders, chrome bezel and white fixture body paint and white circuit boards. The light(s) will be activated by the same switching that has been selected for the other side scene light(s) on the apparatus.

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING - BODY

There will be two (2) HiViz®, Model FT-GESM, surface mount, 20,500 equivalent lumens, 8.65" high x 10.61" wide x 2.78" deep with white LED's installed on the body (1) forward and (1) rearward on RS body. The light(s) to include chrome optic holders, chrome bezel and white fixture body paint and white circuit boards.

The light(s) will be activated by the same switching that has been selected for the other side scene light(s) on the apparatus.

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING - BODY

There will be two (2) HiViz®, Model FT-GESM, surface mount, 20,500 equivalent lumens, 8.65" high x 10.61" wide x 2.78" deep light(s) to include chrome optic holders, chrome bezel and white fixture body paint and white circuit boards with white LED's installed on the body (1) high on LS rear bulkhead and (1) high on RS rear bulkhead.

The light(s) will be activated by a switch at the driver's side switch panel, by a switch at the passenger's side switch panel and by a switch in a stainless steel cup located on the driver's side at the rear of the apparatus no more than 72.00" from the ground.

The light(s) may be load managed when the parking brake is applied.

REAR WORK AREA LIGHTS

There will be two (2) Whelen®, part number 01-066C520-10, 3.00" x 7.00" white LED scene lights installed at the rear of the vehicle, with a 15 Degree bracket under the tailboard, facing the rear. The lights will have 12 white LEDs and have no internal optics. The lights will be mounted on brackets below the truck so as to not interfere with the angle of departure.

The lights will be controlled by a switch at the driver's side switch panel.

TWO-WAY BUZZER, CAB TO BODY

A switch and buzzer for two-way signaling will be provided at the driver position and a switch and buzzer for two-way signaling will be provided inside the body crew compartment TBD.

HEAVY DUTY RESCUE BODY CONSTRUCTION

The body will be built as a separate module prior to being mounted onto the substructure. The rescue body will be constructed of 5052 aluminum. The structural support framing and the gussets used will be of 2.00" (51 mm) square 0.125" (3 mm) wall 6061 aluminum alloy tubing. All exterior body corners will be 3.00" (76 mm) radius aluminum, corrosion resistant alloy 6061 extrusions. Spacing of the 2.00" (51 mm) vertical supports will not exceed 14.00" (356 mm) on center. The roof and corner extrusions will be reinforced with interconnecting gusset supports at all stress points. The body will be properly welded into a unitized construction. Proper reinforcing and supports will be utilized throughout the entire construction process to ensure strength and rigidity.

The body will be supported by 2.00" (51 mm) x 2.00" (51 mm) x 0.25" (6 mm) wall aluminum tubing. The cross sill tubes will be spaced approximately 15.00" (381 mm) on center and interconnected to the body from front to rear.

A 1.00" (25 mm) x 3.00" (76 mm) aluminum bar will be used as a stringer and will be welded to the cross sills. The stringer will be used to mount the body to the chassis frame rails.

ROOF CONSTRUCTION

The roof will be integral with the body construction. The roof will be constructed of 0.125" (3 mm) bright aluminum treadplate and supported by 2.00" (51 mm) square 0.125" (3 mm) wall tubing welded in place approximately 12.00" (305 mm) on center. The roof will be further reinforced with 2.00" (51 mm) square gussets welded approximately every 48.00" (1219 mm). The roof perimeters will be constructed of a 3.00" (76 mm) radius extrusion with an integral drip molding. The roof extrusion will also have an inset allowing the roof panel to be recessed into the extrusion giving further support and sealing effect at the outside edge.

The roof panel will be welded to the roof extrusions and supports. All roof seams will be continuously welded.

BODY AND COMPARTMENT SUPPORT

The substructure for the body will not be integral with the body but will be a separate assembly.

The bottom of each lower compartment floor will be supported by an under slung steel angle grid that will be bolted to the chassis frame rails with grade 8 bolts in order to transfer major stress to the chassis frame and not through the body. The under slung support will be constructed of 0.50" (13 mm) x 2.50" (64 mm) x 2.50" (64 mm) steel angle vertical supports. Horizontal members will be 0.38" (10 mm) x 2.00" (51 mm) x 3.00" (76 mm) and 0.38" (10 mm) x 2.50" (64 mm) x 3.50" (89 mm) steel angle.

The complete substructure will be washed, primed and finish painted before being bolted to the chassis frame. A rubber coating will be applied over the painted under slung support structure for an additional corrosion barrier.

A 3.00" (76 mm) x 0.75" (19 mm) rubber liner will be placed on top of the chassis frame rails. The liner will be used to prevent metal to metal contact where the body stringer rests on the chassis frame rails.

The compartment floors will be bolted to the under slung substructure and the body will be secured to the chassis frame by a minimum of four (4) tie-down assemblies. Each tie-down assembly will consist of two (2) 2.00" (51 mm) x 6.25" (159 mm) x .75" (19 mm) steel plates and two (2) 14.00" (356 mm) long, 0.50" (13 mm) diameter steel rods. The tie-downs will be easily accessible so that the body may be removed.

BODY LENGTH

The length of the body will be 318.00" (8,077 mm).

BODY WIDTH

The width of the body will be 100.00". The interior area will be 95.00" wide from wall to wall.

Compartment Depth**Standard Depth**

All standard depth body compartments will measure 30.00" deep from the outside of the body to the rear compartment wall. The usable depth inside each side body compartment will be 28.00" deep.

Transverse

All transverse side body compartments will have a usable depth of 28.00" at the floor level. These compartments will extend over the frame rails through to the other side of the body.

BODY HEIGHT

The height of the body without any roof mounted items will be 103.25" high. The height in the interior of the body will be 78.00" high.

Additional options may reduce the overall height throughout the interior of the body. These include, but are not limited to the items listed in the table below.

Item	Change in Interior Height
Roof Mounted A/C with Ducting	-2.00"
Pierce Slide-out Room	-3.00"

ROOF CONFIGURATION

The roof will be flat without any recessed items.

SIDE COMPARTMENT ROLL-UP DOORS

There will be 12 compartment doors installed on the side compartments, double faced, aluminum construction, painted one (1) color to match the lower portion of the body and manufactured by Gortite®.

Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of the door.

Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and will be made of Santoprene.

All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from 300 to -40 degrees Fahrenheit. Hardened plastic will not be acceptable.

A polished stainless steel lift bar to be provided for each roll-up door. The lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door.

The door(s) will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surfaces will be concave to provide strength and prevent loose equipment from jamming the door from inside.

To conserve space in the compartment(s), the spring roller assembly will not exceed 3.00" in diameter. A rollup door that retracts below the compartment ceiling (garage door style) will not be acceptable.

The header for the rollup door assembly will not exceed 4.00".

A heavy-duty magnetic switch will be used for control of open compartment door warning lights.

EXTERIOR COMPARTMENTS

The exterior compartment layout, dimensions and requirements will be minimum specifications. The doors will be able to withstand years of rugged service and wear. For this reason, the compartment door design, metal thickness and attachments will be strictly adhered to. The compartment will be constructed of .125" (3 mm)-corrosion resistant aluminum alloy, including all interior panels, floor and sides. The assemblies will be held inside fixtures while being welded.

Compartment flooring will be of the sweep out design with the floor higher than the compartment door frame. All compartments will be supported on top, rear and bottom. The rear wall of each exterior compartment will be welded to the cross sills. Drip protection will be provided over all door openings with an integral roof extrusion or aluminum extrusion.

WHEEL WELLS

The rear fenders will be an integral part of the body sides and compartments. The inside of the fender will be fitted with a full circular inner fender liner. All screws and bolts, which protrude into a compartment, will have acorn nuts attached.

LEFT FORWARD COMPARTMENTS

First Compartment

The first compartment will be located directly behind the cab. The compartment will be provided with a full-height roll-up door. The compartment dimensions will be 38.50" (978 mm) wide x 87.88" (2,232 mm) high. The compartment door frame opening will be 36.00" (914 mm) wide x 84.00" (2,133 mm) high. The compartment clear door opening will be 33.50" (851 mm) wide x 79.00" (2,006 mm) high.

Second Compartment

The second compartment will be located behind the first compartment. The compartment will be provided with a full-height roll-up door. The compartment dimensions will be 49.38" (1,254 mm) wide x 66.88" (1,699 mm) high. The compartment door frame opening will be 46.50" (1,181 mm) wide x 64.00" (1,626 mm) high. The compartment clear door opening will be 44.00" (1,118 mm) wide x 58.00" (1,473 mm) high.

Third Compartment

The third compartment will be located behind the second compartment and directly ahead of the rear wheels. The compartment will be provided with a full-height roll-up door. The compartment dimensions will be 49.38" (1,254 mm) wide x 66.88" (1,699 mm) high. The compartment door frame opening will be 46.50" (1,181 mm) wide x 64.00" (1,626 mm) high.

The compartment clear door opening will be 44.00" (1,118 mm) wide x 58.00" (1,473 mm) high.

Compartment Loading

The first compartment will be capable of holding 800 lb (363 kg). The second and third compartments will each be capable of holding 1,100 lb (499 kg). The area over the frame rails in each compartment will be capable of holding an additional 1,000 lb (454 kg).

LEFT OVER WHEEL COMPARTMENTS

Forward Compartment

A compartment will be provided above the forward tandem wheels. The compartment will be provided with a full-height roll-up door.

The compartment dimensions will be 54.38" (1,381 mm) wide x 38.13" (969 mm) high. The compartment door frame opening will be 51.50" (1,308 mm) wide x 35.25" (895 mm) high. The compartment clear door opening will be 49.00" (1,245 mm) wide x 30.25" (768 mm) high.

Rear Compartment

A compartment will be provided above the rear tandem wheels. The compartment will be provided with a full-height roll-up door.

The compartment dimensions will be 57.00" (1,448 mm) wide x 38.13" (969 mm) high. The compartment door frame opening will be 51.50" (1,308 mm) wide x 35.25" (895 mm) high. The compartment clear door opening will be 49.00" (1,245 mm) wide x 30.25" (768 mm) high.

Compartment Loading

Each compartment will be capable of holding 1,200 lb (545 kg).

LEFT REAR SIDE COMPARTMENT

The left rear side compartment will be located directly behind the rear wheels. The compartment will be provided with a full-height roll-up door.

Dimensions of Left Rear Side Compartment	
Width	Door Frame Opening: 44.00" wide; Clear Door Opening: 41.50" wide; Interior Compartment Width: 44.25" wide
Height	Door Frame Opening: 64.00" high; Clear Door Opening: 58.00" high; Interior Compartment Height: 66.88" high

Compartment Loading

The left rear side compartment will be capable of holding 800 lb.

Rear Bulkhead Compartment

There will be one (1) rear facing compartment provided adjacent to the left rear side compartment. The compartment will be provided with a full-height, vertically hinged, single lap door with D-ring latch that faces the rear of the body.

The usable depth inside the compartment will be 19.25" deep.

If a rear bumper is specified, the rear bulkhead compartment will be shortened to accommodate the structure of the bumper. The height and the width of the compartment will be as follows:

Height of Bulkhead Compartment			
	Door Frame Opening	Clear Door Opening	Interior Height
No Rear Bumper Specified	Same as Left Rear Side Compartment	Same as Left Rear Side Compartment	Same as Left Rear Side Compartment
With Rear Bumper	2.00" less than the Door Frame Opening height of the Left Rear Side Compartment	2.00" less than the Clear Door Opening height of the Left Rear Side Compartment	2.00" less than the Interior Compartment Height of the Left Rear Side Compartment

Width of Bulkhead Compartment According to Body Width			
	Door Frame Opening	Clear Door Opening	Interior Width
96.00" Wide Body	19.50" wide	16.75" wide	19.75" wide
100.00" Wide Body	21.50" wide	18.75" wide	21.75" wide

RIGHT FORWARD COMPARTMENTS**First Compartment**

The first compartment will be located directly behind the cab. The compartment will be provided with a full-height roll-up door. The compartment dimensions will be 38.50" (978 mm) wide x 87.88" (2,232 mm) high. The compartment door frame opening will be 36.00" (914 mm) wide x 84.00" (2,133 mm) high. The compartment clear door opening will be 33.50" (851 mm) wide x 79.00" (2,006 mm) high.

Second Compartment

The second compartment will be located behind the first compartment. The compartment will be provided with a full-height roll-up door. The compartment dimensions will be 49.38" (1,254 mm) wide x 66.88" (1,699 mm) high. The compartment door frame opening will be 46.50" (1,181 mm) wide x 64.00" (1,626 mm) high. The compartment clear door opening will be 44.00" (1,118 mm) wide x 58.00" (1,473 mm) high.

Third Compartment

The third compartment will be located behind the second compartment and directly ahead of the rear wheels. The compartment will be provided with a full-height roll-up door. The compartment dimensions will be 49.38" (1,254 mm) wide x 66.88" (1,699 mm) high. The compartment door frame opening will be 46.50" (1,181 mm) wide x 64.00" (1,626 mm) high. The compartment clear door opening will be 44.00" (1,118 mm) wide x 58.00" (1,473 mm) high.

Compartment Loading

The first compartment will be capable of holding 800 lb (363 kg). The second and third compartments will each be capable of holding 1,100 lb (499 kg). The area over the frame rails in each compartment will be capable of holding an additional 1,000 lb (454 kg).

RIGHT OVER WHEEL COMPARTMENTS**Forward Compartment**

A compartment will be provided above the forward tandem wheels. The compartment will be provided with a full-height roll-up door.

The compartment dimensions will be 54.38" (1,381 mm) wide x 38.13" (969 mm) high. The compartment door frame opening will be 51.50" (1,308 mm) wide x 35.25" (895 mm) high. The compartment clear door opening will be 49.00" (1,245 mm) wide x 30.25" (768 mm) high.

Rear Compartment

A compartment will be provided above the rear tandem wheels. The compartment will be provided with a full-height roll-up door.

The compartment dimensions will be 57.00" (1,448 mm) wide x 38.13" (969 mm) high. The compartment door frame opening will be 51.50" (1,308 mm) wide x 35.25" (895 mm) high. The compartment clear door opening will be 49.00" (1,245 mm) wide x 30.25" (768 mm) high.

Compartment Loading

Each compartment will be capable of holding 1,200 lb (545 kg).

RIGHT REAR SIDE COMPARTMENT

The right rear side compartment will be located directly behind the rear wheels. The compartment will be provided with a full-height roll-up door.

Dimensions of Right Rear Side Compartment	
Width	Door Frame Opening: 44.00" wide; Clear Door Opening: 41.50" wide; Interior Compartment Width: 44.25" wide

Height	Door Frame Opening: 64.00" high; Clear Door Opening: 58.00" high; Interior Compartment Height: 66.88" high
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Compartment Loading

The right rear side compartment will be capable of holding 800 lb.

Rear Bulkhead Compartment

There will be one (1) rear facing compartment provided adjacent to the right rear side compartment. The compartment will be provided with a full-height, vertically hinged, single lap door with D-ring latch that faces the rear of the body.

The usable depth inside the compartment will be 19.25" deep.

If a rear bumper is specified, the rear bulkhead compartment will be shortened to accommodate the structure of the bumper. The height and the width of the compartment will be as follows:

Height of Bulkhead Compartment			
	Door Frame Opening	Clear Door Opening	Interior Height
No Rear Bumper Specified	Same as Right Rear Side Compartment	Same as Right Rear Side Compartment	Same as Right Rear Side Compartment
With Rear Bumper	2.00" less than the Door Frame Opening height of the Right Rear Side Compartment	2.00" less than the Clear Door Opening height of the Right Rear Side Compartment	2.00" less than the Interior Compartment Height of the Right Rear Side Compartment

Width of Bulkhead Compartment According to Body Width			
	Door Frame Opening	Clear Door Opening	Interior Width
96.00" Wide Body	19.50" wide	16.75" wide	19.75" wide
100.00" Wide Body	21.50" wide	18.75" wide	21.75" wide

REAR ENTRANCE TO BODY INTERIOR

A double door rear entrance will be provided at the rear of the body. The frame to frame measurement of the rear door opening will be a minimum of 32.25" wide x 68.00" high. The rear doors will be constructed of .090" thick, 5052 aluminum with a full box pan design for strength and appearance.

The doors will be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core will be installed

on the door framing that seals onto the interior panel to ensure a weather resistant compartment.

The hinge for each door will be full length polished stainless steel with a 0.25" stainless steel pin. The hinges will be attached to both the body and door with stainless steel screws or bolts. Isolation tape will be furnished between the hinge and the door jam. Hinges that are welded on will not be accepted.

Both the interior and exterior door handles will be flush mounted, chrome plated, paddle type door handles. Both the inside and outside handles will be located approximately half way up the door in the center.

A chrome plated grab handle will be horizontally mounted on the inside of each door to aid in closing.

Each door will be furnished with a polished stainless steel door grabber to hold the door in an open position.

Drip protection will be provided over the door opening with a bright finished aluminum extrusion.

There will be two (2) windows provided in each door. One (1) window will be located near the top of the door, and one (1) window will be located near the bottom of the door. Each window will be a half sliding window that measures 12.00" wide x 18.00" high. Each window will be provided with tinted automotive safety glass and a fixed screen on the inside of the window.

INTERIOR CONSTRUCTION

Interior Floor

The interior floor construction will include a splash shield, sub-floor and finished floor. The splash shield will consist of a metal sheet welded directly to the horizontal floor support tubes.

Above the splash shield, will be a moisture impervious, 0.75" composite sub-floor panel. The sub-floor will provide an isolation barrier and bonding medium for the final floor material. The final floor will be covered with .125" thick embossed aluminum treadplate .

The floor will be installed providing a total seal, allowing a complete wash down without any moisture penetrating through to the sub-floor.

Interior Walls/Ceiling

The walkway lower sidewalls (below countertop) will be lined with 16 gauge brushed stainless steel.

The upper side walls (above the counter tops) will be lined with 16 gauge brushed stainless steel. The wall covering will include the front and rear walls adjacent to this area.

The ceiling will be lined with 16 gauge brushed stainless steel .

Interior Countertop

The countertops (above the exterior compartments) will be constructed of 0.75" thick composite material, covered with a 16 gauge brushed stainless steel overlay. The countertops will be free of any bolts or screws providing a smooth finished surface.

Body Insulation

The ceiling and walls will be insulated using two (2) types of insulating materials providing a combined R-Value range of R13-R17 in the body interior.

A 0.25" double sided foil insulation will be installed against the exterior body skin. The material will reduce thermal transfer from the exterior of the body.

Installed over the foil insulation, will be a layer of 1.50" thick acoustical foam insulation. The foam insulation will provide an additional thermal barrier and sound deadening properties to the body interior.

MODIFY TOOLBOARD UPPER GUIDE

An end stop or retainer will be added to the upper channel guide when guide is supplied for the slide out toolboards. The retainer will restrict the toolboard from tipping forward when toolboard is fully extended with customer's equipment load.

STEPS

Steps will be provided at the rear entrance door. The steps will consist of the following:

One (1) tailboard step that is constructed of bright aluminum treadplate. The step will be the same width as the interior walkway and 10.00" deep.

One (1) intermediate step that is constructed of bright aluminum treadplate. The step will be the same width as the interior walkway and 10.00" deep.

A compartment will be provided in the intermediate step for storage of a portable winch. The compartment will be full width of the entrance and as deep as possible. The frame rails will be shortened by a minimum of 10.00" in order to provide adequate space for storage of the portable winch. A small recess will be provided at the back of the compartment between the frame rails to store the portable winch receiver tube.

The door of the storage compartment will be a one (1) piece lift-up door that is constructed of aluminum treadplate. The door will be comprised of the riser and tread of the intermediate step

along with the riser of the step located directly above the intermediate step. The door will be provided with a D-ring handle located in the riser of the intermediate step.

LED INTERIOR CEILING LIGHTS

There will be six (6) Durolumen, Model R03852, 12 volt DC LED light(s) with white and red LEDs and a frosted lens in a painted recessed mount in the ceiling of the body interior.

The lights will be equally distributed throughout the body interior providing light to the center walkway.

The lights will be wired battery direct in lieu of battery switched, allowing them to be operable with the shoreline plugged in and the battery switch off.

SWITCHING FOR CEILING LIGHTS

There will be a total of four (4) rocker style switches provided to control the Durolumen, 12 volt, red and white LED ceiling light(s) in the interior of the body. Two (2) switches will control the colored portion of the light and two (2) switches will control the white portion of the light. Each of these switches will be configured in a three-way switch configuration.

The set of switches will be located one set at the rear of the box and one at the front of the box in front the number 1 seated position..

In addition to the rocker switches the clear portion of the lights will also be activated when any body entrance door is opened.

FIXED SIDE FACING BENCH SEAT WITH STORAGE

A fixed bench seat with storage enclosure will be provided in the interior of the body. The bench seat will be positioned so that it faces either the left side or the right side of the body. The bench seat will be located passenger's side interior.

The bench will be designed with seating for a total of four (4) people. Each person will have a separate bottom cushion and separate backrest cushion. Each bottom cushion will be a 22.00" wide padded cushion that is sized to provide a minimum of 15.00" from the front of the cushion to the face of the backrest. Each bottom cushion will be provided with a seat sensor that is connected to the on-board seat belt monitoring system. The bottom cushion(s) will be mounted on top of the storage enclosure.

The backrest for each person will consist of (1) 22.00" wide x 18.50" high padded cushion.

An automatic retractor type seat belt will be furnished at each seat cushion. An extension will be provided with the seat belt so the male end can be easily grasped and the female end easily located while sitting in a normal position.

The upholstery for both the seat cushion(s) and the backrest(s) will be made of 36 oz dark silver gray vinyl material.

Seats on this bench will hereafter be referred to in sequential order, starting with Seat 1 and continuing in ascending order for the number of seats desired (Seat 1, Seat 2, Seat 3, etc). Seat 1 will be the seat that is nearest the front of the body.

Storage Enclosure

The storage enclosure will be constructed of .125" thick aluminum treadplate. The storage enclosure will be designed to contain an equipment storage rack (equipment rack priced separately). The length, width, and/or height of the storage enclosure may change in order to accommodate items that are requested to be stored in the rack. At a minimum, the storage enclosure will be 18.00" deep x 18.00" high with an overall width that measures approximately 22.50" wide for each bench seat occupant.

There will be one (1) vertically hinged door on the end of the end of the storage enclosure that faces the rear of the body. The door shall be provided with a D-handle slam latch..

AIR CONDITIONER/HEATER

The heater/air conditioner system will be a multi component, remote heating and air conditioning system, consisting of a heater/air conditioner condenser, control box, and a remote operator control panel.

The electric air conditioner will have minimum cooling capacity of 25,000 BTU.

The heater will utilize heat from the chassis engine coolant to produce a minimum heating capacity of 35,000 BTU. A shut off valve will be provided to stop the engine fluid circulation through the heater.

The unit will be 120/240 volt AC and be run off of the on-board generator or chassis engine.

The heater/air conditioner will be designed to be located in a remote location with the air being ducted to the area(s) where temperature control is required. The fan motor will be a 12 volt DC motor rated at 530 CFM of air-flow. The power for the fan will be provided by the chassis engine or on-board generator.

A control box will house the 12vdc electronic thermostat/controller. Power for the fans and controller will be provided by the power converter provided with this system.

An operator control panel will be provided for the system. The control panel will contain the system controls and may be surface mounted in a remote location (subject to review). The system controls will consist of an A/C-OFF-HEAT mode switch, a temperature setting knob, and a fan speed knob with three (3) speed settings. The temperature setting controls the electric water valve.

There will be one (1) heater/air conditioner unit(s).

The air conditioner and heater unit(s) will be located LS body recessed, forward and above LS6.

UPPER WALL CABINET

The body interior will be furnished with upper wall cabinet(s). The cabinet(s) will be 24.00" deep, extending from the counter top to the ceiling, with a maximum width of 60.00". The cabinet(s) will be constructed of a composite material and covered with brushed stainless steel on both sides, the bottom and the back wall.

Heavy black nylon webbing made of 1.00" nylon strap with a 2.00" box pattern will be provided at the cabinet door opening. The nylon webbing will be permanently mounted at the bottom of the cabinet. The top and sides will be secured with mechanical buckles allowing the webbing to be completely removed from the cabinet storage area.

There will be six (6) cabinet(s) located (3) each side starting at rear of body (match job 35455) of the interior.

THREE (3) DRAWER CABINET

A drawer cabinet will be provided in the interior of the body. The drawer cabinet will consist of a 24.00" deep housing with a single column of three (3) drawers stacked one (1) above the other. The cabinet housing will be as wide as possible up to a maximum of 48.00" wide. The cabinet will be constructed of light gray powder coated aluminum with anodized aluminum frames. When space permits the cabinet housing will be provided with radiused edging. The edging will provide a uniform, finished appearance.

All drawers will have a clear interior depth of 21.00" and will be the same width, providing a uniform appearance. The drawers will be made as wide as possible to fit within the cabinet housing. Each drawer will have a capacity rating of 250 lb maximum distributed load. A full-length aluminum extruded rail will be provided at the top edge of each drawer. This rail will act as the latching mechanism as well as the handle for each drawer.

The clear height inside each drawer will be as follows (from top to bottom):

- Drawer 1: 2.25" with a face plate that is 3.00" high
- Drawer 2: 3.75" with a face plate that is 4.00" high
- Drawer 3: 7.75" with a face plate that is 8.00" high

There will be a total of one (1) drawer cabinet(s) provided. The drawer cabinet(s) will be located forward area of walk-in body .

EXIT INDICATORS

There will be one (1) Whelen Model RSR02ZCR 12 volt DC red LED light with clear lens and chrome flange included in the body interior:

- This light will be activated when the battery switch is on, the ignition switch is on and the parking brake is released.
- This light will be labeled "Do Not Exit".

There will be one (1) Whelen Model RSG02ZCR 12 volt DC green LED light with clear lens and chrome flange included in the body interior:

- This light will be activated when the battery switch is on, the ignition switch is on and the parking brake is applied.
- This light will be labeled "OK To Exit".

This pair of lights will be located top of interior rear door.

ESCAPE HATCH WITH SKY LIGHT

Escape hatch with skylight will be provided in the body roof.

Skylight will contain a single pane of automotive safety glass.

Hatch opening will measure 24.00" x 30.00".

Window will measure 15.00" x 22.00".

Hatch and hatch frame will be constructed from .125" aluminum treadplate to match the roof of the body.

A 2.00" high lip will be provided around the perimeter of the opening to prevent moisture from entering the body.

Hatch will be fully welded in place on the body roof.

Hatch cover will have a rubber gasket inside to prevent leakage.

Hatch cover will be secured with two butterfly - style latches and will have two pneumatic cylinders to hold it in the open position.

A "hatch open" indicator light will be provided in the cab.

There will be one (1) provided.

forward on body near interior countertop areas .

PADDED HEAD PROTECTOR

There will be a total of one (1) head protector pad(s) provided and installed above the following doorway(s): at rear entrance. Each pad will be covered with a high quality upholstery. If there are seats in the interior of the body, the upholstery will be the same material and color as the upholstery used for the seats. If there are no seats in the interior of the body, the pad will be covered with a black vinyl material.

INTERIOR PARTITION

The area over the countertop will have unpainted .13" thick brushed aluminum vertical partition(s).

The partition(s) will be located in the driver's side rear cargo cabinet spaced 27" clear from front wall of cabinet.

A total quantity of one (1) vertical partition(s) will be provided.

FIXED INTERIOR DIVIDER

A fixed vertical divider will be provided in the interior of the body. The divider will be constructed from 16 gauge brushed stainless steel.

A total of one (1) will be provided under the C-TECH cabinet 13.5" from the PS of the truck.

ADJUSTABLE SHELF

Interior adjustable shelf will be provided.

Construction will consist of .187" thick aluminum formed to provide a 2.00" high wall around the perimeter. Inside dimension will be approximately 24.00" deep by width as designated on interior view of sales print.

Corners will be welded to provide a rigid unit.

Shelving will be secured within the cabinet by means of adjustable threaded fasteners. These fasteners will slide in an extruded aluminum track to provide height adjustment.

Shelving and mounting tracks will be painted to match the interior cabinets.

There will be six (6) provided one in each interior cabinet, the driver side rear cabinet to be forward of the vertical divide.

STORAGE UNDER BENCH SEAT

The compartment under the bench seat will contain individual troughs to store the following equipment:

- One (1) 24' two (2)-section ladder and one (1) 14' roof ladder nested together
- One (1) 10' folding ladder

- Six (6) aluminum pike pole storage tubes. The make, model and size of the storage tubes will be: 10' NY hooks

These items will be stored 24' ladder, 14' roof ladder, 10' folding ladder, pike pole tubes.

WINDOW WITH ESCAPE FEATURE

There will be a total of two (2) emergency escape window(s) provided in the body. Each window will be a half sliding window that measures 34.00" wide x 20.00" high. Each window will have tinted automotive safety glass and a fixed screen on the inside of the window.

Each window will have an escape feature with egress style release handles mounted on each vertical side of the window and a hinge at the top.

The window(s) will be located one each side at front of body (match locations on job 35455).

REAR HITCH RECEIVERS

There will be three (3) hitch receivers installed at the rear of the apparatus. Each hitch receiver will be constructed of heavy steel tubing and reinforced to the apparatus framework. The receivers will be mounted so that the center receiver lines up with the middle of the apparatus, while the other receivers will be mounted one (1) on each side, offset from the center receiver. The location of each of the offset receivers will be (location subject to review): spaced evenly under rear step (match location on job 31887).

Each hitch receiver will be tested to provide a 2:1 straight line pull no-yield safety factor over a maximum load rating of 10,000 lb.

As a result, each of these hitch receivers will be capable of retaining a portable winch with a rating of no more than 10,000 lb. Each hitch receiver will also be capable of being used for rope operations when used with properly rated equipment.

Trailer Wiring For Center Receiver Only

There will be one (1) trailer connection provided with the center receiver only. The trailer connection will be a seven (7)-way flat blade recreational vehicle connector for trailer wiring compatible with electric brake systems, and a second connector with inverted ground meeting SAE J560 standards providing an auxiliary connection for warning devices. A heavy-duty slide-in tube and ball assembly with retaining pin will be included with the center hitch receiver.

NFPA 1901, 2016 edition, Section 13.3.3.2 requires that if the apparatus is equipped to tow a trailer, an additional 45 amps will be added to the minimum continuous electrical load to provide electrical power for the federally required clearance and marker lighting and the optical warning devices mounted on the trailer. Only the center hitch receiver will be capable of being utilized for towing a trailer. Therefore, the additional amps will not be included with the minimum continuous load for the two (2) side hitch receivers.

A label will be provided near the hitch receivers on either side of the center receiver stating that these receivers will not be used for towing.

SIDE HITCH RECEIVERS

There will be one (1) hitch receiver installed through the body fender panel between the tandem rear wheels on each side of the body. The hitch receivers will be constructed of heavy steel tubing and reinforced to the apparatus framework.

Each hitch receiver will be tested to provide a 2:1 straight line pull no-yield safety factor over a maximum load rating of 10,000 lb.

As a result, each of these hitch receivers will be capable of retaining a portable winch with a rating of no more than 10,000 lb. Each hitch receiver will also be capable of being used for rope operations when used with properly rated equipment.

A spring loaded stainless steel door will be provided in the fender on each side of the body to cover the ends of receivers. Each door will have a flush latch provided to prevent the door from opening while not in use. A stainless steel trim ring will be provided to prevent damage to the exterior finish around the opening.

A cutout will be provided in the wheel well openings that are adjacent to each hitch receiver to provide access to the receiver pins. A hinged stainless steel door will be provided in each wheel well opening to cover the cutouts.

ROOF RECESSED AREA

There will be three (3) recessed area(s) provided on the roof of the body. The recessed area(s) will be located DS forward and PS forward for A/C unit and generator PS Rear for light Tower.

Each recessed area will be constructed of 0.125" aluminum treadplate and will have two (2) 1.00" diameter drain holes. The drains will be routed to drain below the body.

Each recessed area will be sized to allow proper mounting space and clearance for any equipment that is specified to be mounted in it. The recess will be configured so that whenever possible, items mounted in the recess will stow below the roof line of the body. If a piece of equipment is taller than the maximum depth of the recess, that item may protrude above the roof line.

TIE DOWN(S)

There will be a total of six (6) D-ring tie down(s) installed on the roof of the body. Each tie down will serve as an anchor point for tying down and securing equipment.

The tie downs will be located match locations on job 37129 Fayetteville.

ROPE ANCHORS

There will be one (1) pair of chrome plated steel eyebolts installed on the body to serve as rope anchor points. Each anchor will have an inside diameter of 2.00" (51 mm) and will be supported to provide a maximum of 9,000 lb (4,082 kg) no-yield condition with a straight line pull.

Each pair of anchors will be installed in the following locations:

One (1) on each side of the body facing the rear in the upper corners of the body

Second pair of rope anchors not requested

Third pair of rope anchors not requested

Stainless steel scuffplates will be provided behind each anchor point.

ROPE ANCHORS

A total of four (4) pairs of stainless steel swivel hoist rings will be installed on the sides of the body to serve as rope anchor points. Each anchor will be supported to provide a maximum of 3,000 lb (1,361 kg) no-yield condition with a straight line pull.

The specific location(s) for each pair of rope anchors will be (for each pair of rope anchors selected, there will be one (1) anchor mounted on each side of the body): one each side of front body side sheet, two each side of body side sheet and one each side of rear body side sheet. .

NFPA 1901, 2016 edition, section 15.12.2 requires that receivers or anchors installed at any location on the apparatus for use with rope operations will be designed and affixed to the apparatus to provide at least 9,000 lb (4,082 kg) no-yield condition with a straight line pull. These anchors are not rated for 9,000 lb (4,082 kg) no yield condition with a straight line pull. Per the customer's specifications and request of these anchors, this apparatus will be non-compliant to NFPA 1901 standards effective at time of contract execution.

TRIM BODY SEAMS

All body seams will be trimmed with the same material as the body construction and painted to match the body paint.

CEILING BLISTER

The ceiling of a rear bulkhead compartment will be blistered to increase the interior height of the compartment and allow for storage of long equipment. The blister will extend into the area immediately above compartment, thereby reducing the amount of space available in the affected area.

The clear space (from floor of compartment to the extended height) will be 12.25" less than the body height if there are no other options to consider.

The blister will increase the height of the interior of the compartment only. The width and depth of the interior along with the compartment door opening will remain as specified.

The affected compartment(s) will be the left and right compartment(s).

RIGHT SIDE UNDER BODY COMPARTMENT WITH DRAWER

A total of one (1) under body compartment(s) will be provided on the right side of the apparatus, located ahead of the rear wheels. The location of each compartment ahead of the rear wheels will be: directly behind the 84" box under forward compartments on the right side.

The compartment will be constructed of bright aluminum treadplate. The compartment will be equipped with a slide-out drawer that is rated for a maximum distributed load of 500 lb. The front of the drawer will have an aluminum treadplate finish. The drawer will extend no more than 22.00" from the stowed position. The drawer slides will have ball bearings for ease of operation and years of dependable service. A D-ring slam latch handle will be provided on the front of the drawer for securing and opening the drawer. Weather stripping will be installed around all opening surfaces to provide a weather resistant seal.

The drawer will be as wide as possible up to a maximum of 48.00". The inside of the drawer will have a clear height of 8.00" and a minimum clear depth of at least 21.50", but will be made as deep as possible to fit the configuration. Several different factors can affect the maximum depth of the drawer. These factors may include, but are not limited to the following:

- The width of the body.
- The front suspension.
- The location of the exhaust canister.
- Items mounted on the chassis frame rails.
- Items mounted under the body.

The actual depth of the drawer will be provided during the engineering process after all factors have been taken into account.

LEFT SIDE UNDER BODY COMPARTMENT WITH DRAWER

A total of one (1) under body compartment(s) will be provided on the left side of the apparatus, located ahead of the rear wheels. The location of each compartment ahead of the rear wheels will be: forward on body, under the left side front compartments .

The compartment will be constructed of bright aluminum treadplate. The compartment will be equipped with a slide-out drawer that is rated for a maximum distributed load of 500 lb. The front of the drawer will have an aluminum treadplate finish. The drawer will extend no more than 22.00" from the stowed position. The drawer slides will have ball bearings for ease of operation and years of dependable service. A D-ring slam latch handle will be provided on the

front of the drawer for securing and opening the drawer. Weather stripping will be installed around all opening surfaces to provide a weather resistant seal.

The drawer will be as wide as possible up to a maximum of 84.00". The inside of the drawer will have a clear height of 8.00" and a minimum clear depth of at least 21.50", but will be made as deep as possible to fit the configuration. Several different factors can affect the maximum depth of the drawer. These factors may include, but are not limited to the following:

- The width of the body.
- The front suspension.
- The location of the exhaust canister.
- Items mounted on the chassis frame rails.
- Items mounted under the body.

The actual depth of the drawer will be provided during the engineering process after all factors have been taken into account.

RIGHT SIDE UNDER BODY COMPARTMENT WITH DRAWER

A total of one (1) under body compartment(s) will be provided on the right side of the apparatus, located ahead of the rear wheels. The location of each compartment ahead of the rear wheels will be: forward on body, under the right-side front compartments .

The compartment will be constructed of bright aluminum treadplate. The compartment will be equipped with a slide-out drawer that is rated for a maximum distributed load of 500 lb. The front of the drawer will have an aluminum treadplate finish. The drawer will extend no more than 22.00" from the stowed position. The drawer slides will have ball bearings for ease of operation and years of dependable service. A D-ring slam latch handle will be provided on the front of the drawer for securing and opening the drawer. Weather stripping will be installed around all opening surfaces to provide a weather resistant seal.

The drawer will be as wide as possible up to a maximum of 84.00". The inside of the drawer will have a clear height of 8.00" and a minimum clear depth of at least 21.50", but will be made as deep as possible to fit the configuration. Several different factors can affect the maximum depth of the drawer. These factors may include, but are not limited to the following:

- The width of the body.
- The front suspension.
- The location of the exhaust canister.
- Items mounted on the chassis frame rails.
- Items mounted under the body.

The actual depth of the drawer will be provided during the engineering process after all factors have been taken into account.

FLOOR EXTENSION

There will be a floor extension from the transversed area over the frame to the compartment door. The extension will have a 1.50" vertical lip and a return bend. The extension will be support by angles off the side partitions of the compartment.

A total of one (1) will be provided and located LS1.

RETENTION NETTING

A net will be provided to retain equipment in the in the LS4 compartment on the air bag rack with fixed location at top compartment.

Each compartment specified will be provided with a heavy black nylon webbing made of 1.00" (25 mm) nylon strap with a 2.00" (51 mm) box pattern. The nylon webbing will be fastened to one (1) side of the compartment in a fixed manner. The remaining sides will be provided with quick release style buckles to hold the web closed.

A total of one (1) will be provided.

REAR WALL, BODY MATERIAL

The rear wall will be smooth and the same material as the body.

TOW EYES

There will be a total of two (2) painted tow eyes provided and mounted directly to the chassis frame rails at the rear of the apparatus. The inner and outer edges of the tow eyes will have a radius.

DOOR GUARD

12 compartment doors will include an L-shaped guard designed to protect the bottom and interior side of the roll-up door from damage when in the retracted position and contain any water spray while the door is being opened. The guard will be fabricated from stainless steel and installed all body compartments.

ROLLUP DOOR PULL STRAP

There will be 12 compartment doors provided with Amdor Flex-HD pull straps. The compartment door(s) to be provided with a pull strap will be all body compartment doors

ROLL-UP DOOR TRIM

The exterior of the aluminum trim around the door opening will be painted to match the color of the applicable door.

There will be twelve (12) compartments located all body compartment doors with the trim painted.

COMPARTMENT LIGHTING

There will be fourteen (14) compartments with Pierce LED compartment light strips. The strips will be centered vertically along each side of the door framing.

Any remaining compartments will include 6.00" diameter Truck-Lite, Model: 79384 light in each enclosed compartment. Each light will have a number 1076 one filament, two wire bulb.

Opening the compartment door will automatically turn the compartment lighting on.

COMPARTMENT LIGHTING

There will be twelve (12) Amdor, Model AY-9220-21, 21.00" long LED compartment light stick(s) provided in compartments one each side in each interior cabinet. The lights shall be mounted with manufacturers supplied fasteners.

The lights shall be activated when the battery switch is on and the additional light switch is activated.

STANDARD DEPTH ADJUSTABLE SHELF

An adjustable shelf will be provided. The shelf will be constructed of 0.188" thick aluminum with 2.00" high sides. The shelf will be provided painted spatter gray.

The shelf will be as deep as possible for a standard depth compartment, and as wide as possible for the specified mounting location.

The shelf will be secured within the compartment by means of adjustable threaded fasteners. These fasteners will slide in an extruded aluminum track to provide height adjustment.

The shelf will have a load capacity of 500 lb.

A total of 15 shelves will be provided (5) Each LS6 and RS6 LS5 top 1/3 B2 Centered Floor to Ceiling RS1 Centered Floor to Ceiling RS1 Top 1/3 RS5 Top 1/3.

SPECIAL SIZE ADJUSTABLE SHELF

An adjustable shelf will be provided. The shelf will be constructed of 0.188" thick aluminum with 2.00" high sides.

The shelf will be designed with dimensions as specified by the customer to suit their needs with a maximum width that is as wide as possible for the specified mounting location and a maximum depth that is not to exceed the depth of a standard depth shelf.

The customer requests these dimensions to be: half depth behind toolboard.

The shelf will be secured within the compartment by means of adjustable threaded fasteners. These fasteners will slide in an extruded aluminum track to provide height adjustment.

The shelf will have a load capacity of 500 lb.

A total of one (1) shelf will be provided LS2.

FLAT TOP ADJUSTABLE SHELF

A flat top adjustable shelf will be provided. The shelf will be constructed of 0.38" thick aluminum. The shelf will be provided painted spatter gray.

The shelf will be as deep as possible for a standard depth compartment, and as wide as possible for the specified mounting location. Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

A capacity rating will not be available on this shelf due to a reduced side height being less than 2.00".

A total of one (1) shelf will be provided RS2 (split compartment in half giving 15" on each side top and bottom. Length will be 34" from the wall).

STANDARD DEPTH SLIDE-OUT ADJUSTABLE HEIGHT TRAY

There will be four (4) slide-out trays provided.

Each tray will have 2.00" high sides and a capacity rating of up to 250 lb in the extended position.

Each tray will be as deep as possible for a standard depth compartment and as wide as possible for the specified mounting location.

Each tray will be provided painted spatter gray.

Each tray will be mounted on a pair of side mounted slides. The slide mechanisms will have ball bearings for ease of operation and years of dependable service. The slides will be mounted to shelf tracks to allow the tray to be adjustable up and down within the designated mounting location.

An automatic lock will be provided for both the in and out tray positions. The lock trip mechanism will be located at the front of the tray and will be easily operated with a gloved hand.

The tray(s) will be located (1) RS4, (1) RS5, and (2) in LS5.

STANDARD DEPTH SLIDE-OUT FLOOR MOUNTED TRAY WITH FLAT TOP

There will be one (1) floor mounted slide-out tray(s) provided RS1. Each tray will have a flat top with no sides or flanges. A capacity rating will not be provided for the tray(s) due to the fact that there are no sides. Each tray will be constructed of 0.25" thick aluminum plate.

Each tray will be mounted on two (2) under mount, roller bearing type slides. Each slide will be rated at 250 lb with a factor of safety of two (2).

To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slide will require no more than a 50 lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

STANDARD DEPTH SLIDE-OUT FLOOR MOUNTED TRAY

There will be seven (7) floor mounted slide-out tray(s) with 2.00" sides provided RS4, LS4 (16" wide) and two in each compartment RS6, LS6, LS1. Each tray will be rated for up to 500 lb in the extended position. The tray(s) will be constructed of 0.19" aluminum. The finish will be painted spatter gray.

Each tray will be mounted on two (2) under mount, roller bearing type slides. Each slide will be rated at 250 lb with a factor of safety of two (2).

To ensure years of dependable service the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slide will require no more than a 50 lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

STANDARD DEPTH SLIDE-OUT TOOLBOARD

A slide-out aluminum toolboard will be provided. The toolboard will be constructed of 0.19" thick aluminum that is painted spatter gray to match compartment interior. The toolboard will be provided with 0.20" diameter holes in a pegboard pattern with 1.00" centers between holes. A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard. A handhold cutout will be provided on the outboard edge of the toolboard.

The toolboard will be as deep as possible for a standard depth compartment, and as tall as possible for the specified mounting location.

The toolboard will be mounted on an under mount, roller bearing type slide that is rated for 250 lb with a factor of safety of two (2).

To ensure years of dependable service the slide will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slide will require no more than a 50 lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

The slide will be mounted to a shelf type track to allow side adjustment of the tool board.

A positive lock will be provided to allow the toolboard to be locked in both the stowed and extended positions.

A total of Five (5) standard depth slide-out toolboard(s) will be provided. The toolboard(s) will be located (1) in LS4 on the right side of the slide out tray, (2) in LS1 on top of the partition and (1) in RS2 right of partition (1) B1centered.

TOOLBOARD UPPER GUIDE RETAINER

A retainer will be added to the upper channel guide when guide is supplied for the slide out toolboards. The retainer will restrict the toolboard from tipping forward when toolboard is fully extended with customer's equipment load.

TOOLBOARD ADDED TO STANDARD DEPTH SLIDE-OUT TRAY

An aluminum toolboard will be provided and mounted in a standard depth slide-out tray (tray not included). The toolboard will be constructed of 0.19" thick aluminum that is painted spatter gray to match compartment interior. The toolboard will be provided with 0.20" diameter holes in a pegboard pattern with 1.00" centers between holes. A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.

The toolboard will span the full depth of the standard depth slide-out tray and will be as tall as possible for the specified mounting location.

The toolboard will be mounted on aluminum tracks to allow for side to side adjustment within the tray.

The total capacity rating of the toolboard will vary depending on the tray it is mounted in (capacity rating for the toolboard will match the capacity rating of the tray it is mounted in).

A total of Five (5) toolboard(s) will be provided and mounted in the slide-out tray(s) located LS6 and RS6 forward 85.00" compartments Two (2) each side rear of divider RS1 bottom with toolboard only 30" tall.

SWING-OUT TOOLBOARD

A swing-out aluminum toolboard will be provided. The toolboard will be constructed of 0.19" thick aluminum that is painted spatter gray to match compartment interior. The toolboard will be provided with 0.20" diameter holes in a pegboard pattern with 1.00" centers between holes. A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.

The board will be mounted on a pair of pivoting devices to provide easy movement in and out of the compartment. The pivoting devices will be located at the top and bottom along one (1) side of the board. The pivoting devices will be located at the back of the compartment.

The toolboard shall have a maximum load rating of 400 lb.

Positive locks will be provided for toolboard in both the stowed and extended positions.

The toolboard will be mounted on adjustable tracks from front to back within the compartment.

There will be a total of Two (2) swing-out toolboard(s) provided. The toolboard(s) will be one in each compartment LS3 and RS3 behind the forward pivoting toolboards .

SWING-OUT TOOLBOARD

A swing-out aluminum toolboard will be provided. The toolboard will be constructed of 0.19" thick aluminum that is painted spatter gray to match compartment interior. The toolboard will be provided with 0.20" diameter holes in a pegboard pattern with 1.00" centers between holes. A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.

The board will be mounted on a pair of pivoting devices to provide easy movement in and out of the compartment. The pivoting devices will be located at the top and bottom along one (1) side of the board. The pivoting devices will be located at the front of the compartment.

The toolboard will have a maximum load rating of 400 lb.

Positive locks will be provided for toolboard in both the stowed and extended positions.

The toolboard will be mounted on adjustable tracks from front to back within the compartment.

There will be a total of Three (3) swing-out toolboard(s) provided. The toolboard(s) will be one in each compartment LS3 and RS3 closer to door opening and one in compartment LS2.

VERTICAL COMPARTMENT PARTITION

Three (3) partitions will be bolted in RS6 and LS6 (10" clear from the forward door opening) and RS2. Each partition will be the full vertical height of the compartment.

PEGBOARD

There will be 3/16" thick aluminum pegboard installed on the two (2) side wall(s) of compartments RS4 . The pegboard will be mounted using two (2) horizontal tracks. Retainers will be used to mount the pegboard to the tracks. The holes will be .203" diameter, punched 1.00" on center. The pegboard will be spatter gray painted. The pegboard will be mounted upper side wall of RS4 along with the rear wall pegboard to match height of pegboard from job 32873 within the compartment(s).

ALUMINUM PEGBOARD

Two (2) horizontally installed tracks, with 0.19" aluminum pegboard will be installed on the back wall of one (1) compartments. The holes will be .188" diameter, punched 1.00" on center. The pegboard will be spatter gray painted. The pegboard(s) will be located in RS4.

Retainers will be used to mount the pegboard to the tracks.

AIR BAG STORAGE

There will be a rack installed for storing ten (10) air bag(s) in the LS4 compartment.

The rack will be fabricated from .125" aluminum, painted spatter gray. Air bag size(s) will be ***All slots full depth of compartment*** 8.0" high (vertical), 8.5" wide, 14.5" wide, 17.75" wide (2.5" tall) 24.5" wide, 16.5" wide (2.5" tall) 25.5" wide, 15.5" wide open slot (2.5" tall) (Match job 35455).

RUB RAIL

Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail.

Trim will be 2.12" high with 1.38" flanges turned outward for rigidity.

The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

BODY FENDER CROWNS

Stainless steel fender crowns will be provided around the rear wheel openings.

A rubber welting will be provided between the body and the crown to seal the seam and restrict moisture from entering.

LIGHTED HANDRAILS

The handrails at the rear of the body on either side of the rear compartment door will be Lit Anti-Slip™ anodized aluminum lighted handrails in place of the standard non-lighted handrails. The color of the lighted handrails will be red.

Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.

Drain holes will be provided in the bottom of all vertically mounted handrails.

The handrails will be activated with the application of the parking brake.

FENDER PANEL STORAGE COMPARTMENT BETWEEN TANDEMS

A double air bottle storage compartment will be provided in the center of the body fender panel between the tandem rear axles and above the hitch receiver that is also located between the tandem rear axles (hitch receiver priced separately). The compartment will be 26.00" deep and approximately 23.13" wide at the top. The bottom of the compartment will taper along the sides and raise up in the center to accommodate the hitch receiver, allowing one (1) air bottle to be stored on either side of the receiver.

Dura-surf will be provided on both the flat and tapered sides along the bottom of the compartment. A rubber bumper will be provided at the back of each air bottle storage area to help absorb the shock to the bottle when it is loaded.

There will be two (2) straps will be provided in the air bottle compartment to help contain the air bottles. The straps will wrap around the neck of each bottle and attach to the wall of the compartment.

A horizontally hinged, lift-up door will be provided. The door will be large enough to cover both the storage compartment and the hitch receiver. The door will be constructed of stainless steel with a painted finish. The door will have a Southco raised trigger C2 chrome lever latch. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal

A total of two (2) compartment(s) will be provided. The storage compartment(s) will be located on the left and right side fender panel(s).

SINGLE AIR BOTTLE STORAGE IN FENDER PANEL WITH COMMON FUEL FILL DOOR

An air bottle storage compartment will provided in the body fender panel in the space adjacent to the fuel fill in the corner of the fender panel. The compartment will have sufficient capacity for storage of one (1) air bottle.

The compartment will have a 7.75" diameter clear opening and will be 26.00" deep.

A black rubber matting will be provided inside the compartment.

A full width door will be provided to cover the both the storage cylinder and the fuel fill. The full width door will be a single, vertically hinged door that is constructed of stainless steel with a painted finish. The door will have a Southco raised trigger C2 chrome lever latch. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

SINGLE AIR BOTTLE STORAGE IN FENDER PANEL WITH COMMON DEF FILL DOOR

An air bottle storage compartment will be provided in the body fender panel in the space adjacent to the DEF tank fill in the corner of the fender panel. The compartment will have sufficient capacity for storage of one (1) air bottle.

The compartment will have a 7.75" diameter clear opening and will be 26.00" deep.

A black rubber matting will be provided inside the compartment.

A full width door will be provided to cover both the storage cylinder and the DEF fill. The full width door will be a single, vertically hinged door that is constructed of stainless steel with a painted finish. The door will have a Southco raised trigger C2 chrome lever latch. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

DOUBLE WIDE AIR BOTTLE STORAGE IN FENDER PANEL

A double wide air bottle storage compartment will be provided in the corner of the body fender panel. The double wide compartment will have two (2) separate areas for air bottle storage, an upper and a lower storage area. Each storage area will have sufficient capacity for storage of one (1) air bottle.

The upper storage area will have a 7.75" diameter clear opening and will be 26.00" deep.

The lower storage area will have a 7.75" diameter clear opening. The depth of the lower storage area will be 24.00" deep with a 96.00" wide body and increases to 26.00" deep with a 100.00" body.

A black rubber matting will be provided inside each compartment.

A full width door will be provided to cover the openings of both storage areas. The full width door will be a single vertically hinged door that is constructed of stainless steel with a painted finish. The door will have a Southco raised trigger C2 chrome lever latch. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

There will be a total of two (2) double wide storage compartment(s) provided. The compartment(s) will be located on the right side forward of the rear wheels and on the right side rearward of the rear wheels.

EXTENSION LADDER

There will be a 24', two (2) section, Alco-Lite, Series PEL-24 extension ladder provided.

ROOF LADDER

There will be a 14' aluminum, Alco-Lite, Series PRL-14 roof ladder provided.

FOLDING LADDER

One (1) 10' aluminum Alco-Lite, Series FL-10 folding ladder will be installed.

10' PIKE POLE

Four (4) pike poles Fire Hooks Unlimited, Model RH-10, 10' long roof hook with a steel handle will be provided and located under bench seat in body.

SWING DOWN STEP

A swing down style rear access step will be installed onto the rear tailboard. The step will swing up and stow above the tailboard in the "up" position and swing down for use as a stepping surface in the "down" position.

A chrome plated lift handle will be provided on the underside of the step to aid in raising and lowering the step.

The step will be provided with gas assist cylinders to secure the step in the up and down positions.

The step will be fabricated from polished aluminum treadplate with a Morton Cass insert to provide a non-skid stepping surface.

Size of Step	
Non-Walk-In Body	38.50" wide x 8.00" deep
Walk-In Body	31.50" wide x 8.00" deep

When the step is in the "down" position, a text message will be displayed on the Vehicle Information Center multiplex display screen that reads "Rear Step Not Stowed".

When deployed, the step will meet the NFPA requirement for minimum stepping height from the ground.

INLET BLEEDER VALVE

A 0.75" bleeder valve will be provided for each side gated inlet.

The valves will be located behind the panel with a "T" swing style handle control extended to the outside of the panel.

The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage.

The water discharged by the bleeders will be routed below the chassis frame rails.

DISCHARGE CAPS/ INLET PLUGS

Chrome plated, rocker lug, caps with chain will be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.

Chrome plated, rocker lug, plugs with chain will be furnished for all auxiliary inlets 1.00" thru 3.00" in size.

The caps and plugs will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.

OUTLET BLEEDER VALVE

A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.

The valves will be located behind the panel with a T swing style handle control extended to the outside of the side pump panel.

The handles will be chrome plated and provide a visual indication of valve position.

The T swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage.

Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to.

The water discharged by the bleeders will be routed below the chassis frame rails.

AIR HORN SYSTEM

Two (2) Hadley®, eTone, chrome air horns will be recessed in the front bumper. The air horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed to prevent the loss of air in the brake system.

Air Horn Location

The air horns will be located on each side of the bumper, towards the outside.

Air Horn Control

The air horn(s) will be activated by the following:

- Right side foot switch
- Left side foot switch

ELECTRONIC SIREN

A Whelen, Model 295HFSA7 electronic siren and remote head with a removable unidirectional microphone will be installed.

The model to be used will be determined by the chassis and location of the siren remote head.

The siren will contain a remote siren head and a siren amplifier with a dual system build in to the amplifier.

The siren features will include:

- Six (6) function siren plus radio repeat and public address
- Will meet California Title 13 and SAE J1849 specifications.
- Model 295HFSA7 will operate two (2) 100 watt speakers
- Operates in dual or mono modes.
- External dip switch selectable modes of operation.
- Outputs 2 independent siren tones creating a "rich harmonic dual tone sound".
- "Hands Free" operation. Turn On/Off and access all three siren tones (wail, yelp, and Piercer) without taking hands from the steering wheel.
- PTT (push to talk) switch on microphone overrides all siren functions.
- Removable unidirectional microphone.
- Adjustable microphone volume.
- Adjustable preset radio repeat volume.
- Input polarity protection.
- Output short circuit protection.
- External mini spade-type fuse.
- Bi-polarity horn/ring control activation.
- Quick disconnect plug for ease of service or replacement.
- Five year HDP "Heavy Duty Professional" warranty on amp.

This siren to be active when the battery switch is on and the emergency master switch is on.

Electronic siren head will be located in the center console.

SIREN CONTROL

The electronic siren will be controllable on the siren head and horn ring only. No foot switches will be required.

The driver will have the option to control the siren or the chassis horns from the horn button by means of a selector switch located on the instrument panel.

SPEAKERS

There will be two (2) Whelen®, Model SA315P, black nylon composite, 100-watt, speakers with through bumper mounting brackets and polished stainless steel grille provided. Each speaker will be connected to the siren amplifier.

There will be one (1) speaker recessed in the passenger side and one (1) speaker recessed in the driver side of the front bumper. The speakers will be located in the angled corner area of the bumper.

AUXILIARY MECHANICAL SIREN

There will be a Federal Signal Model Q2B mechanical siren furnished and installed in the front of the apparatus.

The Q2B will be chrome finish.

The siren will have a 2-gauge cable connected to a power solenoid that is connected by a 2-gauge cable ran battery direct to the primary chassis batteries and will be labeled Q2B+ at the battery. The power solenoid will only be enabled when the emergency master switch is on.

The siren will have a 2-gauge ground wire connected to the chassis battery stud. The cable will be labeled Q2B- at the battery.

The mechanical siren will be mounted on the bumper deck plate. It will be mounted on the left side. A reinforcement plate will be furnished to support the siren.

MECHANICAL SIREN CONTROL

The mechanical siren will be activated by the following:

- Right side foot switch.

A momentary switch will be included in the right side overhead switch panel to activate the siren brake.

MECHANICAL SIREN INTERLOCK

The mechanical siren will be interlocked to shutoff whenever parking brake is applied. The interlock will disconnect the power only.

FRONT ZONE UPPER WARNING LIGHTS

There will be three (3) Whelen Freedom IV LED lightbars mounted on the cab roof.

The driver's side lightbar will be a 21.50" lightbar installed at a 30 degree angle from the front of the cab with the following:

- One (1) red flashing LED module in the outside end position.
- One (1) red flashing LED module in the outside front corner position.
- One (1) white flashing LED module in the outside front position.
- One (1) white flashing LED module in the inside front position.
- One (1) red flashing LED module in the inside front corner position.

The center lightbar will be a 44.00" lightbar installed parallel to the front of the cab will include the following:

- One (1) red flashing LED module in the driver's side front corner position.
- One (1) red flashing LED module in the driver's side first front position.
- One (1) white flashing LED module in the driver's side second front position.
- One (1) red flashing LED module in the driver's side third front position.
- One (1) red flashing LED module in the driver's side fourth front position.
- One (1) red flashing LED module in the passenger's side fourth front position.
- One (1) red flashing LED module in the passenger's side third front position.
- One (1) white flashing LED module in the passenger's side second front position.
- One (1) red flashing LED module in the passenger's side first front position.
- One (1) red flashing LED module in the passenger's side front corner position.

The passenger's side lightbar will be a 21.50" lightbar installed at a 30 degree angle from the front of the cab with the following:

- One (1) red flashing LED module in the inside front corner position.
- One (1) white flashing LED module in the inside front position.
- One (1) white flashing LED module in the outside front position.
- One (1) red flashing LED module in the outside front corner position.
- One (1) red flashing LED module in the outside end position.

There will be clear lenses included on the lightbar.

There will be a switch in the cab on the switch panel to control the lightbars.

The white flashing LEDs will be disabled when the parking brake is applied.

The six (6) red flashing LED modules facing forward in the center lightbar and the two (2) red flashing LED modules in the inside corner positions may be load managed when the parking brake is applied.

WARNING LIGHTS (CAB FACE)

There will be four (4) Whelen® Model 6RB**, 4.19" long x 6.57" long x 3.44" deep flashing in a rotating pattern LED lights installed on the cab face above the headlights mounted in a common bezel.

- The driver's side front outside warning light to be red.
- The left side inside warning light to include red LEDs.
- The right side inside warning light to include red LEDs.
- The passenger's side front outside warning light to be red.
- The housing to be polished and the trim shall be chrome.
- The warning light lens color(s) to be clear.

The lights will be controlled per the following:

- A switch in the cab on the switch panel to control the lights.
- White LEDs will be deactivated when the parking brake is applied
- Amber LEDs will be activated when the parking brake is applied.
- Amber, blue, green and red LEDs may be load managed when the parking brake is applied.

DAYTIME RUNNING LIGHTS (HEADLIGHTS)

The low-beam headlights used as daytime running lights will be activated with the following measures:

- Ignition switch is turned on
- Parking brake is released

These lights will be deactivated with any one of the following measures:

- Headlight switch is turned on
- High-beam flash is turned on
- Parking brake is set

HEADLIGHT FLASHER

The high beam headlights will flash alternately between the left and right side.

There will be a switch installed in the cab on the switch panel to control the high beam flash. This switch will be live when the battery switch and the emergency master switches are on.

The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.

SIDE ZONE LOWER LIGHTING

There will be four (4) Whelen®, flashing LED warning lights with chrome trim installed per the following:

- Two (2) Model 90**5F*R, 7.12" high x 9.12" long x 1.37" deep lights, one (1) each side on the bumper extension. The left side, side front light to include red warning LEDs and the right side, side front light to include red warning LEDs.
- Two (2) Model 60*02F*R, 4.18" high x 6.56" long x 1.43" deep, one (1) each side on the rear fender panel. The left side, side rear light to include red warning LEDs and the right side, side rear light to include red warning LEDs.
- The warning light lens color(s) to be clear.

There will be a switch in the cab on the switch panel to control the lights.

SIDE WARNING LIGHTS

There will be six (6) Whelen®, Model 90**5F*R, 7.12" high x 9.12" long x 1.37" deep flashing LED warning light(s) with chrome trim provided (1) forward and (1) rearward of HiViz scene light on LS and RS front of side body and (1) forward of HiViz scene light on LS and RS rear of side body.

The light(s) to include red flashing LEDs.

The warning light lens color(s) to be clear.

The trim shall be chrome.

There will be a switch in the cab on the switch panel to control the light(s).

The light(s) may be load managed when the parking brake is applied.

White LEDs will be deactivated when the parking brake is applied.

SIDE WARNING LIGHTS

There will be two (2) Whelen®, Model 60*02F*R, 4.18" high x 6.56" wide x 1.43" deep flashing LED warning light(s) with chrome trim provided in the crew cab door step well, each side (match 33348).

The light(s) to include amber LEDs.

The lens color(s) to be clear.

There will be a switch in the cab on the switch panel to control the light(s).

The light(s) may be load managed when the parking brake is applied.

SIDE WARNING LIGHTS

There will be two (2) Whelen®, Model 60*02F*R, 4.18" high x 6.56" wide x 1.43" deep flashing LED warning light(s) with chrome trim provided forward body fender panel, each side.

The light(s) to include red flashing LEDs.

The warning light lens color(s) to be clear.

There will be a switch in the cab on the switch panel to control the light(s).

The light(s) may be load managed when the parking brake is applied.

SIDE WARNING LIGHTS

There will be two (2) Whelen®, Model 60*02F*R, 4.18" high x 6.56" wide x 1.43" deep flashing LED warning light(s) with chrome trim provided centered over front wheels on cab, each side.

The light(s) to include red LEDs.

The lens color(s) to be clear.

There will be a switch in the cab on the switch panel to control the light(s).

The light(s) may be load managed when the parking brake is applied.

WARNING LIGHTS (SIDE)

There will be four (4) Whelen LIN3 Super LED lights, Model RS*02ZCR, provided and located in the body rub rails centered in LS and RS body rub rails.

The color of each light will be red LED with clear lens.

Each light will be provided with a chrome plated ABS flange.

The light(s) will be activated with the side warning switch.

ADDITIONAL SIDE WARNING LIGHTS

There will be four (4) Whelen® Model RS*02ZCR, 1.12" high x 3.50" long x 1.25" deep flashing LED warning lights with clear lenses recessed into the cab access steps per the following:

- one (1) in the driver's side crew cab step
- one (1) in the driver's side cab step
- one (1) in the passenger's side cab step
- one (1) in the passenger's side crew cab step

The light(s) to include red LEDs.

There will be switched with with the side warning switch.

The lights may be load managed when the parking brake is applied.

REAR ZONE LOWER LIGHTING

There will be two (2) Whelen®, Model 60*02F*R, 4.12" high x 6.50" long flashing LED warning lights installed at the rear of the apparatus per the following:

- The driver's side rear light to be red.
- The passenger's side rear light to be red.
- The lens color(s) for the rear light(s) to be clear.

Each light will be mounted in a housing.

There will be a switch located in the cab on the switch panel to control the lights.

REAR AND SIDE UPPER ZONE WARNING LIGHTS

There will be four (4) Whelen®, Model 90**5F*R, 7.12" high x 9.12" long x 1.37" deep flashing LED warning lights chrome trim provided per the following:

- One (1) light installed on the left side, side of the apparatus as high and close to the rear as practical. The side rear upper light on the driver's side to include red LEDs.
- One (1) light installed on the left side, rear of the apparatus as high and close to the outside as practical. The rear upper light on the driver's side to include red LEDs.
- One (1) light installed on the right side, rear of the apparatus as high and close to the outside as practical. The rear upper light on the passenger's side to include red LEDs.
- One (1) light installed on the right side, side of the apparatus as high and close to the rear as practical. The side rear upper light on the passenger's side to include red LEDs.

The lens color(s) to be clear.

There will be a switch located in the cab on the switch panel to control the lights.

ELECTRICAL SYSTEM GENERAL DESIGN FOR ALTERNATING CURRENT

The following guidelines will apply to the 120/240 VAC system installation:

General

Any fixed line voltage power source producing alternating current (ac) line voltage will produce electric power at 60 cycles plus or minus 3 cycles.

Except where superseded by the requirements of the current edition of applicable NFPA standards, all components, equipment and installation procedures will conform to NFPA 70, National Electrical Code (herein referred to as the NEC).

Line voltage electrical system equipment and materials included on the apparatus will be listed and installed in accordance with the manufacturer's instructions. All products will be used only in the manner for which they have been listed.

Grounding

Grounding will be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems will not be used. Only stranded or braided copper conductors will be used for grounding and bonding.

An equipment grounding means will be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.

The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. This conductor will have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements will be permitted to be used.

All power source system mechanical and electrical components will be sized to support the continuous duty nameplate rating of the power source.

Operation

Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, will be permanently attached to the apparatus at any point where such operations can take place.

Provisions will be made for quickly and easily placing the power source into operation. The control will be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train will be equipped with a means to prevent the unintentional movement of the control device from its set position.

A power source specification label will be permanently attached to the apparatus near the operator's control station. The label will provide the operator with the following information:

- Rated voltage(s) and type (ac or dc)
- Phase
- Rated frequency
- Rated amperage
- Continuous rated watts
- Power source engine speed

Direct drive (PTO) and portable generator installations will comply with Article 445 (Generators) of the NEC.

Overcurrent protection

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device will not exceed 144.00" (3658 mm) in length.

For fixed power supplies, all conductors in the power supply assembly will be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).

For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device will be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).

Wiring Methods

Fixed wiring systems will be limited to the following:

- Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)
- or
- Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)

Electrical cord or conduit will not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring will be run as follows.

- Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping
- Separated from fuel lines by a minimum of 6.00" (152 mm) distance

Electrical cord or conduit will be supported within 6.00" (152 mm) of any junction box and at a minimum of every 24.00" (610 mm) of continuous run. Supports will be made of nonmetallic materials or corrosion protected metal. All supports will be of a design that does not cut or abrade the conduit or cable and will be mechanically fastened to the vehicle.

Wiring Identification

All line voltage conductors located in the main panel board will be individually and permanently identified. The identification will reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends will be labeled showing function and wire size.

Wet Locations

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, will be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.

All receptacles located in a wet location will be not less than 24.00" (610 mm) from the ground. Receptacles on off-road vehicles will be a minimum of 30.00" (762 mm) from the ground.

The face of any wet location receptacle will be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle will be installed in a face up position.

Dry Locations

All receptacles located in a dry location will be of the grounding type. Receptacles will be not less than 30.00" (762 mm) above the interior floor height.

All receptacles will be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they will be so marked.

Listing

All receptacles and electrical inlet devices will be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages will be rated for the appropriate service.

Electrical System Testing

The wiring and associated equipment will be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test will be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test will be conducted after all body work has been completed.

Electrical polarity verification will be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

Operational Test per Current Edition NFPA Standard

The apparatus manufacturer will perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test will be witnessed and the results certified by an independent third-party certification organization.

The prime mover will be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.

The power source will be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current edition of applicable NFPA standards.

Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current edition of applicable NFPA standards will be applied to the low voltage electrical system during the operational test.

GENERATOR

The apparatus will be equipped with a complete electrical power system. The generator will be a Harrison Model 20.0 NCM2 20.0 kW Hydraulic unit. The wiring and generator installation will conform to the present National Electrical Codes Standards of the National Fire Protection Association. The installation will be designed for continuous operation without overheating and undue stress on components.

Generator Performance

- Continuous Duty Rating: 20,000 watts
- Nominal Volts: 120/240
- Amperage: 167 @ 120 volts, 84 @ 240 volts
- Phase: Single
- Cycles: 60 hertz
- Engine Speed at Engagement: Idle
- RPM range: 900 to 3,000 (hydraulic pump)

Generator Dimensions

- Length: 42.00 inches
- Width: 22.50 inches
- Height: 18.50 inches
- Weight: 455 pounds

The output of the generator will be controlled by an internal hydraulic system. An electrical instrument gauge panel will be provided for the operator to monitor and control all electrical operations and output.

The generator will be driven by a transmission power take off unit, through a hydraulic pump and motor.

The generator will include an electrical control inside the cab. The hydraulic engagement supply will be operational at any time (no interlocks).

An electric/hydraulic valve will supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.

Generator Instruments and Controls

To properly monitor the generator performance a digital meter panel will be furnished and mounted next to the circuit breaker panel. The meter will indicate the following items:

- Voltage
- Amperage for both lines
- Frequency
- Generator run hours
- Over current indication
- Over temperature indication
- "Power On" indication
- Two (2) fuse holders with two (2) amp fuses (for indicator light protection)

The meter and indicators will be installed near eye level in the compartment. Instruments will be flush mounted in an appropriate sized weatherproof electrical enclosure. All instruments used will be accurate within +/- two (2) percent.

Generator Wiring:

The system will be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. The wiring, electrical fixtures and components will be to the highest industry quality standards available on the domestic market. The equipment will be the type as designed for mobile type installations subject to vibration, moisture and severe continuous usage. The following electrical components will be the minimum acceptable quality standards for this apparatus:

Wiring:

All electrical wiring will be fine stranded copper type. The wire will be sized to the load and circuit breaker rating; ten (10) gauge on 30 amp circuits, 12 gauge on 20 amp circuits and 14 gauge on 15 amp circuits. The cable will be run in corner areas and extruded aluminum pathways built into the body for easy access.

Load Center:

The main load center will be a Cutler Hammer with circuit breakers rated to load demand.

Circuit Breakers:

Individual breakers will be provided for all on-line equipment to isolate a tripped breaker from affecting any other on-line equipment.

GENERATOR LOCATION

The generator will be installed inside the recessed area on the roof of the body. Modifications such as additional support structure and/or knockouts in the adjacent body wall(s) will be provided as necessary to support the weight and provide airflow for the generator.

GENERATOR START

There will be a switch provided on the cab instrument panel to engage the generator.

CIRCUIT BREAKER PANEL

The circuit breaker panel will be located above the counter on the interior forward wall.

LIGHT TOWER

There will be one (1) Will-Burt, Model NS Profiler 3.0-450 WHL, light tower provided.

There will be three (3) Whelen, Model PFP2AC, 150 watt, 120 volt AC light heads included on this tower.

The painted parts of the light tower and the light heads to be white.

This tower will be connected to the Do Not Move Truck Indicator in the cab.

Light Tower Location

The light tower will be installed on the roof of the rescue body. The exact location on the roof will be recessed driver's side rear.

Light Tower Controller

There will be one (1) handheld wired controller included.

Light Tower Controller Location

The light tower controller will be installed in the driver's side front body compartment.

ELECTRIC CORD REEL

There will be a total of two (2) cord reels, Hannay, three (3) conductor electric cord reel(s), capable of holding 12/3, 600-volt cable or 10/3, 600-volt cable located recessed in upper rear bulkhead compartments, (1) in B1 and (1) in B2.

The exterior finish of the reel(s) will be painted #269 gray from the reel manufacturer.

The reel will be provided with an overcurrent protected 12-volt electric rewind motor and fuse protected, guarded switch labeled for its intended use. The switch will be installed at a height not to exceed 72.00" above the operators standing position.

A label indicating current rating, current type, phase, voltage and total cable length will be provided in a readily visible location adjacent to the reel.

The reel will be provided with A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop will be provided to prevent the cord from being wound on the reel.

CORD

Provided for electric distribution will be two (2) lengths, one (1) for each reel, of 200 feet of yellow 10/3 electrical cord, weather resistant 105 degree Celsius to -50 degree Celsius, 600 volt jacketed SOOW cord. No connector will be installed on the end of the cord.

PORTABLE JUNCTION BOX

There will be two (2) Akron EJBX electric junction box(es) provided.

There will be a cable strain relief and direct connection, no plug provided for each box.

Each box will be provided with the following:

- two (2) 15/20 amp 120 volt AC duplex straight blade receptacle with flip up covers
- two (2) 20 amp 120 volt AC twist lock single receptacles with flip up covers
- a 120 volt AC light inside the box

POWER OUTLET STRIP

There will be one (1) Sentrex Model M620BZLS 18.00" long x 2.00" wide x 1.75" thick, surge protected receptacle strip(s) with six (6) 20 amp 120 volt AC straight blade receptacles provided TBD.

The strip(s) selected will be powered from onboard generator to shoreline power transfer switch through a receptacle located adjacent to the strip(s).

There will be a label installed near the strip(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

POWER OUTLET STRIP

There will be two (2) receptacle strip(s) with six (6) 20 amp 120 volt AC straight blade receptacles provided (1) in each rear facing overhead compartment.

The strip(s) selected will be powered from the onboard generator to shoreline power transfer switch through a receptacle located adjacent to the strip(s).

There will be a label installed near the strip(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

120 VOLT RECEPTACLE

There will be two (2), 15/20 amp 120 volt AC three (3) wire straight blade duplex receptacle(s) with interior duplex flip up cover(s), installed one on each side forward body work area. The NEMA configuration for the receptacle(s) will be 5-20R.

The receptacle(s) will be powered from the onboard generator to shoreline power transfer switch.

There will be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

120 VOLT RECEPTACLE

There will be four (4), 20 amp 120 volt AC three (3) wire twist lock receptacle(s) with waterproof flip up cover(s) installed on the left rear fender panel and on the right rear fender panel. The NEMA configuration for the receptacles will be L5-20R.

The receptacle(s) will be powered from the on board generator.

There will be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

AIR REEL FOR TOOLS

There will be a total of one (1) reel provided. The reel(s) will be located ceiling mounted, forward in RS5. Each will be capable of holding up to 150' of low pressure, 0.38" inside dimension hose.

The air to this reel will be supplied from the chassis air brake system. An additional air tank will be provided in the chassis air system to supply the reel. The reel system will be piped from the chassis air system with a pressure protection valve to ensure adequate air to the brake

system. Plumbing to the reel will be accomplished with as few air restrictions as possible. The output flow of the engine air compressor varies with engine RPM. Full compressor output is only achieved at governed engine speed. Engine speed may be limited by generators, pumps and other PTO driven options.

The hose reel will include the following features:

- The side discs will have rolled edges and concentric reinforcing ribs
- The drum will be roll formed with a full length weld
- A bearing will support the axle at each end of the reel to provide smooth rotation and eliminate weight on the swivel joint
- The reel axle will be the full length of the reel
- The swivel joint inlet will permit the reel to rotate freely while connected

The reel will be equipped with a 12-volt DC electric rewind motor operated by a push button switch which is guarded to prevent accidental operation. The switch will be installed at a height not to exceed 72.00" above the operator's standing position. A properly rated circuit breaker will be provided to protect the rewind motor against short circuit and overload. A 12-volt fuse will protect the rewind control circuit.

The exterior finish of the reel(s) will be painted #269 gray from the reel manufacturer.

A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop will be provided to prevent the end of the hose from being wound onto the reel.

A label will be provided in a readily visible location adjacent to the reel. The label will indicate utility air, the operating pressure, total hose length and hose size (inside dimension).

Hose

Each low pressure reel will be equipped with 150' of "Insta-Grip", number 9273 heavy duty blue hose with an inside dimension of 0.38". The hose will be continuous with no unions.

TOOL AIR SHUT-OFF VALVE

Installed on the reel will be a shutoff valve.

There will be one for each reel for a total of one (1).

AIR REGULATOR AND GAUGES

A regulator and two (2) air pressure gauges will be supplied at the low pressure reel.

The regulator will be plumbed in the supply line to the reel. The first air pressure gauge will be plumbed into the system before the regulator. The second air pressure gauge will be plumbed into the system after the regulator.

The regulator will be accessible for adjustment.

Regulator and gauges will be provided for one (1) air reel(s).

LOOSE EQUIPMENT

The following equipment will be furnished with the completed unit:

- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.

NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT

The following loose equipment as outlined in NFPA 1901, 2016 edition, section 10.9.3 will be provided by the fire department.

- One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than two (2), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.
- One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).
- One (1) first aid kit.
- One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front.
- Five (5) fluorescent orange traffic cones not less than 28" (711 mm) in height, each equipped with a 6" (152 mm) retro-reflective white band no more than 4" (152 mm) from the top of the cone, and an additional 4" (102 mm) retro-reflective white band 2" (51 mm) below the 6" (152 mm) band.
- Five (5) illuminated warning devices such as highway flares, unless the five fluorescent orange traffic cones have illuminating capabilities.
- One automatic external defibrillator (AED).

DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 10.9.3 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 10.9.3 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

PAINT PROCESS

The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.
2. Chemical Cleaning and Pretreatment - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion.
3. Surfacer Primer - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.
4. Finish Sanding - The Surfacer Primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.
5. Sealer Primer - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.
6. Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat will be applied. The Basecoat will be applied to a thickness that will achieve the proper color match. The Basecoat will be used in conjunction with a urethane clear coat to provide protection from the environment.
7. Clear Coat - Two (2) coats of Clear Coat will be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors will be Clear Coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacturer.

After the cab and body are painted, the color will be verified to make sure that it matches the color standard. Electronic color measuring equipment will be used to compare the color sample to the color standard entered into the computer. Color specifications will be used to

determine the color match. A Delta E reading will be used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim will be removed and painted separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T. standard in critical areas. The manufacture's written paint standards will be available upon request.

Environmental Impact

Contractor will meet or exceed all current state regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

- Topcoats and primers will be chrome and lead free.
- Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations will have a 99.99 percent efficiency factor.
- Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98 percent. Water wash systems will be 99.97 percent efficient
- Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.
- Paint wastes are disposed of in an environmentally safe manner.
- Empty metal paint containers will be recycled to recover the metal.
- Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his state EPA rules and regulations.

CAB TWO-TONE PAINT

The cab will be painted two-tone, with the upper section painted #10 white and the lower section painted #399 Red. There will be a standard two-tone cab paint break provided.

There will be a standard cab shield provided.

TWO-TONE BODY PAINT

The body will be painted two-tone with the upper section painted to match the upper section of the cab and the lower section painted to match the lower section of the cab. The body paint break will be above the body compartment door openings.

PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly will be finished with primer and gloss paint to match the lower job color before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that will be painted are:

- Frame rails
- Frame liners
- Cross members
- Axles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles
- Rear Body support substructure (front and rear)
- Pump house substructure
- Steel fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

Components treated with epoxy E-coat protection prior to paint:

- Two (2) C-channel frame rails
- Two (2) frame liners

The E-coat process will meet the technical properties shown.

PAINT, REAR WHEELS

All wheel surfaces, inside and outside of inboard steel wheels only, will be provided with powder coat paint #101 black.

AXLE HUB PAINT

All axle hubs will be painted to match lower job color.

COMPARTMENT INTERIOR PAINT

The interior of all compartments will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.

REFLECTIVE STRIPES

Three (3) reflective stripes will be provided across the front of the vehicle and along the sides of the body. The reflective band will consist of a 1.00" white stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" white stripe on the bottom.

CHEVRON STRIPING ON THE FRONT BUMPER

There will be alternating chevron striping located on the front bumper.

The colors will be red and fluorescent yellow green diamond grade.

The size of the striping will be 8.00".

REAR CHEVRON STRIPING

There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces will include the exterior rear wall. Rear compartment doors, entry doors, or walkway areas will not be covered.

The colors will be red and fluorescent yellow green diamond grade.

Each stripe will be 6.00" in width.

This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.

JOG(S) IN REFLECTIVE BAND

The reflective band located on each side of the apparatus body will contain one (1) jog(s) and will be angled at approximately a 45 degrees when installed.

CAB DOOR REFLECTIVE STRIPE

A 6.00" x 16.00" white reflective stripe will be provided across the interior of each cab door. The stripe will be located approximately 1.00" up from the bottom, on the door panel.

This stripe will meet the NFPA 1901 requirement.

REFLECTIVE STRIPE, HDR BODY DOOR(S)

A 6.00" x 16.00" white reflective stripe will be provided across the interior of each body entry door. The stripe will be located approximately 1.00" up from the bottom, on the door panel.

The stripe will be provided on one (1) entry door.

This stripe will meet the NFPA 1901 requirement.

CAB STRIPE

There will be a genuine gold leaf stripe provided on both sides of the cab in place of the chrome molding.

LETTERING

The lettering will be totally encapsulated between two (2) layers of clear vinyl.

LETTERING

Twenty-one (21) to forty (40) genuine gold leaf lettering, 3.00" high, with outline and shade will be provided.

LETTERING

Twenty-one (21) to forty (40) genuine gold leaf lettering, 10.00" high, with outline and shade will be provided.

LETTERING

There will be genuine gold leaf lettering, 3.00" high, with outline and shade provided. There will be five (5) letters provided.

LETTERING

There will be non-reflective vinyl lettering, 18.00" high, with no outline or shade provided. There will be two (2) letters provided.

LETTERING ON MUD FLAP

The full width mud flap will state the following in reflective lettering: TBD

The font style of the lettering will be Style 4.

The color of the lettering will be ruby red with white outline.

EMBLEM/S

There will be one (1) pair of genuine gold leaf emblems, 12.00" to 14.00" wide, supplied and installed Cab door on each side - match previous unit. The emblems will include the fire department's monogram or number inside of a circle with scrolling.

EMBLEM

There will be two (2) emblem(s), approximately 9.00" - 11.00" wide in size, installed behind each crew cab door. The emblem will feature a "Flying American Flag" and an "Eagle Head".

FIRE APPARATUS PARTS MANUAL

There will be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided.

The manual(s) will contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in alphabetical order
- Instructions on how to locate parts

Each manual will be specifically written for the chassis and body model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

Service Parts Internet Site

The service parts information included in these manuals are also available on the Pierce website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.

CHASSIS SERVICE MANUALS

There will be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit.

The manual will contain the following sections:

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine
- Tires
- Wheels
- Cab
- Electrical, DC
- Air Systems
- Plumbing
- Appendix

The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

CHASSIS OPERATION MANUAL

The chassis operation manual will be provided on one (1) USB flash drive.

ONE (1) YEAR MATERIAL AND WORKMANSHIP

A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.

THREE (3) YEAR MATERIAL AND WORKMANSHIP

The Pierce custom chassis limited warranty certificate, WA0284, is included with this proposal.

ENGINE WARRANTY

A Cummins **five (5) year** limited engine warranty will be provided. A limited warranty certificate, WA0181, is included with this proposal.

STEERING GEAR WARRANTY

A TRW **one (1) year** limited steering gear warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.

FIFTY (50) YEAR STRUCTURAL INTEGRITY

The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included with this proposal.

FRONT AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY

A Meritor™ Axle 5 year limited warranty will be provided.

TDM REAR AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY

A Meritor™ Axle 5 year limited warranty will be provided.

ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY

A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.

TEN (10) YEAR STRUCTURAL INTEGRITY

The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.

FIVE (5) YEAR MATERIAL AND WORKMANSHIP

The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.

CAMERA SYSTEM WARRANTY

A Pierce fifty four (54) month warranty will be provided for the camera system.

COMPARTMENT LIGHT WARRANTY

The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included with this proposal.

TRANSMISSION WARRANTY

The transmission will have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission.

Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.

TRANSMISSION COOLER WARRANTY

The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed \$10,000 per occurrence. A copy of the warranty certificate will be submitted with the bid package.

FIFTEEN (15) YEAR STRUCTURAL INTEGRITY

The Pierce heavy duty rescue apparatus body limited warranty certificate, WA0010, is included with this proposal.

ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY

A Gortite roll-up door limited warranty will be provided. The mechanical components of the roll-up door will be warranted against defects in material and workmanship for the lifetime of the vehicle. A **six (6) year** limited warranty will be provided on painted and satin roll up doors.

The limited warranty certificate, WA0190, is included with this proposal.

TWO (2) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY

A Harrison Hydra-Gen generator two (2) year limited warranty will be provided.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.

THREE (3) YEAR MATERIAL AND WORKMANSHIP

The Pierce Goldstar gold leaf lamination limited warranty certificate, WA0018, is included with this proposal.

VEHICLE STABILITY CERTIFICATION

The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification will be provided at the time of bid.

ENGINE INSTALLATION CERTIFICATION

The fire apparatus manufacturer will provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification will be provided at the time of delivery.

POWER STEERING CERTIFICATION

The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification will be provided at the time of bid.

CAB INTEGRITY CERTIFICATION

The fire apparatus manufacturer will provide a cab crash test certification with this proposal. The certification will state that a specimen representing the substantial structural configuration of the cab has been tested and certified by an independent third party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer will provide a state licensed professional engineer to witness and certify all testing events. Testing will meet or exceed the requirements below:

- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- European Occupant Protection Standard ECE Regulation No.29.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

Side Impact

The cab will be subjected to dynamic preload where a 14,320-lbs moving barrier is slammed into the side of the cab at 5.50 mph, striking with an impact of 13,000 ft-lbs of force. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident.

Roof Crush

The same cab will be subjected to a roof crush force of 22,050 lbs. This value meets the ECE 29 criteria, and is equivalent to the front axle rating up to a maximum of ten (10) metric tons.

Additional Roof Crush

The same cab will be subjected to a roof crush force of 100,000 lbs. (Four and a half times the load criteria of ECE 29)

Frontal Impact

The same cab will withstand a frontal impact of 32,600 ft-lb of force using a moving barrier in accordance with SAE J2420.

Additional Frontal Impact

The same cab will withstand a frontal impact of 65,200 ft-lb of force using a moving barrier. (Twice the force required by SAE J2420)

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

There will be no exception to any portion of the cab integrity certification. Nonconformance will lead to immediate rejection of bid.

CAB DOOR DURABILITY CERTIFICATION

Robust cab doors help protect occupants. Cab doors will survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder will certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.

WINDSHIELD WIPER DURABILITY CERTIFICATION

Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers will survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 *Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles*. The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.

ELECTRIC WINDOW DURABILITY CERTIFICATION

Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design will complete 30,000 complete up-down cycles and still function normally when finished. The bidder will certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.

SEAT BELT ANCHOR STRENGTH

Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design will withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder will certify that each anchor design was pull tested to the required force and met the appropriate criteria.

SEAT MOUNTING STRENGTH

Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design will be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder will certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

PERFORMANCE CERTIFICATIONS

Cab Air Conditioning

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system will cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 78 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar cab has been tested and has met these criteria.

Cab Defroster

Visibility during inclement weather is essential to safe apparatus performance. The defroster system will clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. The bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.

Cab Auxiliary Heater

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. An auxiliary cab heater will warm the cab 77 degrees Fahrenheit from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder will certify, at time of delivery, that a substantially similar cab has been tested and has met these criteria.

AMP DRAW REPORT

The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus will provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which will include the following:
 - The nameplate rating of the alternator.
 - The alternator rating under the conditions specified per:
 - Applicable NFPA 1901 or 1906 (Current Edition).
 - The minimum continuous load of each component that is specified per:
 - Applicable NFPA 1901 or 1906 (Current Edition).
 - Additional loads that, when added to the minimum continuous load, determine the total connected load.
 - Each individual intermittent load.

All of the above listed items will be provided by the bidder per the current edition of applicable NFPA standards.



Monroe Fire Department





STAFF REPORT

TO: Public Safety Committee

VIA: Mark Watson, City Manager

DATE: November 6, 2024

FROM: Ronald D. Fowler, Fire Chief

PREPARED BY: Greg Collins, Deputy Fire Chief

SUBJECT: Fire Department Logistics Building

SUMMARY STATEMENT

Staff will present to public safety committee a proposal for utilizing existing city owned building site to accommodate Fire Department logistical storage needs.

REVIEW

The fire department and outside firms have identified in the past, a deficiency in adequate logistical storage throughout all fire department facilities. To make up for this, general supplies, PPE, uniforms, trailers and equipment are being housed in any areas we can find at existing facilities. These include areas unsecured and outside, in hallways, offices, and other areas not best suited for the proper storage and protection of the materials and equipment.

Staff has identified an existing city owned building/site on Marshal street that could meet the Fire Department's logistical needs. The site currently has a skeleton of a building that could be reskinned with metal and have some basic additions inside added for a substantial cost savings over new ground up construction. This building is 4,800 sf. and staff has received an informal quote for an estimated \$540,000, (\$112.50/.sf) to make a functional warehouse/logistics facility. This cost includes metal siding, insulation, addition of an office and bathroom, electrical, plumbing, HVAC, covered exterior dock and 2 overhead doors etc.

RECOMMENDATION

For review of project and discussion purposes.



STAFF REPORT

TO: City Council

VIA: Mark Watson, City Manager

DATE: November 14, 2023

FROM: Ronald D. Fowler, Fire Chief

PREPARED BY: Alice Withers, Administrative Assistant II - Fire

SUBJECT: Budget Amendment for Fire Department Donation from Wincrest Homeowners Association

SUMMARY STATEMENT

The Fire Department seeks a budget amendment to accept a donation.

REVIEW

The Fire Department has received a \$50 donation from Wincrest Homeowners Association to be used as needed.

This matter was presented to the Public Safety Committee on November 6, 2023.

RECOMMENDATION

The Public Safety Committee and Staff recommend that City Council adopt a Budget Amendment accepting and appropriating the donation to the Fire expenditure account for the use intended.

Attachment: Budget Amendment BA-2023-18

**BUDGET AMENDMENT
BA-2023-18**

1. Amendment necessary to designate and appropriate funding received from a donation for the General Fund.

General Fund:

Revenue:

Miscellaneous – Fire	\$50
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Expenditure:

Public Safety – Fire	\$50
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Adopted this 14th day of November, 2023.

Marion L. Holloway, Jr., Mayor

Attest:

Bridgette H. Robinson, City Clerk