THE CORPORATION OF THE
TOWNSHIP OF SOUTH GLENGARRY
P.O. Box 220, 6 Oak Street Lancaster, ON
K0C 1N0

FIRE SERVICES

PROCUREMENT 2025-17

SUPPLY OF
ONE (1) FIRE PUMPER APPARATUS with
COMMERCIAL CHASSIS

CLOSING DATE:

1100 am local time on February 2nd, 2026

QUESTIONS / ADDENDUM

Questions relating to details within the Specifications section of the document will be accepted until January 20th, 11:00 hours (11:00 a.m.) local time.

If required, a single Addendum will be posted on January 26th.

BID SUBMISSION AND CLOSING

Bids must be received no later than 11:00 am (local time) on February 2nd, 2026.

Bids shall be submitted electronically by e-mail to clerk@southglengarry.com.

The Procurement Number must be clearly identified in the subject line of the email submission. The Township is not responsible for submissions that are delayed, misdirected, incomplete, or otherwise not received by the closing time.

LATE SUBMISSIONS WILL NOT BE ACCEPTED

SUBMISSION OPENING

Bid submissions will be opened following the Closing Time in accordance with the Township's procurement procedures. The bid opening will be recorded, and a recording of the opening will be posted to the Township's official YouTube channel approximately fifteen (15) minutes following the Closing Time.

The posting of the recording is provided for information purposes only and does not constitute formal acceptance of any bid or confirmation of bid compliance.

FORM OF SUBMISSION

PROCUREMENT 2025-17

FOR THE SUPPLY OF: **SUPPLY OF ONE (1) FIRE PUMPER APPARATUS with COMMERCIAL CHASSIS**

SUBMITTED BY:

_____

FIRM NAME

_____

ADDRESS

_____

HEREINAFTER CALLED THE RESPONDENT.

TELEPHONE # _____ FAX # _____

TO: THE CORPORATION OF THE
TOWNSHIP OF SOUTH GLENGARRY
6 Oak Street
Lancaster, Ontario K0C 1N0

I (we) _____ have carefully examined the site of the proposed work and all Contract documents relating thereto, do hereby Submission all and offer in accordance therewith to enter into a Contract as and when required by the Township of South Glengarry, in strict accordance with the said Contract documents and such further details as may be supplied and to supply all necessary labour, material and plant to complete the work in the time specified for the amount:

Total Purchase Price: _____
(in writing)

Purchase Price (per unit) $ _____

HST (per unit) $_____

Total Price (per unit) **$_____**

Sub Pricing (Breakout from Total Purchas Price)

Meetings and Inspections (Pg. 18) $_____

Apparatus delivery and on-site orientation (Pg. 19) $_____

The Respondent Agrees

1. To undertake any additional work as required or to accept any deductions from the Contract at the prices quoted in the Schedule of Items and Prices.

2. That this Submission is subject to a formal Contract being prepared and executed.

The Respondent Declares

1. No person, firm or corporation, other than the Respondent, has any interest in this Submission or in the proposed contract for which this Submission is made.

2. This Submission is made without any connection, comparison of figures, or arrangements with, or knowledge of any other corporation, firm or person making a Submission for the same work and is in all respect fair and without collusion or fraud.

3. No Member of the Council and no officer or employee of the Corporation is or will become interested directly or indirectly as a contracting party, partner, shareholder, surety or otherwise in or in the performance of the Contract or in any portion of the profits thereof, or in any of the monies to be derived there from.

4. The Respondent will hold harmless the Township of South Glengarry and will agree to take responsibility for any health and safety violations as well as the cost to defend such charges as a result of any violation under the Occupational Health & Safety Act.

LOWEST OR ANY SUBMISSION NOT NECESSARILY ACCEPTED

DATED AT _____ THIS _____ DAY OF _____2026

_____ _____

Signature of Witness Signature of Respondent

NOTE:

If the Submission is submitted by or on behalf of a corporation it must be signed in the name of such corporation by a duly authorized officer and the seal of the corporation must be affixed. If the Submission is submitted by or on behalf of an individual or a partnership, a seal must be affixed opposite the signature of the individual or the partner.

Form of Submission

All Submissions must be upon the Submission Form for the Contract. All information required must be provided.

Right to Accept or Reject Submissions

The Corporation of the Township of South Glengarry reserves the right to reject any or all Submissions or to accept any Submission should it be deemed in the interest of the Corporation of the Township of South Glengarry to do so.

1. Submissions

1.1. All submissions must be upon the Form of Submission, if included herein, and must be accompanied by a duly completed copy of the Schedule of Items and Prices.

1.2. All information required must be provided and the submission price must equal the total amount of the Schedule of Items and Prices.

1.3. Each Respondent is solely responsible for any and all costs associated with preparing and submitting its submission.

1.4. All submissions become the property of the Township of South Glengarry. Details of submissions may be disclosed after the evaluation process and therefore shall not be treated as confidential unless expressly stated otherwise.

1.5. Upon closing all submissions become irrevocable for 60 days from the closing time; a Respondent that fails to comply with this shall forfeit any deposit and will be liable for damages.

2. Declarations of Interests

2.1. The Respondent shall clearly indicate any and all persons, firms or corporations, other than the Respondent, that has any direct or indirect interest in the Respondent being successful in this solicitation and describe the general nature of the interest.

2.2. The Respondent shall clearly indicate any Member of Council or employee of the Township that has any direct or indirect pecuniary interest in the Respondent being successful in this solicitation and describe the general nature of the interest.

3. Drawings and Contract Documents

3.1. Each Respondent must satisfy him/herself by his/her own study, calculations and inspection of drawings, procurement documents and work sites, respecting the conditions existing or likely to exist in connection with the execution of the Agreement, as to the practicability of completing the Work successfully within the stipulated time. There will be no consideration of any claim that there is a misunderstanding with respect to the conditions imposed by the procurement process or any agreement arising from this process.

4. Tariffs

4.1 Any added costs associated with foreign tariffs imposed on any materials or equipment used in the manufacture of the specified vehicle, shall be removed if the said tariff is removed at any time prior to the final delivery and payment of the vehicle. These funds will be removed from the total agreed upon purchase price.

5. Taxes

5.1. The purchase price submitted shall be exclusive of applicable taxes.

6. Ability and Experience of Respondent

6.1. It is not the intent of the Corporation of the Township of South Glengarry to award this Contract to any Respondent who does not furnish satisfactory evidence that he/she has the ability and experience in this class of work and that he/she has sufficient capital and plant to enable him/her to prosecute and complete the Agreement.

7. Collusion or Fraud

7.1. The Respondent has ensured their submission is made without connection, comparison of figures, or arrangements with, or knowledge of any other corporation, firm or person making a submission for the same work and is in all respect fair and without collusion or fraud.

8. Evaluation

8.1. The Township of South Glengarry shall utilize the following scoring system in the evaluation of submissions:

8.1.1. **Completeness of Tender**. Are all requirements included?

8.1.2. **Degree of Similar work experience.** Provide contact information for at least 3 similar builds.

8.1.3. **Added value options**. Points will be awarded upon considering other vehicle or option designs and provided equipment.

8.1.4. **Warranty program and location of repair facility / Repair contractor**. Provide details for all warranty period repairs, location and other partner contractors.

8.1.5. **Delivery Timeframe**. Points for the delivery timeframe (from date of Tender close will be allotted as follows.

8.1.5.1. 0-6 months = 10 points

8.1.5.2. 6-12 months = 8 points

8.1.5.3. 12-18 months = 4 points

8.1.6. Price

Maximum Points

Completeness of Tender	5
Degree of Similar work experience	15
Added value options	5
Warranty Program and Repairs	15
Delivery timeframe	10
Price	50
Total	**100**

9. Written Agreement

9.1. This solicitation is subject to a formal Agreement being prepared and executed.

9.2. The Township shall not be obligated to any Respondent whatsoever unless a written Agreement has been executed relating to an approved submission.

9.3. The successful Respondent will be required to execute the Agreement within ten (10) business days from the date of mailing of the notice to the Respondent, according to the address given in the submission, that the Contract is ready for signature.

9.4. Unless specifically stated otherwise in any Agreement arising from this procurement process, any service, good or claim made in a Respondent's submission shall be considered to be part of the Agreement arising from this procurement process.

10. Payment

10.1. Payment shall be considered as compensation in full for the supply of all necessary labour, equipment, trucking and appliances including all material to complete the work as outlined in this Contract.

10.2. Payment shall be construed as including protection to all existing plant and structures within the limits of this Contract.

10.3. The Contractor shall note that any damage to existing plant or structures caused by his operations shall be reinstated to the Township of South Glengarry standards at his own expense subject to the approval of the Township Chief Administrative Officer, or his/her designate, and will, in no way, be considered as an extra to the Contract.

10.4. The Contractor is to provide a Statutory Declaration of payment for all sub-contractors used.

11. Legislation, Safety and Insurance

11.1. The successful Respondent shall perform the Work in accordance with all applicable laws and regulations, including but not limited to the *Occupational Health and Safety Act* and regulations of the Province of Ontario. In particular the Municipality will require, where appropriate, Respondents to furnish proof of training for WHMIS and a copy of their Health and Safety policy, as well as WSIB certificate with CAD 7 experience; these documents do not need to accompany the submission.

11.2. Should the successful Respondent be in contravention of the above, all work on the project shall cease immediately and remain stopped until adequate corrective measures have been taken and the Township shall be notified immediately. The Contractor will immediately take whatever corrective measures are necessary, and the decision of the Township Chief Administrative Officer, or his/her designate, shall be final in this regard.

11.3. The successful Respondent shall be the prime contractor and shall control the work to ensure compliance with all occupational health and safety laws and regulations.

11.4. The successful Respondent agrees to hold harmless the Township of South Glengarry and will agree to take responsibility for any health and safety violations as well as the cost to defend such charges as a result of any violation under the

Occupational Health and Safety Act.

11.5. The successful Respondent shall save harmless the Corporation of Township of South Glengarry from any liability and the successful Respondent shall have and maintain commercial general liability insurance coverage that shall include but not be limited to bodily and personal injury liability, property damage, contractual liability, professional liability and contingent employers liability coverage with an inclusive limit of not less than $5,000,000 per occurrence for personal injury or property damage, with an annual aggregate of at least $5,000,000 and a deductible not to exceed $10,000 the Corporation of the Township of South Glengarry shall be identified as an additional insured on the successful Respondent's insurance policy.

11.6. The successful Respondent shall also carry standard form automobile liability insurance with an inclusive limit of not less than $2,000,000 for any one occurrence in respect of the use or operation of vehicles by the Respondent for the provision of services, whether those vehicles are owned, leased or not owned by the Respondent.

11.7. The successful Respondent is to be known as the operator with regard to Commercial Vehicle Operator Registration (C.V.O.R.) Legislation as defined in the *Highway Traffic Act.*

12. Rights of Respondents/Contractor

12.1. By submission of a clear and detailed written notice, a Respondent may amend or withdraw its submission prior to the closing date and time.

12.2. The Contactor shall be entitled to simple interest calculated at ½ per cent per month on late payments.

12.3. The Contractor is entitled to final payment upon substantial completion, subject to any holdbacks and maintenance securities.

12.4. After the acceptance of a submission, the Contractor may apply to the Township to substitute another Material identified by a different trade or other name for the Material designated as aforesaid or propose a different work process. The application shall be in writing and shall state the price for the proposed substitute Material or work process and such other information as the Township may require.

12.5. Submissions and correspondence of Respondents or the Contractor shall be protected by the Freedom of Information and Protection of Privacy Act.

13. Rights of the Township

13.1. Notwithstanding anything herein, if it is deemed most favourable in the interests of the Township of South Glengarry then the Township reserves the following rights, to be exercised at its sole discretion, in order to select a submission that provides the greatest value based on quality, service and price:

13.1.1. to accept corrections to a submission after the closing date for obvious clerical errors except those that would vary the bid price.

13.1.2. to reject any or all submissions.

13.1.3. to include externalities and full-life cycle costs in determining price.

13.1.4. to use its own estimates on time requirements or “cost plus” estimates in determining price.

13.1.5. to award by item, or part thereof, groups of items, or all items of the procurement.

13.1.6. to accept non-compliant submissions where such non-compliance relates purely to a matter of form, is of a trivial nature, or has no effect upon the relative standing of the submissions.

13.1.6.1. Notwithstanding anything herein, the Township reserves the following rights in all cases, to be exercised at its sole discretion:

13.1.7. to reject any or all submissions based on one or more of the following factors: safety, financial stability of the Respondent, previous problems with the Respondent in delivering goods or services, the benefits of diversifying the Township’s sources of supply, reliability of a Respondent, and other commercially relevant considerations;

13.1.8. to reject any submission that has an all-inclusive cost that is more than 40% below or more than 40% above the average prices submitted and evaluated.

13.1.9. to reject any or all submissions if the fairness or legitimacy of the procurement process could reasonably be called into question because of interests any and all persons, firms or corporations have in a Respondent’s submission.

13.1.10. to modify, extend, suspend, postpone or cancel any part of this solicitation or any subsequent processes without any liability to anyone.

13.1.11. to issue, prior to the closing date, addenda for any part of the procurement process, including guidelines, plans, specifications, scope of work, requirements, timelines, etc.;

13.1.12. to cancel any Agreement arising out of this procurement process, without liability to the Township, if it is found that the successful Respondent provided information as part of this procurement process that it should have known to be incorrect and, in such circumstances, the Respondent will be liable for any damages incurred by the Township resulting from the cancellation of any such Agreement;

13.1.13. in the event of an emergency or pending emergency, to cancel the solicitation and accept, at any time, the submission that best meets the needs of the Township given the emergency.

13.1.14. the Township may contact any Respondent before, during and/or after this procurement process, including to clarify or gather additional information regarding a submission.

13.2. In the event that two or more submissions are ranked as equal the Township reserves the right to break the tie in a manner it deems appropriate.

13.3. Where a stepped or ranked scoring process is used, the Township reserves the right to score one or more submissions for any criteria as tied or to use a ranking for any criteria that exceeds the total number of submissions.

13.4. The Township reserves the right, at its sole discretion, to restrict a Respondent from participating in future solicitations if, at any time, they fail to follow any part of this procurement process.

13.5. The Township reserves the right to determine the existence of an emergency situation, and when such an emergency situation is deemed to exist the Township may instruct the Contractor to take action to remedy the situation. If the Contractor does not take timely action, or if the Contractor is not available, the Township may direct others to remedy the situation.

14. Other

14.1. A Respondent must be prepared, if requested, to present evidence of experience, ability, service facilities and financial standing necessary to meet satisfactorily the requirements set forth or implied in the procurement process, regardless of whether this is a requirement of the procurement process.

14.2. If this solicitation is a “request for information”, “request for expression of interest”, “request for qualifications” or similar request then this process does not give rise to any contractual rights or obligations.

14.3. The Contractor agrees to indemnify the Township for costs or third-party claims incurred due to the Contractor’s improper use of intellectual property.

14.4. Where the Contractor fails to correct a default within the time specified by the Township or where the Contractor fails to comply with the terms of the Procurement or Contract Documents, the Township, without prejudice to any other right or remedy the Township may have, may terminate the Contractor's right to continue the Work in whole or in part by giving written notice to the Contractor and charge the Contractor the additional cost over the submission price of completing the Work or portion thereof.

14.5. The term "should" when used in this document does not have the same meaning as "shall". Instead, the term "should" means "ought to"; that is, the condition that the "should" applies to is not an absolute requirement but a submission could be ruled as non-compliant, at the Township's sole discretion, if the condition is not met.

SPECIFICATIONS

2:1 The following specifications shall include a Commercial 4 door cab chassis.

2:2.1 All specifications are to meet Ontario Ministry of Transportation standards or better where applicable and those noted in this Submission are minimum specifications to be met.

SERVICE AND PARTS REQUIREMENTS

The bidder must be able to supply parts for the emergency vehicle within 48 hrs.

The bidder shall provide a "24 Hour", "7-Day per Week" emergency parts and service toll free telephone number. This phone number must be listed on a separate statement included in the bid package, along with the contact name, business name, address, and phone number of the local service agency, which will service the vehicle after being placed into service. (Mandatory Requirement)

The service agency shall be capable to perform all required service work and shall also have at their disposal the ability to have any required subcontracting work, such as engine, transmission, etc. work performed on behalf of the apparatus manufacturer.

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter and as specified. With a view to obtaining the best results and the most acceptable apparatus for service in the fire department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction for all features.

SUBMISSIONS ARE FREE TO SUGGEST ALTERNATIVES TO THE LISTED ITEMS.

The bidder shall state the location of the manufacturing facility where the apparatus is to be built and the location of the parent company if a subsidiary of a manufacturer.

The bidder shall provide satisfactory evidence of their ability to construct the apparatus specified in the bidders manufacturing facilities.

BUILDING STANDARDS

The fire apparatus shall be built according to the following building standards:

CAN/ULC-S515-13 (or most current edition at time of bid submission), National Standard of Canada, Standard for Automobile Fire Fighting Apparatus, Third Edition (2013)

NFPA 1901 2016 Edition, National Fire Protection Association, Standard for Automotive Fire Apparatus 2016 Edition

Transport Canada current regulations and requirements for commercial vehicles, including CMVSS

Ontario Highway Traffic Act current regulations and requirements for commercial vehicles

For vehicles with a final destination outside of Ontario, all current regulations and requirements for commercial vehicles.

MINIMUM CONSTRUCTION OR BETTER

While we have attempted to specify many of the items in this document, all items listed are minimums. South Glengarry is open to assessing items that are “as good, updated or better”. Bidders are welcome to propose variations but must specify in detail the change in addition to describing the equal or improved details.

EXCEPTIONS TO SPECIFICATIONS

Bidders shall be expected to provide a completed apparatus exactly as the following specifications outline for all that are specified. Should the bidder be unable to comply with these specifications in full they are expected to note them as an “exception to specification”. Bidders cannot mark “Yes” and provide an “exception to specification”. In this case a “No” for bidder complies must be marked. A separate list of exceptions to specifications must be provided with all details. Specifications, exception to specifications, and written manufacturer specifications must match.

PROPOSAL MANUFACTURER SPECIFICATIONS

The bid shall be accompanied by a set of “Manufacturer Specifications” consisting of a detailed description of the apparatus being proposed. Computer runoff sheets are not acceptable as “Manufacturer Specifications”. Item compliance shall be indicated in the “Yes/No” column of each item by all Bidders.

Note: Each bidder shall submit their bid in the same sequence as these specifications to allow the department to easily compare.

PROPOSAL DETAILED DRAWING

The bid shall be accompanied by a detailed CAD drawing of the apparatus being proposed. Generic drawings and submissions offering drawings once a contract has been signed will not be accepted.

All drawings shall be in colour and show the following information, at minimum:
- manufacturer logo
- cab and chassis year, make, model
- engine make and model
- engine horsepower at RPM
- engine torque
- transmission
- front, rear and gross axle ratings
- body materials used
- fire pump make, model, USGPM rating, ULC tested rating (LPM)
- foam system make and model
- water tank make and volume, foam cell(s) volume
- intake and discharge sizes and locations
- compartment interior length, width and height
- compartment door width and height
- customer name
- drawing description or identifier
- drawing date, with revision date, description, initials
- customer approval signature line
- 5 view drawings, including left, right, top, front, rear, including full cab
- chassis w/b, c/a, a/e and other chassis dimensions
- bumper extension, pumphouse, spacer, body, tailboard and other dimensions
- overall length, overall width (excluding mirrors), overall height of the full apparatus
- all pump components, body components, exterior electrical components and warning devices, and exterior or major equipment (ladders, suction hose, portable water tanks, etc)
- water tank outline

The drawing must be reviewed by and signed by the fire department representative on conclusion of the pre-construction meeting and associated changes

REFERENCES

All bidders must provide a detailed list of no less than five (5) references of apparatus in the previous 365 days as of the close date of this specification. The reference information must include full contact information, the number and type of units delivered (multiple unit purchases are considered one reference) and the date of final delivery. These references will be checked for overall satisfaction, quality, and any other items deemed necessary.

References should be in the same province as the requesting fire department, if possible.

EXPERIENCE

The operational company history will be evaluated within the evaluation matrix. Proof of experience must be included in the submission.

Company name:

Years of Continuous Operation:

FAMA MEMBERSHIP

The fire apparatus manufacturer must be a member of the Fire Apparatus Manufacturers Association. Bids will only be accepted from companies that are listed on the FAMA website, under the "Buyers Guide" heading (http://www.fama.org/members/buyers_guide/).

FAMA certificates must be included with submission documents.

Submissions by companies that are not listed on the FAMA website will be rejected.

FAMA FIRE APPARATUS SAFETY GUIDE

A FAMA Fire Apparatus Safety guide, as required by NFPA 1901, 4.20.2.3, shall be provided with the fire apparatus manuals at the time of delivery.

ONTARIO WSIB eCLEARANCE REPORT

An Ontario Workplace Safety and Insurance Board eClearance report must be supplied with the submission documents (or equal for outside Ontario). The report must clearly show an "Eligible for Clearance" status.

WELDING CERTIFICATIONS

Fire apparatus manufacturers must be in possession of valid Canadian Welding Bureau (or US equal) certifications for CSA standard W47.1 fusion welding of steel, and W47.2 fusion welding of aluminum. Certificates of validation must be included with submission documents.

NATIONAL SAFETY MARK

The fire apparatus must comply with one of the two following requirements, depending on the final manufacturing location of the complete vehicle. These requirements have been set out by Transport Canada and CMVSS.

1. National Safety Mark

Incomplete vehicles (chassis) with final stage manufacturing in Canada must bear the National Safety Mark, as prescribed in the National Safety Mark standards.

2. Registrar of Imported Vehicles
Complete final stage manufactured vehicles imported from the USA may be imported and delivered without a National Safety Mark. These vehicles are exempt provided they comply with US FMVSS standard and are labeled as such, and are imported through the Registrar of Imported Vehicles (RIV) and are brought into compliance with all CMVSS requirements.

ONTARIO MOTOR VEHICLE INDUSTRY COUNCIL REGISTRATION

The entity with whom the municipality enters into a purchase contract with must posses a valid Ontario Motor Vehicle Industry Council registration, if required to do so under the Motor Vehicle Dealers Act (Ontario). If the entity is located outside of Ontario, an equal registration or certificate shall be acceptable.

A valid Ontario Motor Vehicle Industry Council (or equal if located outside Ontario) registration is required when a trade-in vehicle forms partial payment for the new fire apparatus.

COMMERCIAL VEHICLE INSPECTION

A commercial vehicle inspection for a commercial chassis shall be completed prior to delivery of the fire apparatus. The inspection must be completed in the province of the fire department, regardless of the province or state of final manufacture.

The first annual vehicle inspection shall be completed in Ontario.

VEHICLE LICENSE PLATES

Vehicle license plates shall be provided with the fire apparatus.

The license plates shall be Ontario permanent plates, as used by emergency vehicles.

The municipality shall be required to provide an authorization letter on municipal letterhead with the vehicle VIN, insurance details and RIN, with the full municipal address.

MEETINGS AND INSPECTIONS

All bidders must include meeting and inspection costs in their bid submission.

Factory meetings and inspections denote the location the apparatus is built, and not at the dealer location the apparatus is delivered to prior to final delivery to the fire department. This is required to ensure that all requirements, changes, and other items deemed necessary by the fire department are carried out in the quickest fashion causing minimum delays.

Where the manufacturer is over 300km from the fire department, hotel (individual hotel rooms) and meal accommodations must be included.

Where the manufacturer is over 500km from the fire department, travel by air and a minimum of two (2) nights of accommodations (individual hotel rooms) and meals must be provided. Air travel will be from Ottawa International Airport (YOW) to the closest airport to the manufacturer.

There shall be two (2) members of the fire department present for each meeting or inspection, as follows:

- pre-construction meeting, held at the manufacturer location

- mid-build inspection, held at the manufacturer location

- final inspection, held at the manufacturer location

NOTE: The Municipality may request that the Meetings and Inspection costs be removed from the successful manufacturer's bid depending on location and if the Municipality will absorb any of these costs on its own. This value is to be listed separately in the RFP.

DEALER 310T MECHANIC

The Ontario-based dealer shall have qualified service staff. Part of the qualification requirement is for the dealer to employ a full-time 310T "Truck and Coach Technician."

Proof of qualification must be included with submission documents.

DEALER EVT LEVEL I, II, MASTER TECHNICIAN

The Ontario-based dealer shall have qualified service staff. Part of the qualification requirement is for the dealer to employ a minimum of one full-time Emergency Vehicle Technician with EVT Fire Apparatus Level I, Level II, and Master Technician certifications.

Proof of qualification must be included with submission documents.

DEALER EVT TECHNICIAN

The Ontario-based dealer shall have qualified service staff. Part of the qualification requirement is for the dealer to employ a minimum of one full-time Emergency Vehicle Technician, with a minimum of the following EVT certifications:

- F1 Maintenance, Inspection, and Testing of Fire Apparatus

- F2 Design and Performance Standards of Fire Apparatus

- F3 Fire Pumps and Accessories

- F4 Fire Apparatus Electrical Systems

- FA4 Advanced Electrical Systems

Proof of qualification must be included with submission documents.

DELIVERY TO FIRE DEPARTMENT

The fire apparatus shall be delivered to the fire department on completion. The fire department shall be notified a minimum of one week in advance of the date of final delivery. Final delivery shall typically occur Monday - Friday between 8:00am - 4:00pm.

The apparatus shall be driven to the fire department for final delivery. Truck transportation shall not be an acceptable means of delivery.

The apparatus shall be cleaned before delivery. The apparatus shall be delivered with full fuel and DEF fluid on delivery, when possible.

NOTE: The Municipality may request that the delivery costs be removed from the successful manufacturer's bid depending on location and if the Municipality will absorb any of these costs on its own. This value is to be listed separately in the RFP.

APPARATUS FAMILIARIZATION/ORIENTATION

Apparatus familiarization/orientation shall be provided by the manufacturer or dealer during or after apparatus delivery to the fire department. The familiarization/orientation shall take place at a time mutually agreed on by all parties.

The familiarization/orientation shall be four (4) hours in duration, during one session.

Topics of the familiarization/orientation session shall include the following:

- chassis features and operation
- chassis safety considerations
- pump features and operation
- pump safety considerations
- body features and operation
- body safety considerations

The session shall not include fire department tactics or use of the fire apparatus on the fire ground. Fire department tactics and use of the fire apparatus on the fire ground fall outside the scope of fire apparatus familiarization/orientation and are the responsibility of fire department training staff.

DELIVERY AND ORIENTATION

The Municipality reserves the right to have the delivery and orientation values rebated from the purchase if South Glengarry decides to accept delivery at the point of manufacture or its agent. As noted with Inspections and Delivery, these values are to be listed separately in the RFP

APPARATUS MANUALS

The fire apparatus shall include full manuals for all components supplied. At minimum, the following manuals shall be supplied:

- fire pump and related components
- emergency warning equipment
- accessory equipment
- electrical components

All chassis manuals, as supplied with the chassis and detailed in the chassis specifications shall be supplied.

One (1) copy of all manuals shall be supplied in printed format.

One (1) copy of all manuals shall be supplied in electronic format (where available), on a USB.

Manuals shall include vital information in addition to apparatus equipment. The following shall be supplied with the manual, at minimum:

- VIN
- work order number
- chassis certificate of origin
- license plate permits (if license plates supplied, Ontario only)
- chassis line stripper
- body line stripper
- ULC certificate of inspection
- ULC full certificate
- empty and full weight scale tickets
- fire department supplied ULC letter
- chassis engine curve
- pump certificate
- warning light certificate of compliance
- water tank certificate
- revised as-built drawings
- paint care guide

FIRE APPARATUS MANUFACTURER WARRANTIES

The fire apparatus manufacturer shall supply the following warranties. Warranties shall be valid once warranty documents have been signed.

CHASSIS MANUFACTURER WARRANTY

The chassis warranty shall be as per the chassis section, listed further in this specification. No additional chassis warranty items shall be provided.

1 YEAR GENERAL WARRANTY

The complete fire apparatus, excluding the chassis (with its own general warranty and general warranty period) shall have a 1-year general warranty.

The general warranty covers each new fire apparatus manufactured, and warrants defects in materials and workmanship for a period of 1 year, which begins on the date the warranty documents are signed.

Warranty documents shall be included with the submission that provide full details of the general warranty.

10 YEAR ALUMINUM BODY STRUCTURE WARRANTY

The complete aluminum fire apparatus body structure shall have a 10-year structural warranty.

The structural warranty covers each new fire apparatus manufactured, and warrants defects in materials and workmanship for a period of 10 years, which begins on the date the warranty documents are signed.

Warranty documents shall be included with the submission that provide full details of the structural warranty.

10 YEAR PRO-RATED BODY PAINT WARRANTY

The complete fire apparatus body shall have a 10-year pro-rated paint warranty.

The paint warranty covers each new fire apparatus manufactured, and warrants defects in materials and workmanship for a period of 10 years, which begins on the date the warranty documents are signed.

The warranty shall cover the following amounts:

0 - 36 months - 100% coverage
37 - 60 months - 50% coverage
61 - 84 months - 25% coverage
85 - 120 months - 10% coverage

Warranty documents shall be included with the submission that provide full details of the paint warranty.

10 YEAR STAINLESS STEEL PIPING WARRANTY

The complete fire apparatus stainless steel piping system shall have a 10-year warranty.

The stainless-steel piping system warranty covers each new fire apparatus manufactured, and warrants defects in materials and workmanship for a period of 10 years, which begins on the date the warranty documents are signed.

Warranty documents shall be included with the submission that provide full details of the piping warranty.

FIRE PUMP WARRANTY

The fire pump shall include a 5-year parts and 5 year labour extended warranty.

Warranty details shall be provided with the submission.

LIFETIME WATER TANK WARRANTY

A lifetime water tank warranty will be provided by the water tank manufacturer.

Warranty details shall be provided with the submission.

MISCELLANEOUS EQUIPMENT WARRANTIES

Miscellaneous equipment not previously mentioned may have individual warranties outside of and exceeding the general warranty. These warranty items shall be the responsibility of the fire department.

MAXIMUM OVERALL WIDTH OF 100"

The fire apparatus specified shall be constructed as detailed and shall not exceed a maximum overall width of 100". This dimension shall include the primary construction of the apparatus body and chassis cab. Any peripherals that are removable shall not be incorporated into this measurement. Items that are considered removable include rub rails, fenderettes, mirrors, lights, handrails, front bumpers, etc.

ULC REQUIRED LABELS

The following labels shall be provided to meet or exceed ULC standards (as per the standard listed).

The labels provided shall meet the requirements for a pumper firefighting apparatus, as per chapter 4 of ULC.

CHASSIS LABELS

ULC required labels shall be provided with the chassis directly from the manufacturer. No additional chassis labels shall be required.

11.2.6 - A plate shall be provided showing the height and length of the completed fire apparatus, in meters to two decimal places, as well as the fire apparatus GVWR in kilograms.

The plate must also state (as per 11.2.7) the date the information was current, and if the overall height changes while the fire apparatus is in service that a new plate must be installed.

PUMP LABELS

The following ULC labels shall be provided for fire apparatus with a fire pump.

15.6.1.3 - There shall be a label located at the pump operator panel as follows: “WARNING: DEATH OR SERIOUS INJURY MIGHT OCCUR IF PROPER OPERATING PROCEDURES ARE NOT FOLLOWED. THE PUMP OPERATOR, AS WELL AS INDIVIDUALS CONNECTING SUPPLY OR DISCHARGE HOSES TO THE APPARATUS MUST BE FAMILIAR WITH THE OPERATOR’S MANUAL, WATER HYDRAULICS HAZARDS, AND COMPONENT LIMITATIONS”

15.9.1 - There shall be a label located on the pump operator panel that reads "PUMP OPERATOR PANEL".

15.12.2.5 - There shall be a label located at the pump operator panel master gauges as follows: "PUMP DISCHARGE" for the master pressure discharge gauge and "PUMP INTAKE" for the master pressure intake gauge.

Pressure governors that indicate pressure and do not have separate master gauges do not require labels, provided the display indicates they are for discharge and intake.

15.13.2.1 - There shall be a test plate located on the pump operator panel. The test plate shall include the following information:
- rated discharge pressure
100% rated capacity at 1,000kpa, with engine RPM
70% rated capacity at 1,350kpa, with engine RPM
50% rated capacity at 1,750kpa, with engine RPM
- water tank capacity (in liters)
- date of ULC test date

Additional information that may or may not appear on the plate include:

- manufacturer logo and location
- ULC logo and certificate number for ULC test

The apparatus shall be ULC tested, and the pump test shall be completed to 5,000LPM.

16.4.1.3 - There shall be a label located on the water tank fill opening cover as follows: "WATER FILL".

BODY LABELS

The following ULC labels shall be provided for the fire apparatus body.

A label shall be mounted at the fuel tank fill location indicating "DIESEL FUEL ONLY."

There shall be a label located at the rear tailboard as follows: "THIS STEP IS NOT DESIGNED TO TRANSPORT INDIVIDUALS WHILE VEHICLE IS IN MOTION"

MODEL

The chassis shall be a Freightliner M2 106 or similar. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2025 model year or newer.

COUNTRY OF SERVICE

The chassis shall be put in service in the country of Canada (CAN).

The chassis will meet applicable Canadian Technical Standards Document per Canadian Motor Vehicle Safety Regulations as clarified in the incomplete vehicle document which accompanies each chassis.

ADDITIONAL VOCATIONAL STANDARD

The cab, chassis, and components shall be audited to Underwriter's Laboratories of Canada (ULC) current published apparatus specification ULCS-515. The global chassis compliance certification shall be provided to the manufacturer. The chassis as specified shall meet applicable criteria of ULCS-515 and shall include the ULC marking.

APPARATUS TYPE

The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump which has a minimum rated capacity of 750 gallons per minute (3000 L/min). The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.

VEHICLE TYPE

The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.

AXLE CONFIGURATION

The chassis shall feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

GROSS AXLE WEIGHT RATINGS FRONT

To meet the requirements of the submitted vehicle

GROSS AXLE WEIGHT RATINGS REAR

To meet the requirements of the submitted vehicle

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location. Chassis driveline pump provisions shall include an interlock feature for automatic setting of the park brake when the vehicle is shifted out of road mode while the transmission is in neutral. When the conditions are met the driver side parking brake valve shall activate. Once shifted to road mode the condition for electric automatic brake engagement is no longer present and the driver's parking brake control valve shall function normally.

WATER TANK CAPACITY

The chassis shall include a carrying capacity of 1000 US gallons of water a in poly tank. The water tank shall be supplied and installed by the apparatus manufacturer.

CAB STYLE

The cab shall be a 4-door cab style.

OCCUPANT PROTECTION

Cab options for safety provisions specific to emergency services to be provided. These would relate to seating, safety seat belts, seat belt warning system, etc.

CAB UNDERCOAT

There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.

CAB SIDE DRIP RAIL

There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.

CAB PAINT PRIMARY COLOR

The paint color shall be PPG FBCH 71663 Red or similar (Manufacturer and color to be specified)

CAB PAINT WARRANTY

The cab and chassis shall be covered by a limited manufacturer paint warranty to be specified in the submission.

CAB PAINT INTERIOR

Manufacturer and color to be specified

CAB STRUCTURAL WARRANTY

Summary of Warranty Terms to be provided.

ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12 volt direct current multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

LOAD MANAGEMENT SYSTEM

Some form of apparatus load management system shall be provided.

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40 amp battery direct load. One (1) power stud shall be capable of carrying up to a 15 amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud. A 225 amp battery direct power and ground stud shall be provided and installed on the chassis near the left hand battery box for OEM body connections.

AUXILIARY ACCESSORY POWER

An auxiliary six (6) position Blue Sea Systems 5025 blade type fuse panel shall be installed behind the switch panel. The fuse panel shall be protected by a 40 amp fuse. The panel shall be capable of carrying up to a maximum 40 amp battery direct load.

ADDITIONAL ACCESSORY POWER

Accommodation for additional 12V loads is to be provided within the apparatus.

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.

ENGINE

The vehicle shall be equipped with a Detroit DD8 7.7L 6 CYL 375 HP @ 2200 RPM, 2600 GOV RPM, 1050 LB/FT @ 1200 RPM

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.

ENGINE HIGH IDLE CONTROL

Options to be suggested

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle.

AUXILIARY ENGINE BRAKE

A compression brake, for the six (6) cylinder engine shall be provided. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine compression brake shall activate upon 0% accelerator when in operation mode and actuate the vehicle's brake lights.

The engine shall utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow, which when activated in conjunction with the compression brake shall enhance the engine's compression braking capabilities.

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

- A valid gear ratio is detected.
- The driver has requested or enabled engine compression brake operation.
- The throttle is at a minimum engine speed position.
- The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.

The compression brake shall be controlled through an on/off switch and a low/medium/high selector switch.

ENGINE OIL LEVEL INDICATOR

The engine oil shall be monitored manually and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

ENGINE DRAIN PLUG

The engine shall include an original equipment manufacturer installed oil drain plug.

ENGINE WARRANTY

The engine warranty is to be specified

REMOTE THROTTLE HARNESS

An apparatus interface wiring harness for the engine shall be supplied with the chassis. The midship harness shall include a connector for connection to the chassis harness which shall terminate in the left frame rail behind the cab for reconnection by the apparatus builder. The midship harness shall contain connectors for a Class 1 Total

Pressure Governor and a multiplexed gauge. Separate circuits shall be included for pump controls, “Pump Engaged” and “OK to Pump” indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, customer ignition, air horn solenoid switch, high idle switch and high idle indication light. The harness shall contain interlocks that will prevent shifting to road or pump mode unless the transmission output speed translates to less than 1 mph and the transmission is in neutral. The shift to pump mode shall also require the park brake be set. The harness shall be designed for a side mount pump panel.

An apparatus interface wiring harness shall also be included which shall be wired to the cab harness interface connectors and shall incorporate circuits with relays to control pump functions. This harness shall control the inputs for the transmission lock up circuits, governor/hand throttle controls and dash display which shall incorporate “Pump Engaged” and “OK to Pump” indicator lights. The harness shall contain circuits for the apparatus builder to wire in a pump switch.

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

ENGINE COOLING SYSTEM PROTECTION

The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris. The skid plate shall be painted to match the frame components.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.

Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.

COOLANT HOSES

The cooling system hoses shall be silicone heater hose with rubber hoses in the cab interior. The radiator hoses shall be formed silicone coolant hoses with formed aluminized steel tubing. All heater hose, silicone coolant hose, and tubing shall be secured with stainless steel constant torque band clamps.

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter. This filter ember separator shall be designed to protect the downstream air filter from embers, using a combination of unique flat and crimped metal screens packaged in a corrosion resistant heavy duty galvanized steel frame. This multilayered screen shall be design traps embers and allows them to burn out before passing through the pack.

The engine air intake system shall also include a stainless-steel air cleaner. The air cleaner shall utilize a replaceable filter element designed to prevent dust and debris from being ingested into the engine. The air cleaner housing and connections in the air intake system shall be designed to mitigate water intrusion into the system during severe weather conditions.

The air intake system shall also include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

ENGINE EXHAUST SYSTEM

The exhaust system shall include an end-in end-out horizontally mounted single module after treatment device, downpipe from the charge air cooled turbo. The single module shall include four temperature sensors, diesel particulate filter (DPF), urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting

of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be mixed and injected into the system through the between the DPF and SCR.

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.

ENGINE EXHAUST ACCESSORIES

An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.

ENGINE EXHAUST WRAP

The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.

TRANSMISSION

The drive train shall include an Allison model EVS 3000 torque converting, automatic transmission, or similar, which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters and Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The transmission gear ratios shall be:
1st 3.49:1
2nd 1.86:1
3rd 1.41:1
4th 1.00:1

5th 0.75:1
Rev 5.03:1

Or Similar.

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will offer all gear options

TRANSMISSION FEATURE PROGRAMMING

The Allison Gen V-E transmission EVS group package number 127 shall contain the 198 vocational package in consideration of the duty of this apparatus as a pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

A transmission interface connector shall be provided in the cab. This package shall contain the following input/output circuits to the transmission control module. The Gen V-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

Function ID	Description	Wire assignment
Inputs	CPTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
Outputs		
C	Range Indicator	145 (4th)
G	PTO Enable Output	130
Signal Return	103	

TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

TRANSMISSION COOLING SYSTEM

The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

TRANSMISSION DRAIN PLUG

The transmission shall include an original equipment manufacturer installed magnetic transmission fluid drain plug.

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

PTO LOCATION

Mounting locations to meet the requirements of fire pump.

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with Spicer 1710 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®.

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be matched to the pump.

MIDSHIP PUMP GEARBOX DROP

The pump gearbox shall have an “L” (long) drop length.

MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.28:1 (23).

MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 100.00 inches.

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.

A secondary fuel filter shall be included as approved by the engine manufacturer.

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced nylon tubing rated for diesel fuel. The fuel lines shall be brown in color and connected with brass fittings.

ELECTRIC FUEL PRIMER

Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.

FUEL TANK

Provide features of supplied.

FRONT AXLE

The weight capacity for the axle shall be rated to 18,000 pounds.

FRONT AXLE WARRANTY

Manufacturer warranty specifications

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

FRONT SUSPENSION

Provide specifications

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 50-degrees to the left and right.

CHASSIS ALIGNMENT

The chassis frame rails shall be measured to ensure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.

REAR AXLE

The weight capacity for the axle shall be rated to, at minimum, 24,000 pounds and must meet the load requirement of the vehicle.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR AXLE WARRANTY

The rear axle shall be warranted by manufacturer.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 110 KM per hr at governed engine RPM.

REAR SUSPENSION

The rear suspension capacity shall be rated from 21,000 to 31,500 pounds.

REAR AXLE RATIO

Provide specifications

TIRE PRESSURE INDICATOR

There shall be electronic chrome LED valve caps shipped loose for installation by the OEM which shall illuminate with a red LED when tire pressure drops 8psi provided. The valve caps are self-calibrating and set to the pressure of the tire upon installation.

FRONT WHEEL

Provide specifications

REAR WHEEL

Provide specifications

BRAKE SYSTEM

Air brakes
All safety features related to emergency applications

FRONT BRAKES

Provide specifications

REAR BRAKES

Provide specifications

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted 6.00 inches to the left of center of the dash within easy access of the driver.

FRONT BRAKE SLACK ADJUSTERS

The front brakes shall include Meritor automatic slack adjusters installed on the chassis which features a simple, durable design offering reduced weight. The automatic slack adjusters shall feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.

REAR BRAKE SLACK ADJUSTERS

The rear brakes shall include Meritor automatic slack adjusters installed on the axle which features a simple, durable design offering reduced weight. The automatic slack adjusters shall feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.

AIR DRYER

Provide specifications

FRONT BRAKE CHAMBERS

Provide specifications

REAR BRAKE CHAMBERS

Provide specifications

AIR COMPRESSOR

Provide specifications

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air dryer bracket on the left frame rail behind the battery box.

MOISTURE EJECTORS

Manual cable actuated drain valves shall be installed on all reservoirs of the air supply system. The supplied cables shall be to the side of the apparatus for ease of activation and be labelled.

AIR SUPPLY LINES

The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

FRAME

The frame shall be sufficient to the design load of the apparatus.

FRAME WARRANTY

Provide specifications

FRAME PAINT

The frame shall be powder coated black prior to any attachment of components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross-hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.

Any proposals offering painted frame with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided.

AIR HORN

An air horn shall be located in the front bumper. Provide specifications.

AIR HORN RESERVOIR

One (1) air reservoir, with a 1200 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

ELECTRONIC SIREN SPEAKER

Provide specifications.

ELECTRONIC SIREN SPEAKER LOCATION

Provide specifications.

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted to match the frame components, shall be installed in the rearward position out of the approach angle area, bolted directly to the side of each chassis frame rail with grade 8 bolts.

REAR TOW HOOKS

Two (2) heavy duty tow mounts to be located at the rear of the chassis frame and bolted directly to the side of each chassis frame rail with grade 8 bolts.

CLIMATE CONTROL

Air conditioning to be provided

INTERIOR TRIM FLOOR

Provide specifications.

INTERIOR TRIM

Provide specifications.

HEADER TRIM

Provide specifications.

STEP TRIM

Provide details of the step / fuel tank area. Fuel tanks to have stainless steel trim and covers to integrate the steps.

INTERIOR SOFT TRIM COLOR

Provide specifications.

INTERIOR TRIM SUNVISOR

The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded black vinyl trim.

CAB PAINT INTERIOR DOOR TRIM

Provide specifications.

DASH PANEL GROUP

Provide specifications.

SWITCHES CENTER PANEL

Provide specifications.

SEAT BELT WARNING

Provide specifications.

SEAT MATERIAL

The seats shall include a covering of high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

SEAT COLOR

Provide specifications.

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom 400 Series Firefighter Sierra model seat or similar. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment and seat rake adjustment. The seat shall feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches measured with the seat height adjusted to the lowest position of travel.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.

The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK DRIVER

The driver's seat shall include a standard seat back incorporating all belts to seat feature (ABTS). The seat back shall feature a contoured head rest.

SEAT MOUNTING DRIVER

The driver's seat shall be installed in an ergonomic position in relation to the cab dash.

OCCUPANT PROTECTION DRIVER

Provide specifications.

SEAT OFFICER

The officer's seat shall be a H.O. Bostrom 400 Series Firefighter series or similar. The seat shall feature a tapered and padded seat, and cushion. The seat shall be a non-adjustable type seat.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the

occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT MOUNTING OFFICER

The officer's seat shall be installed in an ergonomic position in relation to the cab dash.

SEAT BACK OFFICER

The officer's seat back shall include a Ziamatic brand EZ - OUT self-contained breathing apparatus (SCBA) bracket. The walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall consist of a back plate and a short back plate, both of which shall be thermoplastic coated for trouble free service. The bracket shall feature two (2) high cycle double coated clips which shall not mar the cylinders.

The bracket shall accommodate and secure all types of self-contained breathing apparatus cylinders.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

REAR SEATS

The rear seats (three) shall be a H.O. Bostrom 400 Series Firefighter series or similar. The seat shall feature a tapered and padded seat, and cushion. The seat shall be a non-adjustable type seat.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the

occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

REAR SEAT BACKS

The rear seat backs shall include a Ziamatic brand EZ - OUT self-contained breathing apparatus (SCBA) bracket. The walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall consist of a back plate and a short back plate, both of which shall be thermoplastic coated for trouble free service. The bracket shall feature two (2) high cycle double coated clips which shall not mar the cylinders.

The bracket shall accommodate and secure all types of self-contained breathing apparatus cylinders.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

OCCUPANT PROTECTION OFFICER

Provide specifications.

POWER SEAT WIRING

The power seat or seats installed in the cab shall be wired directly to battery power.

WINDSHIELD WIPER SYSTEM

The cab shall include a dual arm wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers which shall be affixed to a radial wet arm. The system shall include a single motor which shall initiate the arm in which both the left hand and right-hand windshield wipers are attached, initiating a back and forth motion for each wiper. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver’s position.

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow “Check Message Center” indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a “Check Washer Fluid Level” message.

MUD FLAPS FRONT

The front wheel wells shall have mud flaps installed on them. The mud flaps shall extend from the outer edge of the wheel well to the inner edge of the wheel well to provide additional protection from road spray.

IGNITION

A master battery system with a keyed start ignition system shall be provided.

BATTERY

Provide specifications.

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. The studs shall allow the vehicle to be jump started, charged in the event of battery failure.

ALTERNATOR

Provide specifications.

STARTER MOTOR

Provide specifications.

BATTERY CONDITIONER

A Kussmaul 1200 Pump Plus battery conditioner shall be supplied. The battery conditioner shall be mounted in the cab behind the driver.

BATTERY CONDITIONER DISPLAY

A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be mounted on the cab.

AIR AUTO EJECT - ELECTRICAL

An auto eject unit shall be mounted on the drivers side near the shore power auto eject and be plumbed into the air system to allow for connection to a shore air supply.

AUXILIARY AIR COMPRESSOR

A Kussmaul Pump 12V air compressor shall be supplied. The air compressor shall be installed behind the driver's seat. The air compressor shall be plumbed to the air brake system to maintain air pressure.

AIR AUTO EJECT – AIR INLET

An auxiliary air inlet shall be installed in the vicinity of the electrical auto eject. The inlet shall have a M style male coupler and have an integrated one-way valve to restrict the outward flow of truck air.

ELECTRICAL INLET

A Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List:
Kussmaul 1000 Charger - 3.5 Amps
Kussmaul 1200 Charger - 10 Amps
Kussmaul 35/10 Charger - 10 Amps
1000W Engine Heater - 8.33 Amps
1500W Engine Heater - 12.5 Amps
120V Air Compressor - 4.2 Amps

ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left-hand side of cab.

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner.

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a yellow cover.

HEADLIGHTS

The cab front shall include four (4) rectangular LED headlamps with separate high and low beams mounted in bright chrome bezels.

SIDE TURN/MARKER LIGHTS

The sides of the cab shall include two (2) LED round side marker lights which shall be provided just behind the front cab radius corners.

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) LED cab marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level.

GROUND LIGHTS

Provide specifications for cab ground lights.

CAB STEP LIGHTS

All steps to be illuminated.

ENGINE COMPARTMENT LIGHT

There shall be an LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The light shall activate automatically when the cab is tilted.

CAB FRONT LIGHTBAR

The lightbar provisions shall be for one (1) Whelen brand Freedom IV LED lightbar mounted centered on the front of the cab roof. The lightbar shall be 72.00 inches in length. The lightbar shall feature four (4) red LED light modules, two (2) blue LED light modules and two (2) clear LED light modules. The entire lightbar shall feature a clear lens. The clear lights shall be disabled with park brake engaged. The cable shall exit the lightbar on the right side of the cab.
Or similar.

LIGHTBAR SWITCH

Switch to be mounted in the emergency lighting module.

CAB FRONT – SCENE LIGHTS

Provide options

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red Whelen Ion LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.

The flashing red light shall be located centered left to right for greatest visibility.

The light and alarm shall be interlocked for activation when either a cab door is not firmly closed or an apparatus compartment door is not closed, and the parking brake is released.

MASTER WARNING SWITCH

A master switch shall be included

HEADLIGHT FLASHER

An alternating high beam headlight flashing system shall be installed into the high beam headlight circuit which shall allow the high beams to flash alternately from left to right.

Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled “On Scene” when the park brake is applied.

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen 600 series Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel.

INBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the inboard positions shall be red and blue.

FRONT WARNING SWITCH

Switch to be mounted in the emergency lighting module.

INTERSECTION WARNING LIGHTS

The chassis shall include two (2) Whelen 600 series Super LED intersection warning lights, one (1) each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.
Or similar

INTERSECTION WARNING LIGHTS COLOR

The intersection lights shall be red.

INTERSECTION WARNING LIGHTS LOCATION

The intersection lights shall be mounted centered front to rear on the flat portion of the side of the bumper tail.

SIDE WARNING LIGHTS

The cab sides shall include two (2) Whelen 600 series Super LED warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the sides of the cab within a chrome bezel.
Or similar

SIDE WARNING LIGHTS COLOR

The warning lights located on the side of the cab shall be red.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the cab shall be mounted over the front wheel well directly over the center of the front axle.

SIDE AND INTERSECTION WARNING SWITCH

Switch to be mounted in the emergency lighting module.

SIREN CONTROL HEAD

A Whelen 295HFS2 electronic siren control head with remote amplifier shall be provided and flush mounted in the switch panel with a location specific to the customer's needs. The siren shall feature 200-watt output, hands free mode and shall be in "standby" mode awaiting instruction. The siren shall offer radio broadcast, public address, wail, yelp, or piercer tones and hands free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected.
Or similar.

AIR HORN ACTIVATION

Provide details

ELECTRONIC SIREN AUXILIARY ACTIVATION

The electronic siren shall include activation by the steering wheel horn button and a black push button on the switch panel.

BACK-UP ALARM

To be provided

INSTRUMENTATION

Provide details

CAB EXTERIOR PROTECTION

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.

FIRE EXTINGUISHER

A 2.50 pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab.

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.

WARRANTY

Provide details

CHASSIS OPERATION MANUAL

There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.

ENGINE AND TRANSMISSION OPERATION MANUALS

The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:
(1) Hard copy of the Engine Operation and Maintenance manual with CD
(1) Digital copy of the Transmission Operator's manual
(1) Digital copy of the Engine Owner's manual

CAB/CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams.

SIDE MOUNT PUMP CONTROL MODULE

The pump control module shall be a self-supported structure mounted independently from the body and chassis cab. The pump module frame shall be constructed entirely of 6061-T6 aluminum extrusions and 5052-H32 aluminum plate. The pump module design shall allow normal frame deflection through isolation mounts without imposing stress on the

pump module structure or side running boards. The pump module support shall bolt directly to the chassis frame web.

PUMP COMPARTMENT TOP OVERLAY

The top of the pump compartment shall be overlaid with 0.125” aluminum diamond plate.

PUMP COMPARTMENT WORK LIGHT

One (1) LED light shall be installed inside the pump compartment module to illuminate the plumbing and piping components.

The light shall be activated by waterproof toggle switch in the pump compartment.

PUMP MODULE PANELS

The panels shall be an integral part of the pump module structure.

The driver’s side panels shall consist of a fixed lower panel, a hinged operator's panel and a fixed diamond plate panel above the operator's panel.

The officer’s side panels shall consist of a fixed lower panel, a hinged mid panel and a fixed upper diamond plate panel.

The mid and lower panels shall be made from aluminum plate and black powder coated.

OPERATOR’S GAUGE PANEL

The operator gauge panel shall be located on the upper portion of the left (drivers) side main pump module. The gauge panel shall be hinged along the bottom edge and shall allow access to the components behind the panel. Cable hold-open straps shall be mounted on the gauge panel and module structure to prevent the panel from being completely detached from the pump module.

SIDE MOUNT PUMP PANEL LIGHTING

Illumination shall be provided for viewing controls, switches, gauges and instructional labels necessary for proper operation of the apparatus and equipment installed.

The left side pump panels shall be illuminated by up to three (3) LED lights installed within two (2) individual embossed aluminum diamond plate side shields.

The right-side pump panel shall be illuminated by one (1) LED light.

There shall be a switch located on the operator's pump panel to turn all but one (1) of the pump panel lights on or off.

The remaining light above the operator's panel shall illuminate when the pump is engaged and it is "OK TO PUMP".

ALUMINUM CHECKERPLATE OVERLAY

A removable aluminum checkerplate overlay shall be provided and installed on the front face of the pump compartment module.

RUNNING BOARDS

Running boards shall be installed on each side of the pump compartment module. The running boards shall be constructed of 0.125" embossed aluminum diamond plate. Each shall be a minimum of approximately 12" deep by the width of the module.

The running boards shall have a 1.25" upward bend on the inside edge to act as a kick plate.

The aluminum diamond plate shall meet recommendations for slip resistant surfaces at the time of proposal.

The running boards shall be attached to a frame mounted outrigger support structure. Each running board to have a 3" downward bend on the front face with a 1" underside return for superior strength.

TOTAL PRESSURE GOVERNOR

Apparatus shall be equipped with a Class1 "Total Pressure Governor" (TPG) that is connected to the Electronic Control Module (ECM) mounted on the engine. Programmable presets for RPM and Pressure settings shall be easily configurable using the TPGs straightforward menu structure. The "TPG" shall also include indication of engine RPM, system voltage, engine oil pressure and engine temperature with audible alarm output for all.

The "TPG" will operate as a pressure sensor (regulating) governor (PSG) utilizing the engines J1939 data for optimal resolution and response. The "TPG" uses the J1939 data bus for engine information, requiring no additional sensors to be installed.

PRESSURE RELIEF VALVE

A Class 1 stainless steel pressure relief valve with a range of adjustment from 50 to 200 PSI shall be provided and installed inside pump compartment piped to the suction side of the pump. The valve shall be preset at 125 PSI suction inlet pressure.

The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere via the unloader pipe and shall dump on the opposite side of the pump operator.

For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

U.L. TEST PORTS

One (1) set of U.L. testing ports with plugs shall be provided on the pump panel for testing of the vacuum and pump pressures.

WATER TANK LEVEL GAUGE

There shall be a Class 1 ITL tank level gauge with a chrome bezel provided and installed on the operator's pump panel.

The tank level gauge shall indicate the liquid level for water or foam in increments of 1/8 of a tank.

The tank level gauge shall include a pressure transducer mounted on the outside of the tank, a super bright LED 4-light display with visual indication at nine accurate levels, and a set of weather resistant connectors.

COMPARTMENT HEATER

A 36,000 BTU auxiliary heater shall be provided and installed inside the pump compartment. The heater shall be connected to the engine cooling system with gated valves located inside the engine compartment. A toggle switch and green LED indicator light shall be provided on the operator’s pump control panel. The switch shall be of a weather resistant type.

The switch shall be labeled “COMPARTMENT HEATER”

HEAT PAN

There shall be a heat pan enclosure installed under the apparatus fire pump.

The heat pan assembly shall be fabricated of .188 inch aluminum. The top portion shall be bolted in place. The enclosure shall have two slide out trays; one on each side of the apparatus for ease of service and maintenance. The bottom trays shall be held in the place with mechanical style latch devices.

HALE FIRE PUMP

The Hale DSD or QMax single stage pump (or similar) shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis, and have the capacity of 1,500USG.

The entire pump shall be assembled and tested at the pump manufacturer's factory.

The pump shall be driven by a drive line from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance.

The entire pump shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. Pump shall be free from objectionable pulsation and vibration.

The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI (2069 bar). All metal moving parts in contact with water shall be of high-quality bronze or stainless steel. Pump utilizing castings made of lower tensile strength cast iron not acceptable.

Pump body shall be vertically split on a single plane for easy removal of entire impeller assembly including clearance rings.

Pump shaft to be rigidly supported by two bearings for minimum deflection. The bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated. Shaft seal comes standard with face-type, self-adjusting corrosion- and wear-resistant mechanical seals.

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

Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body.

The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox.

GEAR BOX

Pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of torque of the engine. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine.

All gears, drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely

accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust.

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

If the gearbox is equipped with a power shift, the shifting mechanism shall be a heat treated, hard anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift shall be provided that locks in road or pump.

For automatic transmissions, three green warning lights shall be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position. Two green lights to be located in the truck driving compartment and one green light on pump operator's panel adjacent to the throttle control. For manual transmissions, one green warning light will be provided for the driving compartment. All lights to have appropriate identification/instruction plates.

CERTIFICATION

The pump will perform and meet the following tests:
100% of rated capacity @ 150 PSI net pump press
100% of rated capacity @ 165 PSI net pumps press
70% of rated capacity @ 200 PSI net pump press
50% of rated capacity @ 250 PSI net pump press

PUMP SHIFT

The drive unit shall be provided with an air pump shift system. The control valve shall be a spring-loaded guard lever that locks in "Road" or "Pump" mode.

Adjacent to the pump shift control, there shall be two indicator lights to show the position of the pump when the control is moved to "Pump" position. A green light shall be energized when the pump shift has been completed and shall be labeled "PUMP ENGAGED"; a second green light shall be labeled "OK TO PUMP" energized when both the pump shift has been completed and the chassis automatic transmission is engaged.

A third green indicator light shall be installed adjacent to the throttle on the pump operator's panel. This light shall be labeled "Throttle Ready".

In addition to this indicator light, an additional indication shall be provided to the pump operator at the panel when the pump is ready to pump. This additional indication shall be that one (1) of the operator's panel illumination lights will only activate when the "OK TO PUMP" indicator is lit. The remaining panel lights shall be controlled via push button switch.

MASTER INTAKE VALVE

A 6” Hale MIV Valve (or similar) is to be integrated with the pump and placed behind the panel. It shall be electronically controlled on the pump panel to indicate open and close. The MIV is to be connected to the Priming Pump so that the fire pump does not need to be shut down during the priming process when connected to a 6” hard suction (from a non-pressurized water source).
The location is on the driver’s side only.

PRIMING PUMP ELECTRIC

A Class 1 ESP-12 (or similar) positive displacement oil-less, rotary vane electric motor driven priming pump conforming to the requirements of (NFPA) 1901, Standard for Automotive Fire Apparatus, shall be installed on the apparatus. The pump body shall be manufactured of heat-treated anodized aluminum for wear and corrosion resistance.

The pump shall be capable of producing a minimum 24 Hg vacuum at 2000 feet above sea level. The electric motor shall be a 12 VDC totally enclosed unit. The priming pump shall not require lubrication.

The electric priming pump shall be operated by a single push button control mounted on the pump operator's panel. The control valve shall be of all bronze construction.

Means to create a vacuum on both sides of the integrated MIV are to be met.

MANUAL DRAINS

All 2” or larger discharge outlets shall be equipped with a 0.75” 90° lift handle ball valve drain.

DISCHARGE GAUGES

A Class 1 2.5” gauge shall be supplied for reading the pressure of each discharge greater than 1.5” in diameter, unless otherwise specified.

Each gauge shall be marked for reading a discharge pressure of 0-400 PSI/kPa.

Each gauge shall have black markings on a white face.

BEZELS FOR 2.5" DISCHARGE GAUGES

There shall be a deluxe colour-coded metal bezel supplied around each of the 2.50 inch (65 mm) discharge pressure gauges.

The colors shall follow ULC/NFPA recommended standards.

VALVES

All valves shall be of a heavy-duty design capable of bi-directional flow and incorporate a self-locking ball feature and full flow optimizing characteristics that reduce the operational force required for actuation.

The valves shall be Akron 8800 series.

The valves shall be of a self-adjusting dual seat design requiring no lubrication or regular maintenance. The valve shall meet or exceed NFPA standard requirements.

PLUMBING

All plumbing and piping shall be of 304 stainless steel or flexible type piping. All inlet and outlet plumbing 3” and smaller shall be plumbed with either stainless steel piping or synthetic reinforced rubber hose blended with high tensile strength cord for maximum performance in tight bend applications.

Secondary plumbing such as small diameter drain lines shall be stainless steel, brass or hose. Where chassis and module flexing or vibration may damage or loosen piping or where a coupling is required for servicing, the piping shall be equipped with Victaulic or rubber type couplings.

All lines shall drain through the master drain valve or shall be equipped with individual drain valves. All individual drain lines for discharges shall be extended to the point where they shall drain below the chassis frame rails. All water carrying drain lines shall be of flexible polypropylene type tubing.

MANIFOLDS

Plumbing manifold bodies shall be ductile cast iron or stainless steel. The suction inlets shall include removable die cast zinc screens designed to provide cathodic protection for the pump, therefore reducing deterioration within the pump.

PUMP COOLING LINE

There shall be a 3/8” line running from the pump to the water tank to assist in keeping the pump water from overheating. A valve shall be installed on the operator's panel.

ENGINE COOLING LINE

There shall be a 3/8” line running from the pump to the engine to assist in keeping the engine from overheating. A valve shall be installed on the operator's panel.

6.0" MASTER INTAKES

Two (2) 6” master intakes inlets shall be provided, one (1) on the left side and one (1) on the right side.

Each intake shall have a chrome plated long handle chrome vented caps and die cast zinc screens designed to provide cathodic protection for the pump. The cap shall be National Standard Thread with long handles.

2.5" LEFT SIDE INTAKE

There shall be one (1) 2.5” intake on the left side of the apparatus, rearward of the master intake.

The plumbing shall consist of 2.5” piping and shall incorporate a manual drain control installed below the pump area for ease of access.

The termination shall include the following components:

One (1) 2.5” valve

One (1) 2.5” NST swivel female straight adapter with screen

One (1) 2.5” NST x 2.5” CSA swivel female adapter

One (1) 2.5” CSA self-venting plug, secured by a chain

2.5" LEFT SIDE DISCHARGE

There shall be one (1) 2.5” discharge on the left side of the apparatus, located in the forward position.

The plumbing shall consist of 2.5” piping and shall incorporate a manual drain control installed below the pump area for ease of access.

The termination shall include the following components:

One (1) 2.5” valve

One (1) 2.5” NST adapter

One (1) 2.5” NST x 2.5” CSA elbow swivel male adapter

One (1) 2.5” CSA cap, secured by a chain

2.5" RIGHT SIDE DISCHARGE

There shall be one (1) 2.5” discharge on the right side of the apparatus, located in the forward position.

The plumbing shall consist of 2.5” piping and shall incorporate a manual drain control installed below the pump area for ease of access.

The termination shall include the following components:

One (1) 2.5” valve

One (1) 2.5” NST adapter

One (1) 2.5” NST x 2.5” CSA elbow swivel male adapter

One (1) 2.5” CSA cap, secured by a chain

4" RIGHT SIDE DISCHARGE

There shall be one (1) 4” discharge on the right side of the apparatus, located in the rearward position.

The plumbing shall consist of 4” piping and shall incorporate a manual drain control installed below the pump area for ease of access.

The termination shall include the following components:

One (1) 3” valve

One (1) 4” NST adapter

One (1) 4” NST x 4” storz elbow swivel adapter

One (1) 4” storz cap, secured by a chain

2.5" REAR RIGHT DISCHARGE

There shall be one (1) 2.5” discharge on the rear right of the apparatus, located below the hosebed.

The plumbing shall consist of 2.5” piping and shall incorporate a manual drain control installed below the pump area for ease of access.

The termination shall include the following components:

One (1) 2.5” valve

One (1) 2.5” NST adapter

One (1) 2.5” CSA elbow swivel male adapter

One (1) 2.5” CSA cap, secured by a chain

3.0" DECK GUN DISCHARGE

There shall be a 3” deck gun discharge provided.

One (1) 3” valve shall be provided.

The deluge waterway shall be plumbed with 3” piping that terminates in the center location at the top of the pump compartment module.

The plumbing shall be drained with an auto-drain located at the lowest point of the waterway plumbing if required.

The waterway plumbing shall extend above the top of the pumphouse approximately 3” and shall be capped with a stainless-steel cap to allow for future installation of deck gun.

FRONT BUMPER DISCHARGE

One (1) 1.5” front bumper discharge outlet shall be provided.

One (1) 2” front bumper valve shall be provided.

The front bumper discharge plumbing shall consist of 2” piping and shall incorporate a manual drain control installed below the pump area for ease of access.

Auto-drain(s) shall be installed in the discharge piping at the lowest point of the plumbed system.

The discharge termination shall include the following components:

One (1) 2” NPT x 1.5” NPSH polished swivel.

The use of a swivel shall allow hose payout to either side of the apparatus.

The front bumper discharge shall be mounted on top of the gravel shield of the front bumper extension. The discharge shall be placed to the right of the hose well.

CROSSLAYS

Two (2) crosslays hose beds shall be located in the upper portion of the pump compartment, toward the front. The crosslay area shall span the entire width of the pump compartment module. Slotted aluminum flooring shall be provided for the hose bed area for drainage.

The crosslays shall each have capacity for 200’ of 1.75” double jacket fire hose.

The plumbing shall consist of 2” piping and shall incorporate a manual drain control installed below the pump area for ease of access.

Each discharge termination shall include the following components:

One (1) 2” valve

One (1) 2” NPT x 1.50” NPSH polished stainless-steel swivel

The use of a swivel shall allow hose payout to either side of the pump compartment.

CROSSLAY COVER

The crosslay hose bed area shall have a vinyl cover installed.

The covers shall be secured with bungee cord loops on two (2) bottom corners. A nylon grab strap shall be provided on the bottom of each side cover to provide easy access.

The crosslay hose bed covers shall be red in color.

PUMP TO TANK

One (1) 2.5” pump to tank fill line shall be installed from the pump directly to the booster tank.

TANK TO PUMP

One (1) 3” valve shall be installed between the water tank and the pump with flow recommendations as set forth by (NFPA) 1901, Standard for Automotive Fire Apparatus, and shall be tested to those standards when the pump is being certified.

PROPOLY WATER TANK

The water tank shall be 1000 gallons (3785 liters) in capacity.

The water tank shall be constructed of 0.5”, 0.75”, and 1” polypropylene sheet stock which is a non-corrosive stress relieved thermoplastic. It shall be designed to be completely independent of the body and compartments. All joints and seams are extrusion welded and/or contain “bent edge” and tested for maximum strength and integrity. The top of the water tank is fitted with lifting eyes designed with a 3 to 1 safety factor to facilitate water tank removal.

The water tank cover shall be constructed of 0.75” thick polyprene and shall be recessed. A minimum of two lifting dowels shall be drilled and tapped 0.5” x 2” to accommodate the lifting eyes.

The swash partitions are manufactured of 0.5” polyprene. All partitions are equipped with vent and air holes to permit movement of air and water between compartments to provide to provide maximum water flow. All swash partitions interlock and are welded to one another as well as to the walls of the tank.

The fill opening shall be approximately 13” x 12”.

The tower will have a 0.25” removable poly material screen and hinged type cover that will open if the tank is filled at an excess rate. There shall be a removable 0.25” poly material screen to prevent debris from falling into the tank.

The fill tower shall have a 6” overflow that will discharge underneath the tank, behind the rear wheels. The overflow shall terminate above the tank water level when filled to the rated capacity.

The water tank shall rest on the sub-frame cross members with an unsupported area not to exceed 530 square inches on water tanks up to 40” in height. On tanks over 40” in height, an unsupported area of not more than 400 square inches must be maintained.

All water tanks shall be isolated from the cross members with a minimum of 2” x 0.25” hard rubber strips that are 60 durometer in hardness. The tank shall sit cradle mounted in the under body sub-frame and shall be completely removable without disturbing the body side panels.

WATER TANK MOUNTING

The water tank shall be isolated from the body substructure frame and cross members with 2” x 0.25” and 2” x 0.5” hard rubber strips. The water tank shall sit nested inside the center body substructure and shall be completely removable without disturbing the body side panels. Framing stops on all four sides shall keep the water tank from shifting front to back or side to side.

ALUMINUM PUMPER BODY

GENERAL CONSTRUCTION

The complete body shall be formed and welded, built with 0.188” (3/16”) 5052 H32 aluminum, with 0.125” (1/8”) aluminum polished aluminum checker plate.

Extruded aluminum, or other grades of aluminum are not accepted as equal.

Extruded bodies are not acceptable due use of proprietary extrusions that prohibit local accident repairs that can be completed with formed bodies.

Different grades of aluminum are not acceptable, as the grades requested are the standard aluminum grades used for the construction of fire apparatus.

There will be no exception to these requirements.

VENTS AND DRAINS

Floor drain holes with rubber grommets shall be provided in the two rear corners of each compartment.

Each compartment shall include one (1) 4” circular vent with screen.

ALUMINUM OVERLAYS

The front wall of the apparatus body shall be overlaid with ACP.1253003H22 polished aluminum checker plate. The overlay shall be unpainted and assist with damage prevention to the apparatus body.

All horizontal surfaces of the apparatus body shall be overlaid with ACPF.1253003H22 embossed polished aluminum checker plate.

The rear wall of the apparatus shall be unpainted aluminum plate, ready for installation of reflective chevrons

BODY MOUNTING

The body shall be mounted to the chassis frame with torsion mounts. These mounts shall allow the body and chassis to twist and bend independently and shall prolong the structural life of the body.

Body mounts shall be located approximately every 12-18” of the length of the body, except between the suspension, as per the chassis manufacturer recommendations. The mounts shall be easily accessible from below the apparatus and shall not be obstructed and require cutting the body or other components to gain access.

The chassis frame shall have 0.5” x 3.25” PVC or rubber strips installed to act as isolators from the body. The strips shall assist with twist and bend movement as well as prevent dissimilar metal contact and long-term corrosion. The PVC strips shall be mounted the length of the apparatus body and framing.

FRAME MOUNTED TOW EYES

There shall be two (2) rear frame mounted tow eyes constructed of 0.5” by 6” steel with 2.5” diameter holes and bolted to the chassis frame rails with grade 8 bolts.

There shall be structural framework to support the tow eyes, as required. The complete assembly shall be painted black.

The tow eyes shall be mounted to the rear of the chassis frame and shall extend below the apparatus body.

COMPARTMENT UNISTRUT TRACKS

Aluminum extruded unistrut shelf and equipment mounting tracks shall be welded to the body compartment interior walls. The unistrut tracks shall terminate approximately 12” from the floor of the compartment, and 12” below the top of the door frame.

Full depth compartments shall include two tracks on each of the left and right walls.

Split depth compartment shall include two tracks on each of the left and right walls in the full depth portion and one track on each of the left and right walls in the half depth portion.

Half depth compartments shall include one track on each of the left and right walls.

The L1 compartment shall include unistrut tracks. Tracks shall be provided in the full depth compartment.

The L2 compartment shall include unistrut tracks. Tracks shall be provided in the full depth compartment.

The L3 compartment shall include unistrut tracks. Tracks shall be provided in the full depth compartment.

The R1 compartment shall include unistrut tracks. Tracks shall be provided in the split depth compartment.

The R2 compartment shall include unistrut tracks. Tracks shall be provided in the half depth compartment.

The R3 compartment shall include unistrut tracks. Tracks shall be provided in the split depth compartment.

The B1 compartment shall include unistrut tracks. Tracks shall be provided in the full depth compartment.

PUMPER BODY COMPARTMENTS

ELECTRICAL CONNECTIONS

(2) 5-20 120V duplex outlets, one (1) each L3 and R3 compartments, shore powered. Position to be determined.

LEFT SIDE COMPARTMENTS

All compartment dimensions are approximate – Provide specifications

Compartment L1
The compartment shall be 56" wide by 71" high by 28" deep. The compartment door opening is approximately 48" wide by 67" high.

This compartment shall include an Amdor roll-up door, with LED lights on both sides.

Compartment L2
The compartment shall be 68" wide by 39" high by 28" deep. The compartment door opening is approximately 62" wide by 35" high.

This compartment shall include an Amdor roll-up door, with LED lights on both sides.

Compartment L3
The compartment shall be 56" wide by 71" high by 28" deep. The compartment door opening is approximately 48" wide by 67" high.

This compartment shall include an Amdor roll-up door, with LED lights on both sides.

RIGHT SIDE COMPARTMENTS

Compartment R1
The compartment shall be 56" wide by 71" high by 28" deep in the lower section and 15” deep in the upper section. The compartment door opening is approximately 48" wide by 67" high.

This compartment shall include an Amdor roll-up door, with LED lights on both sides.

Compartment R2
The compartment shall be 68" wide by 39" high by 15" deep. The compartment door opening is approximately 62" wide by 35" high.

This compartment shall include an Amdor roll-up door, with LED lights on both sides.

Compartment R3
The compartment shall be 56" wide by 71" high by 28" deep in the lower section and 15” deep in the upper section. The compartment door opening is approximately 48" wide by 67" high.

This compartment shall include an Amdor roll-up door, with LED lights on both sides.

REAR COMPARTMENTS

Compartment B1
The compartment shall be 44" wide by 41" high by 32" deep. The compartment door opening is approximately 36" wide by 33" high.

This compartment shall include an Amdor roll-up door, with LED lights on both sides.

PUMPER BODY COMPARTMENT SHELVING

All compartment shelving is to be manufactured from aluminum, be full width and depth of its location with a 1.5” lip at front and back and may include any additional support structures that the manufacturer warrants to ensure rigidity.

Compartment L1
This compartment shall have three (3) adjustable shelves

Compartment L2
This compartment shall have one (1) adjustable shelf

Compartment L3
This compartment shall have two (2) adjustable shelves

Compartment R1
This compartment shall have one (1) adjustable shelf located in the lower section
This compartment shall have one (1) adjustable shelf located in the upper section

Compartment R2
No shelves, as this compartment will store 4X SCBA units

Compartment R3
This compartment shall have one (1) adjustable lower shelf and one (1) adjustable upper shelf

AMDOR ROLL-UP COMPARTMENT DOORS

All compartments shall be equipped with Amdor roll-up doors complete with the following features:

- 1” aluminum double wall slats with continuous ball & socket hinge joint designed to prevent water ingression and weather tight recessed dual durometer seals
- Double wall reinforced bottom panel with stainless steel lift bar latching system
- Bottom panel flange with cut-outs for ease of access with gloved hands
- Reusable slat shoes with positive snap-lock securement
- Smooth interior door curtain to prevent equipment hang-ups
- One-piece aluminum door track / side frame
- Top gutter with non-marring seal
- Non-marring recessed side seals with UV stabilizers to prevent warping
- Dual leg bottom seal (wear component material to be Type 6 Nylon)

Magnetic door ajar switch system shall be provided by Amdor.

Door striker will provide support beneath the lift bar to prevent door curtain bounce and potential false door ajar indications.

The doors, frames and headers shall be satin aluminum unpainted finish.

Amdor TL9050 series integral Luma Bar lights shall be provided on all doors, located on the left and right door frames.

SCBA STORAGE

Compartment R2 will store 4X SCBA units. The units will be mounted in Zico Walkaway Spring Clip Brackets. The units will be spaced evenly and have an area allocated for SCBA masks to be mounted beside each unit.

BODY FENDER PANELS

There shall be enclosed body fender panels around the rear wheels.

The body fender panels shall be made from ACP.1253003H22 aluminum checkerplate. The panels shall be bolted to the body, and ECK shall be used to isolate the panel from the painted body surface. The panel shall be easily removable for service.

The fender panel shall have a radius cut to match the rear tire profile. The radius shall have B-21250 polished aluminum fenderettes installed, with rubber gaskets isolating it from the checkerplate panel. It shall be bolted to the fender panel and be easily removable.

The fender panel shall have removable liners provided. The 228873 0.118” black PVC liners shall be easily removable and shall help keep the wheel well area clean from dirt and other contaminants.

FUEL FILL ACCESS

There shall be an AD0001-1 and FG2102 Cast Products Inc. cast aluminum fuel fill assembly. The fuel fill shall be located on the left side of the apparatus, rearward of the rear wheel. There shall be a “DIESEL FUEL ONLY” label provided.

HOSE BED

The hose bed side walls shall be constructed from 0.188" aluminum, integral with the body construction. The entire surface shall be watertight to prevent leaks into the compartment areas. The hose bed shall be free of sharp corners, bolts, or other obstructions that may catch hose and other equipment.

The hosebed floor (top of the water tank) shall be covered with black PVC Turtle-Tiles, to assist in air circulation and hose drying.

The hosebed shall include tracks for adjustable dividers.

3 adjustable dividers are to be supplied that extend from the front of the bed to the rear. All dividers shall have a hand hold cutout at the rearmost end.

The hosebed shall be as large as possible but hold the minimum ULC and NFPA required hose loads.

LED strip lighting shall be placed on both sides of the outermost walls of the hose bed, along the upper wall surface of the hard suction cabinets.

HOSE BED COVER

There shall be a hosebed cover provided.

The hosebed cover shall be a heavy-duty vinyl tarp. The cover shall be permanently attached to the front of the hosebed and attached to the side walls with heavy-duty bungee cords and cast aluminum hooks.

The tarp rear flap shall be attached to the rear of the body immediately below the hosebed with heavy-duty bungee cords and cast aluminum hooks. The tarp shall be red.

TAILBOARD

The tailboard shall be an independent assembly bolted to the rear body structural framing to provide body protection and a solid rear stepping platform. In the event that the rear tailboard does become damaged, it shall be easily unbolted and replaced with OEM parts directly from the manufacturer. The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

The 16” tailboard stepping surface shall be constructed of ACPF.1883003H22 embossed aluminum checkerplate to meet minimum standard requirements for slip resistance.

The rear tailboard and body shall be constructed such that the angle of departure shall be no less than 8 degrees at the rear of the apparatus when fully loaded.

LADDER STORAGE – REAR

The rear of the apparatus body shall have a vertically mounted extension ladder storage tunnel provided. The tunnel shall include slide pads and individual slots for each component stored. The tunnel shall store the following:

- One (1) 24’ 2-section extension ladder
- One (1) 14’ roof ladder

- One (1) 10’ folding attic ladder
- Two (2) 14’ or smaller pike poles, no D-handle ends

The tunnel shall include a 0.188” smooth aluminum door for chevron application with a stainless steel piano hinge and push button latch, and chromed suitcase handle.

RUB RAILS

The apparatus body shall include rub rails. The anodized aluminum extruded rub rails shall be 1.5” wide by 3” tall and include an embossed upper surface. The rub rails shall be spaced approximately 1” from the body sides with plastic isolator discs, preventing water, dirt and debris build-up.

The rub rails shall be easily replaceable in the event of damage.

The ends of the rub rails shall be cut at a 45-degree angle.

Rub rails shall be installed ahead of and behind the rear axle on the left and right side of the apparatus body.

Rub rails shall be installed rear facing on the back of the tailboard.

INTERMEDIATE REAR STEP

One (1) upper rear fixed intermediate step approximately 8” deep shall be provided full width above the rear compartment to be used as a stepping area when loading or deploying hose.

The step shall be fabricated of embossed aluminum checkerplate and mounted on the flat back of the apparatus with gusset-type mounting.

ACCESS STEPS and STAIRS

Access steps shall be provided on the apparatus. Innovative Controls cast aluminum folding steps shall be provided, meeting ULC and NFPA requirements. The folding steps shall include upper and lower LED lights. The folding steps shall be provided as follows:

- One (1) on the rear wall, right side of the apparatus body
- Four (4) on the body front wall, left side of the pump housing
- Four (4) on the body front wall, right side of the pump housing
- One (1) folding ladder unit on the rear wall, left side of the apparatus body

GRAB HANDLES

Slip resistant grab handles shall be installed on the apparatus. Extruded anodized aluminum with rubber insert handrails and end brackets shall be provided, spaced 2" minimum from the apparatus body. The handrail shall be located as follows:

- One (1) 24" handrail, located vertically on the rear wall of the apparatus body on the right side
- One (1) 44" handrail, located horizontally on the intermediate rear step
- One (1) 12" handrail, located on the top of the apparatus body on the front left side above the access steps at the pump panel
- One (1) 12" handrail, located on the top of the apparatus body on the front right side above the access steps at the pump panel

FULL DEPTH ROLL-OUT TRAYS

Full-depth roll-out trays shall be provided.

The slide mechanisms shall be Slide-Master steel 2-rail frame construction with 500lb weight capacity, and lock in the full in and full out positions.

The trays shall be made out of AP.1885052H32 aluminum plate with a formed 3" edge on all sides.

The trays shall be a smooth sanded finish.

The following floor mounted full depth roll-out trays shall be provided:

- One (1) roll-out tray shall be located in the L1 compartment.
- One (1) roll-out tray shall be located in the L3 compartment.
- One (1) roll-out tray shall be located in the R1 compartment.
- One (1) roll-out tray shall be located in the R3 compartment.
- One (1) roll-out tray shall be located in the B1 compartment.

SCBA CYLINDER STORAGE

SCBA cylinder storage shall be provided.

SCBA cylinder storage shall be enclosed tubes, and the tubes shall be ACP.1255052H32 aluminum plate, formed into tubes with the required supporting framework.

The tubes shall include a rubber floor mat and end bumper, and a top-mounted nylon safety loop to catch the cylinder valve assembly should the compartment door open during transit.

The door shall be made from the ACP.1883003H22 aluminum checkerplate, and include a stainless steel or chrome plated round latch, a full height stainless steel piano hinge, and door close proximity sensors.

Front-faced supports shall mount the unit to the apparatus body, and allow quick removal or replacement if required. SCBA bottle storage shall be provided as follows:

- Three (3) bottles in the left front wheel well corner

- Three (3) bottles in the right rear wheel well corner - forward

- Three (3) bottles in the right rear wheel well corner - rearward

LICENSE PLATE PROVISION

There shall be mounting provisions for one (1) license plate mounted at the rear of the apparatus.

MUD FLAPS

14” x 24” 671-8012-01 black mud flaps shall be provided behind the rear wheels (chassis supplied front mud flaps).

CHASSIS ELECTRICAL SYSTEMS

The chassis electrical systems shall be provided as described in the chassis specifications.

BODY ELECTRICAL SYSTEMS

All apparatus electrical systems shall be designed and installed in accordance with SAE regulations and guidelines and industry best practices. All apparatus electrical systems shall adhere to the relevant ULC and NFPA requirements for new fire apparatus.

The low-voltage electrical system wiring shall be function coded and encased in split loom conduits, suitably secured and protected against heat and physical damage. The electrical system shall be installed in a custom built 0.125” aluminum box with a removable aluminum cover. The electrical system shall be divided into separate harnesses. Individual harnesses shall be connected to the electrical box with quick connectors. All wiring shall be colour coded and labelled accordingly.

All low-voltage multiplex components shall be made by Weldon, to compliment the chassis supplied equipment. Electrical equipment shall use a combination of Weldon 6000 Series input/output nodes and harnesses as required and custom designed for the specific apparatus.

Wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the circuit is protected. Voltage drops shall not exceed 10 percent in all wiring from the power source to the using device. The wiring and wiring harness and insulation shall be in conformance to applicable SAE and NFPA standards. The wiring harness shall conform to SAE J-1128 with GXL temperature properties. Exposed wiring shall be run in a loom with a minimum 289 degree Fahrenheit rating. Wiring looms shall be properly supported and attached to body members. Electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

All wiring connections and terminations shall provide positive mechanical and electrical connections and be installed in accordance with the device manufacturer's instructions. When wiring passes through metal panels, electrical connections shall be with mechanical type fasteners and rubber grommets

Wiring between the cab and body shall be split using Deutsche type connectors or enclosed in a terminal junction panel allowing body removal with minimal impact on the apparatus electrical system. Connections shall be crimp-type with heat shrink tubing with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather resistant connectors shall be provided throughout the system.

Electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. When required, automatic reset breakers and relays shall be housed in the main body junction panel.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless enclosed in an electrical junction box or covered with a removable electrical panel. Wiring shall be secured in place and protected against heat, liquid contaminants and damage and shall be uniquely identified at least every 12” by color coding or permanent marking with a circuit function code and identified on a reference chart or electrical wiring schematic per requirements of applicable NFPA 1901 standards.

Low voltage overcurrent protective devices shall be provided for the electrical circuits. The devices shall be accessible and located in required terminal connection locations or weather resistant enclosures. Overcurrent protection devices shall be automatic reset type suitable for electrical equipment and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. Electro-magnetic interference suppression shall be provided in the system as required in applicable SAE standards.

The electrical system shall include the following:

Electrical terminals in weather exposed areas shall have a non-conductive grease or spray applied. All terminal plugs located outside of the cab or body shall be treated with a corrosion preventative compound.

All electrical wiring shall be placed in a protective loom or be harnessed.
Exposed connections shall be protected by heat shrink material and sealed connectors.

Large fender washers shall be used when fastening equipment to the underside of the cab roof and all holes made in the roof shall be caulked with silicone.
Electrical components installed in exposed areas shall be mounted in a manner that will not allow moisture to accumulate inside.

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

All lights in a weather exposed area that have their sockets shall have corrosion preventative compound added to the socket terminal area.

Warning lights shall follow ULC and NFPA activation requirements. The apparat shall respond to an emergency "calling for the right of way". When the parking brake is activated, a "blocking the right of way" system shall be automatically activated. "Clear" warning lights shall be automatically shed on actuation of parking brake.

ELECTRICAL NODE LOCATIONS

Electrical nodes shall be located in the L3 and R3 (or most rear) compartments, in the upper rear corner. The nodes shall include a removable protective guard finished to match the compartment interior.

ELECTRICAL SYSTEM PERFORMANCE TESTING

The apparatus low-voltage electrical system will be tested and certified. Tests shall be performed when the air temperature is between 0°F and 110°F (–18°C and 43°C). The three tests defined in NFPA shall be performed in the order in which they appear. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. Failure of any of these tests shall require a repeat of the sequence.

Reserve Capacity Test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged.

The engine shall be shut off and the minimum continuous electrical load shall be activated for 10 minutes.

All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure of the battery system.

Alternator Performance Test at Idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed.

The engine temperature shall be stabilized at normal operating temperature.

The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

Alternator Performance Test at Full Load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed.

The test duration shall be a minimum of 2 hours.

Activation of the load management system shall be permitted during this test.

An alarm sounded by excessive battery discharge, as detected by the system required in NFPA 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system or 23.6 V dc for a 24 V nominal system, for more than 120 seconds, shall be considered a test failure.

Low Voltage Alarm Test:

Following the above test, a Low Voltage Alarm Test will be performed in the manner prescribed.

With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates.

The battery voltage shall be measured at the battery terminals.

The test shall be considered a failure if the alarm has not yet sounded 140 seconds after the voltage drops to 11.70V for a 12 V nominal system or 23.4 V for a 24 V nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

MASTER BATTERY SWITCH

The chassis shall include a master battery switch, as per the chassis specifications.

VEHICLE DATA RECORDER/SEAT BELT MONITOR

Provide specifications as to the provided VDR and monitoring

BATTERY CHARGER/AIR COMPRESSOR/ELECTRICAL INLET

The battery charger, air compressor, and electrical inlets shall be provided with the chassis, as per the chassis specifications.

GROUND LIGHTS

Grounds lights shall be provided with the apparatus to illuminate the area in close proximity to the apparatus during low light conditions.

Amdor AY9500-012 12" LED ground lights shall be supplied in the following locations:

- two (2) lights shall be located under the L1/R1 compartments

- two (2) lights shall be located under the L3/R3 compartments

- two (2) lights shall be located under the rear tailboard/B1 compartment

VEHICLE CLEARANCE LIGHTS

Vehicle clearance lights shall be provided on the apparatus to meet all government regulations and requirements. Tecniq S210 series LED marker lights shall be used, specifically amber S21-AA00-1 and red S21-RR00-1. The lights shall be located in the rubrails (if equipped), or on the lower edge of the body approximately 1" from the edge (if not equipped). These lights are in addition to chassis provided lights, as per the chassis specifications. The lights shall be located as follows:

- two (2) amber lights located on the side of the body, on the left and right lower front corners

- two (2) red lights located on the side of the body, on the left and right lower rear corners

- two (2) red lights located on the rear of the body, on the left and right lower side corners

- three (3) red lights located on the rear of the body, centered in the rubrails. The middle light is centered, and the left and right lights minimum 6”, maximum 12” from middle light.

MID-BODY TURN SIGNAL

The apparatus shall include mid-body turn signals. The turn signals shall be located on the left and right side of the apparatus body, immediately forward of the rear axle, and located in the rub rails (or at the bottom edge of the body, if not equipped with rub-rails). The turn signal shall be S21-AA00-1 Tecniq amber LED lights.

The light shall be off when not in use and shall flash when the turn signal or four-way flashers are in use.

STEP LIGHTS

Step lights shall be provided to illuminate all stepping surfaces during low light operations. The lights shall turn on when the park brake is applied.

0AC0EDCR Whelen OS series LED 45-degree step lights shall be provided. The lights shall be located as follows:

- one (1) light on the left rear wall of the apparatus body

- one (1) light on the right rear wall of the apparatus body

BRAKE LIGHT CLUSTER

Brake/tail, turn and backup lights shall be installed on the apparatus, on the left and right side of the rear wall. The following lights shall be provided: (or similar).

- 60BTT Whelen 600 series red brake/tail lights - top position

- 60A00TAR Whelen 600 series amber turn indicators - second position

- 60C00VCR Whelen 600 series white/clear back-up lights - third position

- open bottom position for warning light installation

- PLAST4V Whelen chrome plastic 4 light vertical bezel

DOOR AJAR WARNING

The door ajar warning system shall be installed on the chassis, as per the chassis specifications.

SWITCH PANEL LAYOUT

Provide descriptions

UPPER WARNING - CAB LIGHTBAR

Provide specifications

UPPER WARNING LIGHTS

REAR - Two (2) M9 Whelen (or similar) LED beacons shall be provided in the upper rear warning light location under the hard suction doors. The lights shall be one blue and one red with integrated scene lights

SIDES - Two (2) M9 Whelen (or similar) LED beacons shall be provided in the upper side corners of each side of the body. The lights shall be one blue and one red with integrated scene lights

LOWER WARNING LIGHTS (RIGHT SIDE)

One (1) 60R02FRR Whelen 600 series (or similar) linear LED lights with one blue LED's and blue lens and one red LED's and red lens. 6EFLANGE chrome bezels shall be supplied, located as follows:

- One (1) on the right side of the body, centered over the rear axle

LOWER WARNING LIGHTS (REAR)

Two (2) 60R02FRR Whelen 600 series (or similar) linear LED lights with red LED's and red lenses shall be supplied, located as follows:

- Two (2) on the rear wall, in the bottom open position of the brake light quad cluster

LOWER WARNING LIGHTS (LEFT SIDE)

One (1) 60R02FRR Whelen 600 series (or similar) linear LED lights with one blue LED's and blue lens and one red LED's and red lens. 6EFLANGE chrome bezels shall be supplied, located as follows:

- One (1) on the left side of the body, centered over the rear axle

WORK LIGHTS

Work lights to be provided on both sides of the apparatus. Each side will have 2 lights, located at the front and rear of the apparatus body, in the upper corners. Provide description

A front brow light is to be provided. This light may be part of the lightbar or a separate item. Provide description

Rear work lighting is to be provided and mounted at the upper rear of the body. Provide description.

BACKUP CAMERA

A backup camera to be installed in the vicinity of the rear upper step, center to the rear of the truck.
The display is to be mounted within the cab on the upper visor area, in a fitting location as to not obstruct other controls. Provide details on brand and locations.

CROSSLAY AND HOSEBED SPOTLIGHTS

The crosslays and hosebed area shall include LED strip lighting used to illuminate the crosslay, hosebed and surrounding areas during nighttime operations.

Provide specifications and locations for lighting and switching.

EXTERIOR PAINT

The apparatus shall be painted PPG Industries Delfleet FBCH to match the chassis primary colour and shall be applied throughout a multi-step process including at least two coats of each color and clear finish.

All roll up doors and accessories shall be installed after painting to assure the proper paint coverage of the body.

The metal surface shall be sanded to remove all burrs and imperfections in the aluminum before preparation for painting.

The metal surface shall be cleaned and prepped with solvent and washed with fresh water to remove oxidization and other surface contaminants, to give a bright, conditioned and chemically etched surface for finishing. The aluminum surface shall be conditioned with a conversion chemical treatment and washed with fresh water to produce a corrosion resisting conversion coating, to prevent oxidization and other surface contaminants, leaving a surface that allows excellent paint adhesion.

The coating system, as supplied and recommended for application, shall meet all applicable federal, provincial and local laws and regulations now in force or at any time during the courses of the apparatus construction process.

The manufacturer shall supply (upon request) for each product and component of the system, a properly complete OSHA "Material Data Safety Sheet".

The entire exterior body structure (excluding roll-up doors) shall receive the primer coats and the finish coats. The apparatus body will be painted in a down draft type paint booth to reduce dust, dirt or impurities in the finish paint. The painted surfaces shall have a finish with no runs, sags, craters, pinholes or other defects.

One (1) quart of touch-up paint shall be provided.

EXTERIOR COMPARTMENT FINISH

The finish of all apparatus body exterior storage compartments shall be unpainted, and sanded smooth.

COMMERCIAL VEHICLE REFLECTIVE MARKINGS

There shall be reflective markings applied to the completed vehicle in accordance with CMVSS standard requirements. Reflective stickers measuring 0.75” x 4.25” shall be applied as follows:

- Orange/amber, one (1) each left and right side of the apparatus body side facing at the front of the body, applied horizontally in the rub rails, or vertically on the front post

- Red, one (1) each left and right side of the apparatus body side facing at the rear of the body, applied horizontally in the rub rails, or vertically on the rear post

- Red, two (2) rear of the apparatus body rear facing on the left and right side of the body, applied horizontally in the rub rails, or vertically on the rear post

GRAPHICS

- “SOUTH GLENGARRY” in reflective gold/yellow with black outline 10” x 124” on body sides
- FD door crest multi-colour reflective 16”x16” on cab front doors
- “P5” in white reflective 12” H x 20” W on cab rear doors
- “P5” in black reflective 7” H x 12” W on front bumper
- “P5” in black reflective 20” H x 33” W on B1 compartment door

REFLECTIVE STRIPING

The following reflective striping pattern shall be applied to the completed fire apparatus:

- One (1) 4” white stripe on the left and right sides and front and rear of the apparatus cab and body
- One (1) 1” white stripe above and below the 4” stripe on the left and right sides and front and rear of the apparatus cab and body

The reflective striping shall be applied around the perimeter of the apparatus in a “hockey stick” pattern located on the L1/R1 compartment doors.

REAR BODY CHEVRON STRIPING

The rear body shall include reflective chevrons and shall cover the rear body panels. The chevron striping will be made up of 6" wide reflective and shall be in an inverted "V" pattern, also known as an "A" pattern. The chevrons shall include the following colors:

- red

- yellow

APPARATUS EQUIPMENT WEIGHT ALLOCATION

The apparatus shall be built to carry the following equipment payload, as per ULC:

- full tank of fuel
- full water tank volume
- specified hose load, or full pre-connect hose load plus minimum ULC required hose load if not specified
- full ladder compliment
- 250lbs weight per seating location
- 2,500lbs miscellaneous equipment storage for pumper with greater than 250 cubic feet of compartment space

FIRE SERVICE LADDERS

No new ladders are to be supplied with the apparatus. Current stock items will be installed at time of delivery.

It is the responsibility of the manufacturer to confirm the ladder storage area fits the intended ladders. Ladder type and brand will be provided in advance of manufacturing.

FLASHLIGHTS

STREAMLIGHT SURVIVOR

Five (5) 90503 Streamlight Survivor 12V/120V flashlights shall be provided. The flashlight shall be orange and include C4 LED lights. There shall be a single base charger installed.

The flashlight charger shall be wired to the 12V truck batteries directly. The flashlights shall charge whenever they are in their base.

The final mounting location shall be confirmed prior to construction, but located within the R1 compartment.

TRUCK KIT BASIC EQUIPMENT

The following truck kit basic equipment (or similar) shall be supplied with the apparatus:

- one (1) FX13390 ABC 2.5lb. fire extinguisher, with vehicle bracket, shipped loose

- one (1) 01363 89-piece medical/first aid kit

- one (1) 1005 DOT/triangle kit, shipped loose

UNLISTED EQUIPMENT - PUMPER

All additional equipment for a pumper apparatus not specifically listed as may be required by ULC (section 4.9) and NFPA (section 5.9) shall be supplied by and installed by the fire department prior to apparatus entry into service.

The fire department shall be required to sign a ULC waiver confirming the truck number, department name, and contact information prior to the ULC test confirming equipment installation prior to entry into service.