



NEW WESTMINSTER

REQUEST FOR PROPOSAL

Title: **SUPPLY & DELIVERY OF ONE (1)
1500 G.P.M. TRIPLE COMBINATION
PUMPER UNIT**

Reference No.: **NWRFP 11-23**

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INTRODUCTION

PURPOSE

The purpose of this RFP is to invite Proposals for the Supply and Deliver one (1) only 1500 G.P.M. Triple Combination Pumper Unit (“Fire Apparatus”) as described in the Specifications and Requirements, attached as Schedule A and Schedule B to this RFP (the “**Specifications**”). This vehicle is intended to act as a mobile air supply vehicle and a spare rescue pumper.

DEFINITIONS

In this RFP the following terms will have the meaning set out below:

- (a) “**Closing Time**” has the meaning set out in section 2.1;
- (b) “**Contract**” means the Purchase Order which will embody, by reference, all applicable documents issued between the City of New Westminster and a Preferred Proponent to undertake the Services;
- (c) “**Evaluation Team**” means the evaluation team appointed by the City of New Westminster;
- (d) “**Fire Apparatus**” means 1500 G.P.M. Triple Combination Pumper Unit;
- (e) “**Information Meeting**” has the meaning set out in section 2.6;
- (f) “**Preferred Proponent(s)**” means the Proponent(s) selected by the Evaluation Team to enter into negotiations for a Contract;
- (g) “**Proponent**” means an entity that submits a Proposal;
- (h) “**Proposal**” means a proposal submitted in response to this RFP;
- (i) “**RFP**” means this Request for Proposal;
- (j) “**Services**” means the services described generally in Schedule A and Schedule B, including anything and everything required to be done for the fulfillment and completion of this Agreement;
- (k) “**Site**” means the place or places where the Services are to be performed;
- (l) “**City of New Westminster**” means The Corporation of the City of New Westminster
- (m) “**City of New Westminster Representative**” has the meaning set out in section 2.5.

INSTRUCTIONS TO PROPONENTS

CLOSING TIME AND ADDRESS FOR PROPOSAL DELIVERY

Proposals must be received at:

**City of New Westminster
Purchasing Department
511 Royal Ave
New Westminster, BC V3L 1H9**

On or before the following date and time (the “Closing Time”):

Time: 3:00pm local time

Date: Aug 12th, 2011

Submissions by fax [or email] will not be accepted.

NUMBER OF COPIES

Proponents should submit the original plus three [3] hard copies and one [1] electronic copy in MS Word or PDF format of their Proposals. The original Proposal should be unbound.

LATE PROPOSALS

Proposals received after the Closing Time will not be accepted. It is the sole responsibility of the Proponent to ensure its Proposal is received at the address indicated in section 2.1 by the Closing Time, delays caused by any delivery, courier or mail service(s) will not be grounds for an extension of the Closing Time.

AMENDMENTS TO PROPOSALS

An amendment to a Proposal will be considered only if the amendment is received in writing at the location stipulated in section 2.1 before the Closing Time.

INQUIRIES

All inquiries related to this RFP should be directed in writing to the person named below (the “**City of New Westminster Representative**”). Information obtained from any person or source other than the City of New Westminster Representative may not be relied upon.

Name: Martin Ryberg

Dept: Fleet Services

Phone: 604-517-5420

Email: mryberg@newwestcity.ca

Inquiries should be made no later than three [3] work days before Closing Time. The City of New Westminster reserves the right not to respond to inquiries made within three [3] work days of the Closing Time. Inquiries and responses will be recorded and may be distributed to all Proponents at the discretion of the City of New Westminster.

Proponents finding discrepancies or omissions in the Contract or RFP, or having doubts as to the meaning or intent of any provision, should immediately notify the City of New Westminster Representative. If the City of New Westminster determines that an amendment is required to this RFP, the City of New Westminster Representative will issue an addendum in accordance with section 2.7. No oral conversation will affect or modify the terms of this RFP or may be relied upon by any Proponent.

INFORMATION MEETING

An information meeting may be hosted by the City of New Westminster Representative to discuss the City of New Westminster's requirements under this RFP (the "Information Meeting") While attendance is at the discretion of Proponents, Proponents who do not attend will be deemed to have attended the Information Meeting and to have received all of the information given at the Information Meeting. **[At the time of issuance of this RFP a meeting has not been scheduled.]**

If the City of New Westminster elects to hold an Information Meeting, the City of New Westminster will post notice on the date, time and location of the Meeting on BC Bid.

ADDENDA

If the City of New Westminster determines that an amendment is required to this RFP, the City of New Westminster Representative will issue a written addendum that will form part of this RFP. No amendment of any kind to the RFP is effective unless it is contained in a formal written addendum issued by the City of New Westminster Representative.

The City of New Westminster will post information relating to this RFP on BC BID. Any interested party is responsible to monitor BC Bid for such information, including addenda to this RFP, if any. Upon submitting a Proposal, Proponents will be deemed to have received notice of all addenda.

EXAMINATION OF CONTRACT DOCUMENTS AND SITE

Proponents will be deemed to have carefully examined the RFP, including all attached Schedules, the Contract and the Site (as applicable) prior to preparing and submitting a Proposal with respect to any and all facts, which may influence a Proposal.

OPENING OF PROPOSALS

Proposals will not be opened in public.

STATUS INQUIRIES

All inquiries related to the status of this RFP, including whether or not a Contract has been awarded, should be directed to the City of New Westminster representative listed in section 2.5.

PROPOSAL SUBMISSION FORM AND CONTENTS

PACKAGE

Proposals should be submitted in a sealed package, marked on the outside with the RFP title and reference number to the location listed in section 2.1.

PROPOSAL CONTENTS/FORM OF PROPOSAL

Proponents should [complete] include in their Proposals responses to each of the items listed in Schedule A, Schedule B and Schedule C including Schedules C-1 to C-4. Proponents are encouraged to respond to the items listed in the order listed and to use the forms provided. Additional pages can be submitted as necessary.

CONTRACT

The City of New Westminster's preferred form of Contract is the Purchase Order which will embody, by reference, Schedules A, B and C and all applicable documents including any Addenda issued during the RFP period. If a Proponent requires amendments to the Contract, it should state such proposed amendments in its Proposal. Any alternatives will be used in evaluating the Proponent's proposal and the City of New Westminster is not bound to accept any alternative proposed.

SIGNATURE

Proposals should be signed by a person authorized to sign on behalf of the Proponent and bind the Proponent to statements made in the Proposal.

EVALUATION AND SELECTION

EVALUATION TEAM

The evaluation of Proposals will be undertaken on behalf of the City of New Westminster by the Evaluation Team, which may consist of one or more persons. The Evaluation Team may consult with others, including City of New Westminster staff members, third party consultants and references, as the Evaluation Team may in its discretion decide as required.

EVALUATION CRITERIA

The Evaluation Team will compare and evaluate all Proposals to determine the Proponent's strength and ability to provide the Services in order to determine the Proposal which is most advantageous to the City of New Westminster.

The Proposals will be evaluated on, in no particular order, the following criteria:

- a) Experience, Reputation, Capacity and Resources – The Proponent's experience, reputation, resource's availability including ability to meet requirements, qualifications and competencies, track record, references of current and former customers and demonstrated strength and ability to perform the Services as applicable to the performance of the Services;

For this evaluation criterion the Evaluation Team will give particular reference to the Proponent's responses in Schedule C-1.

- b) Technical – The Proponent's technical proposal for the performance of the Services and demonstrated strength to perform the Services includes, but is not limited to, design and configuration, type of service body, demonstration of high quality materials, parts, components, design and craftsmanship, overall specifications for all components of the Fire Apparatus, ability to deliver in a reasonable time period (including a schedule and projected milestone dates), ability to support through training, location of affiliated service facilities with trained technicians, parts availability for maintenance of Fire Apparatus, components and equipment; noise emissions, manoeuvrability, mechanical/fabrication assessment, firefighter/operator/ergonomic assessment, visibility, environmental, quality and duration of warranties for the Fire Apparatus (including paint and other) and manufacturer's warranties for components incorporated in the Fire Apparatus and other detailed specifications;

For this evaluation criterion the Evaluation Team will give particular reference to the Proponent's responses in Schedule C-2 and C-3.

- c) Financial – The Proponent's financial proposal for the performance of the Services, and demonstrated financial strength to perform the Services. The financial offer includes, but not limited to, base Fire Apparatus unit price, optional equipment price, inspection costs, operating and maintenance costs and any life cycle considerations;

For this evaluation criterion the Evaluation Team will give particular reference to the Proponent's responses in Schedule C-4.

The Evaluation Team may apply the evaluation criteria on a comparative basis, evaluating the Proposals by comparing one Proponent's Proposal to another Proponent's Proposal. The Evaluation Team will not be limited to the criteria referred to above, and the Evaluation Team may consider other criteria that the team identifies as relevant during the evaluation process. Specific weightings are not assigned to the individual evaluation criteria, but it is anticipated that the Proposal that offers greatest value for money will be judged as most advantageous.

DISCREPANCIES IN PROPONENT'S FINANCIAL PROPOSAL

If there are any obvious discrepancies, errors or omissions in the Proponent's financial proposal, the City of New Westminster shall be entitled to make obvious corrections, but only if, and to the extent, that the corrections are apparent from the Proposal as submitted, and in particular:

- a) If there is a discrepancy between a unit price and the extended total, then the unit prices shall be deemed to be correct, and corresponding corrections will be made to the extended totals;
- b) If a unit price has been given but the corresponding extended total has been omitted, then the extended total will be calculated from the unit price and the estimated quantity;
- c) If an extended total has been given but the corresponding unit price has been omitted, then the unit price will be calculated from the extended total and the estimated quantity.

ADDITIONAL INFORMATION

The Evaluation Team may, at its discretion, request clarifications or additional information from a Proponent with respect to any Proposal, and the Evaluation Team may make such requests to only selected Proponents. The Evaluation Team may consider such clarifications or additional information in evaluation a Proposal.

INTERVIEWS

The Evaluation Team may, at its discretion, invite some or all of the Proponents to appear before the Evaluation Team to provide clarifications of their Proposals. In such event, the Evaluation Team will be entitled to consider the answers received in evaluating Proposals.

NEGOTIATION OF CONTRACT AND AWARD

If the City of New Westminster selects a Preferred Proponent, then it will enter into discussions with the Preferred Proponent to clarify any outstanding issues and attempt to finalize the terms of a Contract, including financial terms. If discussions are successful, the City of New Westminster and the Preferred Proponent will finalize a Contract. If at any time the City of New Westminster reasonably forms the opinion that a mutually acceptable agreement is not likely to be reached within a reasonable time then the City of New Westminster may then either open discussions with another Proponent or terminate this RFP and obtain or proceed with the Services in some other manner.

LITIGATION

In addition to any other provision of this RFP, the City of New Westminster may, in its absolute discretion, reject a Proposal if the Proponent, or any officer or director of the Proponent submitting the Proposal, is or has been engaged directly or indirectly in a legal action against the City of New Westminster, its elected or appointed officers, representatives or employees in relation to any matter.

In determining whether or not to reject a Proposal under this section, the City of New Westminster will consider whether the litigation is likely to affect the Proponent's ability to work with the City of New Westminster, its Consultants and representatives, and whether the City of New Westminster's experience with the Proponent indicates that there is a risk the City of New Westminster will incur increased staff or legal costs in the administration of the Contract if it is awarded to the Proponent.

GENERAL CONDITIONS**NO CITY OF NEW WESTMINSTER OBLIGATION**

This RFP is not a tender and does not commit the City of New Westminster in any way to select a Preferred Proponent, or to proceed to negotiations for a Contract, or to award any Contract, and the City of New Westminster reserves the complete right to at any time reject all Proposals, and to terminate this RFP process.

PROPONENT'S EXPENSES

Proponents are solely responsible for their own expenses in preparing and submitting Proposals, and for any meetings, negotiations or discussions with the City of New Westminster or its representatives and consultants, relating to or arising from this RFP.

NO CONTRACT

The City of New Westminster and its representative, agents, consultants and advisors will not be liable to any Proponent for any claims, whether for costs, expenses, losses or damages, or loss of anticipated profits, or any other matter whatsoever, incurred by the Proponent in preparing and submitting a Proposal, or participating in negotiations for a Contract, or other activity related to or arising out of this RFP.

NO CLAIMS

The City of New Westminster and its representatives, agents, consultants and advisors will not be liable to any Proponent for any claims, whether for costs, expenses, losses or damages, or loss of anticipated profits, or for any other matter whatsoever, incurred by the Proponent in preparing and submitting a Proposal, or participating in negotiations for a Contract, or other activity related to or arising out of this RFP.

CONFLICT OF INTEREST

Proponents shall disclose any potential conflicts of interest and existing business relationships they may have with the City of New Westminster, its elected or appointed officials or employees. The City of New Westminster may rely on such disclosure. The City of New Westminster may reject a Proposal from any Proponent that the City of New Westminster judges would be in a conflict of interest if the Proponent is awarded a Contract. Failure to disclose, or false or insufficient disclosure of the nature and extent of any relationship the Proponent may have with any employee, officer or director of the Owner shall be grounds for immediate termination of any agreement or contract with the Owner, in the Owner's sole discretion, without further liability of notice.

SOLICITATION OF COUNCIL MEMBERS AND CITY OF NEW WESTMINSTER STAFF

Proponents and their agent will no contact any member of the City of New Westminster Council or City of New Westminster staff with respect to this RFP, other than the City of New Westminster Representative named in Section 2.5, at any time prior to the award of a Contract or the termination of this RFP, and the City of New Westminster may reject the Proposal of any Proponent that makes any such contact.

CONFIDENTIALITY

All submissions become the property of the City of New Westminster and will not be returned to the Proponent. All submissions will be held in confidence by the City of New Westminster unless otherwise required by law. Proponents should be aware the City of New Westminster is a "public body" defined by and subject to the *Freedom of Information and Protection of Privacy Act* of British Columbia.

INTELLECTUAL PROPERTY

Information provided by Proponents in the RFP process will remain the exclusive property of the Proponents. Only the information included in the accepted Proposal will become the property of the City of New Westminster for its use and intellectual property contained in the Proposal will be used for the project.

SIGNATURE

The legal name of the person or firm submitting the Proposal should be submitted. The Proposal should be signed by a person authorized to sign on behalf of the Contractor and include the following:

- a) If the Contractor is a corporation then the full name of the corporation should be included, together with the names of authorized signatories. The Proposal should be executed by all of the authorized signatories or by one or more of them provided that a copy of the corporate resolution authorizing those persons to execute the proposal on behalf of the corporation is submitted;

- b) If the Contractor is a partnership or joint venture then the name of the partnership or joint venture and the name of each partner or joint venturer should be included, and each partner or joint venturer should sign personally (or, if one or more person(s) have signing authority for the partnership or joint venture, the partnership or joint venture should provide evidence to the satisfaction of the City of New Westminster that the person(s) signing have signing authority for the partnership or joint venture. If a partner or joint venturer is a corporation then such corporation should sign as indicated in subsection (a) above; or
- c) If the Contractor is an individual, including a sole proprietorship, the name of the individual should be included.

SCHEDULE A – GENERAL SPECIFICATIONS AND REQUIREMENTS



NEW WESTMINSTER

Title: **SUPPLY & DELIVERY OF ONE (1)
1500 G.P.M. TRIPLE COMBINATION
PUMPER UNIT**

Reference No.: **RFP 10-124**

SCHEDULE A – GENERAL SPECIFICATIONS AND REQUIREMENTS

GENERAL

The City of New Westminster would like to establish a framework agreement to purchase **ONE (1) ONLY** of the following Fire Apparatus as detailed in these Specifications and Requirements (Schedule A and Schedule B).

Each Proposal shall be accompanied by a set of “Contractor’s Specifications” consisting of a detailed description of the Fire Apparatus and equipment proposed and to which the Fire Apparatus furnished under contract shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment.

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to cover the furnishing and delivery of a complete Fire Apparatus equipped as hereinafter specified. These specifications shall cover only the general requirements as to the type of construction and test to which the Fire Apparatus shall conform, together with certain details as to finish, equipment and appliances with which the Contractor shall conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the Contractor, who shall be solely responsible for the design and construction of all features.

All parts for body and chassis which are necessary in order to provide a complete unit, ready for operation, shall be included in the Proposal and shall conform in strength, quality of workmanship, and materials to that which is usually provided by the trade in general. Any variance from these Specifications & Requirements or standards in quality must be clearly pointed out in writing by the Contractor in their technical Specifications & Requirements (Schedule B - “Variation” column).

The Specifications and Requirements for the Fire Apparatus as specified in this Schedule “A”, describe the minimum specifications & requirements the City of New Westminster would like the Fire Apparatus to meet. Contractors should prepare a Proposal that meets the minimum specifications, and may, in addition, also include in a Proposal the supply of a Fire Apparatus that exceeds the minimum Specifications & Requirements.

The Contractor will coordinate progress of the Services, progress schedules, and submittals. The unit proposed shall be new, manufacturer’s latest make and model in current production as offered to commercial trade and shall be furnished complete with all factory-installed standard equipment and accessories listed in the manufacturer’s latest literature for the respective unit and any additional equipment as may be defined in the technical specifications.

Throughout these Specifications & Requirements, compatibility is of the essence and any modification, accessory, device, material or type of construction, whether to existing or to the specified equipment, which may be necessary to incorporate the specified equipment into the existing equipment shall be considered to be a part of these specifications whether detailed by item or not.

Workmanship shall be the best quality, executed by workers experienced and skilled in the respective duties. The cab shall be specifically designed and engineered for the emergency vehicle market while the vehicle shall be assembled in an ISO 9001 certified facility to insure the highest level of consistent quality components and assembly procedures are utilized in support of long service life with minimum maintenance.

Total delivery period not to exceed a maximum of eight (8) months from contract award. The Proponent will not be held liable for delay in delivery caused by delayed shipment of chassis by chassis manufacturer, accidents, strikes, floods or other events not subject to their control.

PENALTIES LATE DELIVERY

\$500 penalty per day will be assessed if delivery date exceeds eight (8) months from the award of the RFP. This will be at the discretion of the Corporation of the City of New Westminster.

REFERENCES

All references to Codes, Standards and general and technical Specifications & Requirements referred to in these specifications or used on drawings shall mean and intend to be the currently adopted edition, amendment and revision of such reference standards in effect at the time of RFP Closing.

Referenced standards and code requirements shall be considered minimum requirements.

Applicable portions of standards used that are not in conflict with the agreement documents are hereby made a part of the specifications.

Modifications or exceptions to standards shall be considered as amendments, and unmodified portions shall remain in full effect.

In cases of discrepancies between the specifications and Standards, the requirements of the specifications shall govern.

Where references to codes or standards are used in these specifications, the Contractor must familiarize himself with the applicable portions and shall be governed by them.

If requested, the Contractor shall furnish an affidavit from manufacturers certifying that materials or products delivered meet the requirements specified. However, such certifications shall not relieve the Contractor from the responsibility of complying with any added requirements specified in the agreement documents.

DESIGNATION EXPLANATION

These general and technical specifications cover specific requirements as to the type of construction and tests as to which the Fire Apparatus must conform, together with certain details as to finish, material preferences, equipment and appliances with which the successful Contractor must conform. Minor details of construction and materials, where not otherwise specified, are left to the discretion of the Contractor, who shall be solely responsible for the design and construction. The Fire Apparatus shall conform to the current NFPA Standard for Fire Apparatus to the extent as herein specified.

Items not described in this specification for the construction or performance or in ULC S515 Standards or CAN/ULC S515-04, or NFPA 1901 [latest edition(s)] may be accepted as the standard of the Contractor. The primary objective of these specifications is to obtain the best value and most acceptable Fire Apparatus for use by the City of New Westminster's Fire Department.

The Fire Apparatus shall comply with the Canadian Federal Government Motor Vehicle Safety Act and Regulations; Canadian Motor Vehicle Safety Standards [CMVSS]; and Province of British Columbia Motor Vehicle Act and Regulations relating to commercial vehicles as well as to vehicles used for fire fighting, and emergency vehicles at time

of agreement signing. The Contractor will be solely responsible for the design, construction and performance of the Fire Apparatus and shall also meet the requirements of Work Safe for the Province of British Columbia.

The delivered Fire Apparatus shall have a certified Province of British Columbia G.V.W.R. weight sticker applied to the Fire Apparatus on delivery to ensure the Fire Apparatus meets all laws pertaining to the weight carrying capacity of the vehicle.

All items listed in Schedule B should, if possible, be met in their entirety. Proposers should identify any variances from that as listed. Proposers may also provide separate pricing on additional requirements they feel would benefit the City of New Westminster in meeting their goal. Any Contractor must agree to price and perform all work and provide all equipment listed in the specification. It is understood that the City of New Westminster may select or delete items listed as options as necessary when accepting a Proposal.

Whether specifically mentioned herein or not, all parts necessary to provide complete and efficient Fire Apparatus shall be furnished. Such parts shall conform to the best current engineering practices of the industry relative to design, structure, quality of materials and workmanship.

BUILD SCHEDULE

The successful Contractor will:

- (a) Prepare and submit a build schedule within ten (10) days after the pre-construction meeting, indicating the timing (start and completion date of activities noting the first work day of each week) of all major activities of the work, providing a separate schedule for each trade or operation including, mechanical, plumbing and electrical work, and provides details of the critical events and their inter-relationship to demonstrate the work will be performed in conformance with the agreement time;
- (b) Monitor the progress of the work relative to the construction schedule and update the schedule on a monthly basis for review by the City of New Westminster Representative, at time of submission for application for payment and as stipulated by the agreement documents;
- (c) Promptly advise the City of New Westminster of any revisions required to the schedule;
- (d) Indicate changes occurring since previous submission of schedule such as major changes in scope, activities modified since previous submission, revised projections of progress and completion, and other identifiable changes;
- (e) Provide a narrative report to define problem areas, anticipated delays, the impact on the schedule, corrective action recommended and its effect; and,
- (f) Provide weekly status updates (to include photos) on progression during the truck build once the apparatus starts manufacturing. The fire department has the right to request more pictures of the truck at any point at no extra cost
- (g) Submit a construction schedule and itemize activities separately for each phase.

SHOP DRAWINGS

Drawings for approval and blueprints with all details thereon must be furnished within ten (10) days after the pre-construction meeting and before the construction of the Fire Apparatus begins.

The Contractor will be required to provide three (3) sets of detailed shop drawings. Shop drawings shall be formatted so that there is sufficient space for Contractor's circulation stamps to appear on the face of the submittal.

One print will be returned with appropriate notation if a re-submittal is required.

The Contractor shall provide a five (5)-view drawing showing overall dimensions and configuration of Fire Apparatus and arrangement of compartments and equipment storage. The five views shall be as follows:

- top view (entire truck)
- front end view
- rear end view
- left side view
- right side view

The drawings shall clearly indicate to scale, all exterior portions of the proposed Fire Apparatus, controls, lights, railings, gauges, etc. This drawing must be approved by the City of New Westminster prior to construction of the Fire Apparatus.

Each Contractor shall make accurate statements in their specifications as to weight, wheelbase, and other principal dimensions such as overall length, height, width, compartment sizes, door openings, include body compartment cubic storage.

The body manufacturer shall submit all applicable drawings, and calculations to the City of New Westminster with the Proposal package. Drawings supplied with this document are for evaluation purposes, and are not intended to assist with the production of design and manufacturing drawings for the project. No Proposal shall be considered unless complete engineering drawings to the Proposal Specifications are submitted with the Proposal package. Failure to submit factory prepared drawings may result in rejection of the Proposal. The engineering drawings will allow the City of New Westminster the ability to fully evaluate each Proposal, design, engineering and drawing quality in comparison to the specifications.

CONTRACTOR TO STATE:

Engine Weight and Electrical Data 2;

Engine performance computer generated scans shall be submitted with Proposal indicating gross and net horsepower and torque, full throttle performance and Fire Apparatus full throttle acceleration indicating speed, time, distance and engine R.P.M. through all gear ranges at 0% grade;

G.V.W.R. front, rear, and total weight computer analysis, with proposed Municipal equipment mounted in noted locations, including personnel shall be submitted with Proposal;

Computer electrical analysis of "response" and stationary "on scene" modes of electrical operations and equipment shall be submitted with Proposal;

Compartment sizes and locations;

Showing weight distribution, front and rear, and the centre of gravity of the Fire Apparatus when fully loaded;

Ladder storage;

Schematic piping layout of the hydraulic system with all major components described; and,

Showing the valves and piping layout of the fire pump system with all major components described.

Document displaying turning radius performance analysis.

Photocopied product literature will not be accepted as shop drawings.

Amp draw report: The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus will provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which will include the following:
- The nameplate rating of the alternator.
- The alternator rating under the conditions specified per: Applicable NFPA 1901 or 1906 (Current Edition).
- The minimum continuous load of each component that is specified per: Applicable NFPA 1901 or 1906 (Current Edition).

All of the above listed items will be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).

The term "by others" shall not be used on shop drawings or other submittals, the related trade or subcontractor shall be stated by the Contractor.

Where the specifications require shop drawings to bear the seal of a professional Engineer, the Engineer must be registered in the province/state where the project is located and shall have expertise in the area of practice reflected by the shop drawings.

PRODUCT DATA

Certain specification sections specify that manufacturer's standard schematic drawings, catalogue sheet(s), diagrams schedules, performance charts, illustrations and other standard descriptive data will be accepted in lieu of shop drawings.

The above will only be accepted if they conform to the following:

- (a) Clearly mark each copy to identify pertinent products or models;
- (b) Show performance characteristics and capacities;
- (c) Show dimensions and clearances required, relative to Fire Apparatus requirements;
- (d) Show wiring or piping diagrams and controls; and,
- (e) Supplement standard information to provide information specifically applicable to the Work.

A complete set of Contractors specifications, with generic scale drawings, showing the front, rear, left, right, front and top views of the proposed Fire Apparatus must be submitted with your Proposal for the purposes of comparison. Include catalogue information, descriptive literature, specifications and/or engineering drawings that completely identify the items proposed.

SPECIFIED EQUIPMENT, OR EQUIVALENT

Wherever in the specifications any materials or processes are indicated or specified by patent or proprietary name and/or by name of manufacturer, such specifications shall be deemed to be used for the purpose of facilitating descriptions of the performance, materials and/or processes desired and shall be deemed to be followed by the words, "or equivalent", if not so stated in the specifications herein.

The burden of proof shall rest with the Contractor, the course of a technical evaluation, to prove that the proposed item(s) are equivalent to the performance, materials, processes, or articles specified. Determination as to whether the item(s) is/are equivalent to those as specified shall rest solely with the Department Representative, or designate.

PRODUCT OPTIONS

For product specified only by referenced standards, select any product which meets or exceeds the standard.

For products specified by naming several products or acceptable manufacturers select any product named. If a standard is also referenced, verify that the product selected meets the standard.

For products specified by “generic” specification, select any product meeting or exceeding specification.

Where the specification provides for selection of an option which is not consistent with the drawings and schedules (as in the case of a piece of equipment which differs from the equipment detailed in dimensions, service requirements, etc.), the Contractor, if he elects to use this option, agrees to coordinate the installation of the selected option into the Work, making such changes in the work as may be required to accommodate the option, and he will bear and waives all claims for additional compensation for costs which subsequently become apparent arising out of the option, including costs of re-design, and preparation of drawings and details. Products specified by brand name, make, name of manufacturer, trade name, catalogue number, model number or similar reference shall be regarded as establishing a standard. It is not intended to rule out competition from equal brands or makes. If, however, a product other than that specified is proposed, it is the Contractor’s responsibility to name such a product in its Proposal. Evidence of equality in the form of samples may be requested. Determination of equality shall be at the sole discretion of the City of New Westminster whose decision will be final.

SUBSTITUTIONS

Proposals for substitution may be submitted by the Contractor only after award of agreement. Such requests must include statements of respective costs of items originally specified and proposed substitutions.

Within twenty (20) days after letter of intent to award, the City of New Westminster will consider formal requests from the Contractor for changes to be made to the agreement to substitute other products for those specified. Before the end of this period verify that the products where specified can be obtained, meet all requirements and submit requests for substitutions for products which cannot be obtained.

The City of New Westminster will consider Proposals if:

- (a) Products selected by the Contractor from those specified are not available, or;
- (b) Delivery date of products selected from those specified would unduly delay completion of the agreement, or;
- (c) Alternative products or construction methods to those specified, which are brought to the attention of, and considered by the Fire Department as equivalent to those specified, will result in credit to the agreement amount.

With Proposals for substitution include:

- (a) Complete data substantiating compliance of the proposed substitute with agreement requirements;

- (b) For products: Product identification, including manufacturer's name and address; manufacturer's literature, including product description, performance test data, reference standards, and limitation, samples, if appearance is relevant; name and addresses of similar projects where the product has been used;
- (c) For construction methods: detailed description of the proposed method, and drawings illustrating it;
- (d) Itemized comparison of proposed substitution with product or method specified;
- (e) Data relating to changes in schedule;
- (f) Proposal for change in agreement amount if substitution is approved; and,
- (g) Verification that product complies with various codes.

Should proposed substitution be accepted, in part or in whole, assume full responsibility and costs when substitution affects any other Services. Pay for any drawing changes required as a result of substitution. Drawings incorporating and coordinating all aspects of affected Services shall bear the seal and signature of an engineer registered in the Province/State of the Services.

In making a Proposal for substitution the Contractor represents: That he has personally investigated the RFP and (unless the Proposal explicitly states otherwise) determined that it is equivalent or superior to the product or method specified; that the same guarantee will be furnished for the original; that he will coordinate installation of the accepted substitute in the Services, making such changes in the Services as may be required to accommodate the change; that he will bear and waives all claims for additional compensation for costs which subsequently become apparent arising out of the substitution; and that the Proposal is complete and includes all related costs.

Substitutions will not be considered which are implicit in submitted shop drawings and samples rather than formally presented Proposals as described above.

Substitutions will not be considered which require substantial changes in the Agreement documents.

No substitutions will be permitted without the written approval of the City of New Westminster.

Substitutions will not be considered which are due to negligence in not ordering specified product in proper advance time considering place of origin of product, normal method of delivery and manufacturer's ordering requirement. In the case of the preceding, the City of New Westminster will select a substitute, which the Contractor shall provide and install at no additional cost to the City of New Westminster.

GENERAL CONSTRUCTION AND DESIGN

All work shall be carried out in a professional workmanlike manner.

The Fire Apparatus and all major components shall be manufactured in North America.

All oil, hydraulic and air tubing lines and electrical wiring shall be located in protective positions properly attached to the frame or body structure and shall have protective loom or grommets at each point where they pass through structural members, except where a through-frame connector is necessary.

Parts and components should be located or positioned for rapid and simple inspection and recognition of excessive wear or potential failure. Whenever functional layout of operating components determines that physical or visual interface between items cannot be avoided, the item predicted to require the most maintenance shall be located for best accessibility.

Cover plates, which must be removed for component adjustment or part removal, should be equipped with quick-disconnect fastenings or hinged panels.

Drains, filler plugs, grease fittings, hydraulic lines, bleeders and check points for all components should be located so that they are readily accessible and do not require special tools for proper servicing. Design practices should minimize the number of tools required for maintenance.

Exceptions will not be accepted or permitted since all raw materials of specified type are available to all manufacturers. Since all fire manufacturers have the ability to shear, brake and weld, as these specifications require, all basic design requirements shall be complied with.

Materials shall conform to the specifications listed herein. When not specifically listed, materials shall be of the best quality for purpose of commercial practice. Materials shall be free of all defects and imperfections that might affect the serviceability of finished product.

All nameplates and instruction plates shall be metal with the information engraved, stamped, or etched thereon, as required by NFPA #1901 [latest edition(s)]. Name plates shall show make, model, serial numbers, or other such data necessary to positively identify the item and all fluid types and levels for vehicle. All plates shall be mounted in a conspicuous place with stainless steel screws and bolts, as required by NFPA #1901 [latest edition(s)].

The manufacturing process, including quality control, shall be consistent with present industry standards. All equipment, materials and articles required under this specification are to be new or fabricated from new materials produced from recovered materials. The term "Heavy Duty", as used to describe an item, shall mean in excess of the standard, quantity, quality, or capacity and represents the best, most durable, strongest, etc., part, component, system, etc., that is currently available. The City of New Westminster shall be the sole judge of quality, construction and stability of the Fire Apparatus and equipment being offered.

Defective components shall not be furnished. Parts, equipment and assemblies, which have been repaired or modified to overcome deficiencies, shall not be furnished without the approval of the City of New Westminster. Welded, bolted, and riveted construction utilized shall be in accordance with the highest standards of the industry. CWB/AWB Certified welders must perform all welding. Component parts and units shall be manufactured to definite standard dimensions with proper fit, clearances, and uniformity. General appearance of the vehicle shall not show any evidence of poor quality of work.

QUALITY AND WORKMANSHIP

The design of the Fire Apparatus must embody the modular design and construction technique as outlined.

The workmanship must be of the highest quality in its respective field(s). Special consideration will be given to the following points:

- (a) Accessibility of the various components which require periodic maintenance operations; and,
- (b) Ease of operation, including both pumping and driving operations and symmetrical proportioning of the overall Fire Apparatus.

Welding shall not be employed in the assembly of the Fire Apparatus in a manner that will prevent the removal of major component parts for service and/or repair. This includes, but is not limited to the following:

- (a) Individual body compartments;

- (b) Doors;
- (c) Panbraces;
- (d) Body subframe,
- (e) Bodysides;
- (f) Beavertails, etc.

ALL WELDING MUST BE DONE BY CWB/AWB CERTIFIED WELDERS, NO EXCEPTIONS.

The Contractor shall certify that all components of the drive train are compatible and will stand the strain of Fire Department use, and still bear the Manufacturer's normal warranty. It will be the responsibility of the Contractor to check with the manufacturer of the chassis in this regard and inform the City of New Westminster of any change that may be necessary in the specifications so they will conform to standards.

The provisions of these specifications are to be complied with in all respects, except in instances whereby variances have been granted. In the event the Contractor cannot supply specified items for reasons of non-compatibility, or reasons beyond the Contractor's control, he shall request a variance to provide substitute items, equal to or better, describe these items in detail in writing to the City of New Westminster.

The design of the Fire Apparatus shall be modern, employing the latest automotive engineering practices designed to suit the nature of the services, which the Fire Apparatus must perform. Frame, springs, radial arms, transmission, differential, axles, shafts and gears shall be strong enough to withstand the road speed and practical tests, and the unusual stresses and strains place on such Fire Apparatus in the fire fighting service. All of the equipment furnished shall be the manufacturer's current published data. If specifications exceed these, or the Contractor sees fit to add extra features, they shall be considered as minimum and be furnished.

All areas shall be primed with the highest quality products available before being hidden by body construction, or finished paint.

DOCUMENTATION AT TIME OF DELIVERY

The successful Contractor will be required to provide the following documentation upon delivery:

- .a All keys [four (4) full sets], parts and service manuals are to be delivered with the vehicle;
- .b Manufacturer's Certificate of Origin;
- .c Warranty document(s) and/or certifications as may be required in the Specifications;
- .d Two complete overhaul manuals to cover engine, transmission, rear axle, electrical components, etc. to cover completed Fire Apparatus. They will include as-built wiring schematics of chassis;
- .e Two parts catalogues covering the entire fire apparatus and complete drive train. This must include any equipment supplied with Fire Apparatus;
- .f Two pump manuals covering repair and operation of pump;
- .g Two sets of as-built electrical wiring schematics to cover any and all wiring not installed by chassis manufacturer. This diagram to include part numbers and brand names of switches, lights, etc. of parts used;

- .h Calculations showing grade ability and speed;
- .i Any special tools that are required in the care and maintenance or overhaul of the Fire Apparatus and its components; and,
- .j A complete list of all belts, hoses, and filters; to include part numbers, manufacturer and use.
- .k All fluid capacities in litres.
- .l A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

DELIVERY

Fire Apparatus, to insure proper break in of all components while still under warranty, **shall be delivered under its own power** - rail or truck freight shall not be acceptable. The Fire Department prefers delivery no later than eight months after award of RFP. Please specify your estimated delivery schedule in the Timeline Schedule (Schedule C-3).

A qualified delivery engineer representing the contractor shall deliver the Fire Apparatus and remain for a sufficient length of time to instruct personnel in the proper operation, care and maintenance of the equipment delivered.

The Fire Apparatus and equipment specified herein, with delivery tickets and/or other required documentation will be delivered prepaid F.O.B. Destination, between the hours of 7:00 a.m. to 4:00 p.m., Monday through Friday, to The Corporation of the City of New Westminster, Engineering Operation's Works yard located at 901 First Street, New Westminster, BC Canada V3L 2J1.

The Contractor will notify the City of New Westminster, not less than five (5) days prior to expected delivery/arrival to permit final inspection scheduling. An authorized representative of the Contractor shall supervise delivery to the City of New Westminster. The City of New Westminster will not assume any liability for vehicle/equipment delivered to an unauthorized location.

Title, Risk of Loss, Freight: Title of goods received under this contract shall remain with the Contractor until they are delivered to the address specified, at which time title passes to the City of New Westminster. Regardless of FOB point, Contractor agrees to bear all risks of loss, injury, or destruction of goods and materials ordered herein which occur prior to delivery and acceptance. Such loss, injury, or destruction shall not release Contractor from any obligations under. Prices include freight prepaid. Contractor assumes the risk of every increase, and receives the benefit of every decrease, in delivery rates and charges.

FACTORY INSPECTION TRIPS

The Contractor will provide, arrange and pay for all direct and associated travel costs of three (3) Municipal staff for the following inspection visits:

Inspection #1: A pre-construction conference shall be conducted at the apparatus manufacture's factory at which time all final design and equipment mounting locations will be approved, prior to any sheet metal being cut. A factory employed design engineer shall be present during the pre-construction conference to answer any design, and/or engineering questions relating to the layout of the apparatus.

Inspection #2: Inspection of pump installation, all plumbing, and structural body installed, and, primed and ready for paint at the apparatus manufacture's factory; or provide weekly status updates (to include photos) on progression during the truck build once the apparatus starts manufacturing. The fire department has the right to request more pictures of the truck at any point at no extra cost.

Inspection #3: Final inspection (pre-delivery) will be conducted at the apparatus manufacture's factory. This will occur when the fire apparatus is complete and ready for shipment to the City of New Westminster.

Factory inspection trips should be of a minimum three (3) day duration; include commercial transportation (i.e. airfare), meals, accommodation [lodging], and local transportation to and from plant facility and be conducted during normal business hours Monday through Friday.

In addition, the City of New Westminster reserves the right to visit the manufacturer's facility at any time at no cost to the Contractor, to monitor the construction of the Fire Apparatus. Advance notice of these visits will be made prior to arrival.

The Fire Apparatus must be in finished condition and ready for shipment when the pre-delivery inspection is scheduled.

A road performance test, pump test, foam delivery test and general operation demonstration must be performed during the pre-delivery inspection.

Certificates of third party testing of the pump must also be available for inspection.

INSPECTIONS (MANUFACTURER'S FACILITY)

All or any part of the work and all workshops or other places where material for the works is being prepared or stored, may be inspected by the City of New Westminster, when the City of New Westminster shall deem it expedient, consistent with the terms of inspection of the specifications. The Contractor shall afford the City of New Westminster, every facility and access request by him and shall give him any and all information requested by him in connection therewith. No payment will be made for the cost to the Contractor of any work delay occasioned by such inspection and no extension of time will be allowed for any delay occasioned thereby.

All materials or equipment shall be subject to inspection or test and shall meet the approval of the City of New Westminster. Such inspection, at the option of the City of New Westminster, may be carried out at the place of business of the Contractor.

Should materials or equipment be found defective in quality of workmanship or otherwise fail to conform to the specifications set forth, the City of New Westminster shall have the right to reject them or require their immediate correction.

Materials or equipment requiring correction shall be removed for correction or corrected in place as requested by the City of New Westminster at no expense to the City of New Westminster. Unavoidable expense encountered by the City of New Westminster shall be chargeable to the Contractor and deducted from any monies owing to the Contractor by the City of New Westminster.

If the Contractor fails to take proper action promptly when requested by the City of New Westminster, the City of New Westminster may replace or correct materials as necessary and charge the cost of such replacement to the Contractor or the City of New Westminster may terminate the agreement as provided for herein.

If the Contractor covers or permits to be covered, work that has been designated for special tests, inspections, or approvals before such tests, inspections, or approvals are made, given or completed, the Contractor shall, if so directed,

uncover such work, have the inspections or tests satisfactorily completed, and make good covering the work at the Contractor's expense.

The City of New Westminster may order any portion or portions of the work to be examined to confirm that such work is in accordance with the requirements of the RFP. If the work is not in accordance with the requirements of the RFP, the Contractor shall correct the work and pay the cost of examination and correction.

PRE-DELIVERY SERVICE

Upon delivery the Fire Apparatus shall be delivered clean and shall be complete with all equipment operable. The delivered Fire Apparatus will be inspected for compliance with the City of New Westminster's specifications, NFPA 1901 – latest edition and previously authorized exceptions.

The checklist developed during the preliminary inspection at the manufacturer's site will be used to verify that all items previously identified, as deficient/defective/unacceptable were corrected/replaced.

Deviations will not be acceptable unless they were noted and accepted by the City of New Westminster as exceptions/substitutions.

The Fire Apparatus and equipment will only be accepted by the City of New Westminster upon successful completion of all required tests and delivery of all specified equipment.

Equipment items not delivered at time of tests or construction not in conformance with the requirements will be cause for the City of New Westminster to withhold payment.

Each Fire Apparatus shall be inspected by the City of New Westminster to determine its compliance with the specifications and/or to test its ability to perform its intended use.

In the event the Fire Apparatus fails to meet the test requirements on first trials, second trials may be made at the option of the Contractor within thirty (30) days of the day of the first trials.

Such trials shall be final and conclusive; and failure to comply with these requirements shall be cause for rejection.

Acceptance will only occur upon issuance of a formal written acceptance signed by the City of New Westminster.

DELIVERY ENGINEER

The Fire Apparatus shall be delivered to the City of New Westminster with full instructions provided to Fire Department personnel on operation, care, and maintenance of the Fire Apparatus.

Delivery shall be performed by a factory trained Contractor's representative. Delivery by drive-away shall not be acceptable. The Contractor's representative shall remain on-site for a minimum of three (3) days after receipt of goods, for training of fire department personnel and the making of normal adjustments.

Delivery shall be considered to include, but not be limited to: transportation of the Fire Apparatus, conducting day and/or evening classes for instruction of City of New Westminster personnel on operations and for maintenance and repair.

PERFORMANCE TESTS AND REQUIREMENTS

The Fire Apparatus shall meet the following requirements:

- A. The complete apparatus will be certified and tested to the ULC, *Automobile Fire Fighting Apparatus Standard*, CAN/ULC-S515-04, by Underwriters Laboratories Inc. / Underwriters Laboratories of Canada, and the vehicle will bear the ULC Mark, indicating compliancy to the standard.
- B. The Contractor will furnish copies of:
 - (i) Pump manufacturer's certification of Hydrostatic Test;
 - (ii) The engine manufacturer's current Certified Brake Horsepower curve; and,
 - (iii) A current EPQ for the engine and the manufacturer's record of Fire Apparatus construction details, when delivered.

The Contractor, at his sole expense, shall have the Underwriters Laboratories of Canada conduct the tests required under "Certification of Fire Department Pumper", latest version. A certificate of compliance with these tests shall be forwarded to the City of New Westminster.

In the event the Fire Apparatus fails to meet the requirements of these tests and specifications on first trials, second trials may be performed at option of the Contractor within thirty (30) days of the date of first trials. Such trials are to be witnessed by the City of New Westminster and completed at the expense of the Contractor. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes, as the City of New Westminster, may consider necessary and to conform to any clause of these specifications within thirty (30) days after written notice of such changes is given to Contractor shall be cause for rejection of the Fire Apparatus.

WARRANTIES

The Contractor warrants that the Fire Apparatus shall be free from defects in design, materials, workmanship and title, shall conform in all respects to the terms of this supply agreement, shall be fit and suitable and perform satisfactorily for the purposes and under the conditions made known to the Contractor by the City of New Westminster or which were reasonably inferable. The Fire Apparatus shall be at least equal to the higher of national standards or codes (such as, by way of illustration, CSA or ASTM), or standards and codes customarily applicable at the place where the City of New Westminster will use the Goods. The Fire Apparatus shall be of the best quality, if no quality is specified. This general warranty is independent of and without prejudice to any specific warranty or service guarantee offered by the Contractor in connection with the purpose for which the Fire Apparatus were purchased. If the Fire Apparatus or any part does not conform to these warranties one year from the date of delivery or installation, the City of New Westminster shall notify the Contractor within a reasonable time after such discovery, and the Contractor shall then promptly correct such nonconformity at its expense. Fire Apparatus used to correct nonconformity shall be similarly warranted for one year from the date of installation. Except as otherwise provided in this supply agreement, the Contractor's liability shall extend to all damages caused by any breach of any of the above warranties.

The Contractor shall assist the City of New Westminster in the submission of warranty claims on all major components, such as the engine, transmission, pump, tank, etc.

The Contractor shall provide a full statement of the warranty period and terms, including extended warranty options, for the following items, as a minimum. This warranty should clearly describe the terms under which the vehicle's manufacturer or subcontractors of the manufacturer accept responsibility for the cost to repair defects caused by faulty design, quality of work or material and for the applicable period of time after delivery.

- Frame
- Cab
- Engine
- Transmission
- Axle
- Intake and Discharge plumbing
- Fire Pump
- Paint
- Structural [Body]
- Paint [against cracking, checking or peeling and loss of gloss caused by chalking or fading]
- Corrosion [against perforation]
- Siren
- Intercom System

Detail the warranty coverage for any hardware items in the proposed solution including parts, labour, travel allowance and length of warranty.

Any standard warranties, including, but not limited to engine, transmission, tires and axles furnished by the original equipment manufacturer (OEM) will be passed on to the City of New Westminster.

The Contractor to submit their own printed manufacturer warranty forms in exact compliance to the above minimum standards, without exceptions. All warranties shall be submitted and certified by various manufacturers, (warranties by sales representatives, manufacturer's representatives or other agencies shall not be acceptable).

The Contractor shall make no representation that the Fire Apparatus has the capacity to perform any functions other than as contained in the Company's written literature, catalogues or specifications accompanying delivery of the Fire Apparatus. No person or affiliated company representative is authorized to give any other warranties or to assume any other liability on behalf of manufacturer in connection with the sale, servicing or repair of any Fire Apparatus manufactured by the Company.

The Contractor shall warrant to the City of New Westminster that this Fire Apparatus body (exclusive of paint, finish, hardware, mouldings, windows, and other accoutrements and accessories) is structurally sound and free of all structural defects of both material and workmanship and further warrant that it will maintain such structural integrity for a period of fifteen (15) years from date of manufacture, as designated on the manufacturer's certification plate attached thereto.

MANUALS

To ensure the City of New Westminster a source of service and parts over the anticipated life of the Fire Apparatus, the Contractor shall have established their permanency in the industry and include in the Proposal a description of their full time local service centre abilities and facilities.

The local service centre, the body and chassis manufacturer must stock a complete line of all firefighting equipment and parts for this Fire Apparatus. Location of manufacturing plant and nearest service facility should be included in an accompanying letter.

The body manufacturer shall provide with the vehicle on delivery, two (2) complete delivery manuals. These manuals to be in three-ring notebook type binders, with reference tabs for each section of the vehicle. Within each section shall be:

Individual component manufacturer instruction and parts manuals;

Warranty forms for body;

Warranty forms for all major components;

Warranty instructions and format to be used in compliance to warranty obligations;

Electrical wiring diagrams of each body circuit. These drawings must be “as-built”, generic or similar-to drawings will not be accepted. All fuse, strobe power supplies, diodes and circuit locations shall be identified;

Necessary normal routine service forms, publications, component of body portion of Fire Apparatus;
Technical publications on training and instructions for major body components;

Warning notices and safety related section for personnel protection;

Chassis parts, service and maintenance manuals shall be provided; and,
“As Built” air brake diagrams.

Two (2) maintenance manuals and supplement shall be supplied at the time of delivery for each unit and must include:

Complete recommended maintenance procedures for all components supplied by the manufacturer to meet the requirements of this specification.

Specification and a list of approved North American manufactured products for fuel and all lubricant requirements. A label with all lubricant types and fluid amounts shall be installed on vehicle driver's door, per NFPA #1901 (current edition).

RECALL NOTICES

In the event of any recall notice, technical service bulletin, or other important notification affecting a unit purchased from this agreement, a notice shall be sent to the City of New Westminster. It shall be the responsibility of the Contractor to assure that all recall notices are sent directly to the City of New Westminster.

IN-SERVICE TRAINING

The Contractor will provide the following adequate training to the City of New Westminster’s Fire Department and mechanical personnel as mutually agreed upon:

- Fire Apparatus operators will be trained in the operation of all chassis and body functions, including operator preventive maintenance; technicians will be trained in all operator functions, in-depth troubleshooting for all major chassis and body systems, engine tune-up procedures, transmission maintenance and repair, and chassis and body maintenance and repair.
- The trainer shall be factory-trained and thoroughly knowledgeable in subjects to be taught, including but not limited to subjects as outlined above.

Adequate refresher training will be accomplished annually as mutually agreed upon. Adequate periodic training on machine systems and components will be provided as requested by the City of New Westminster and as mutually agreed upon.

Project Record Documents

REQUIREMENTS INCLUDED

Record documents, samples, and specifications
 Equipment Systems
 Product data, materials and finishes, and related information
 Operation and maintenance data
 Warranties

RELATED REQUIREMENTS

Shop drawings, product data and samples
 Construction Schedule
 Individual Specifications: Specific requirements for operation and maintenance data.

QUALITY ASSURANCE

Prepare instructions and data by personnel experienced in maintenance and operation of described products.

FORMAT

Organize data in the form of an instructional manual, index by specification.

Binders; commercial quality, 215mm x 279mm, maximum size, ring style. When multiple binders are used, correlate data into related consistent groupings.

Cover: Identify each binder with typed or printed title "Project Record Documents", list title of project and identify subject matter of contents.

Arrange content under section numbers and in same sequence as Table of Contents.

Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

Tests: Manufacturer's printed data or typewritten data on 20lb. paper.

Submit sample binder and index for review & approval prior to proceeding.

CONTENTS EACH VOLUME

Table of Contents: Provide title of project: names, addresses and telephone numbers of Contractor with name or responsible party; schedule of products and systems, indexed to content of the volume.

For Each Product of System: List names, addresses and telephone numbers of subcontractors and contractors, including local source of supplies and replacement.

Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.

Drawings: Supplement product data to illustrate relations of component parts of equipment and system, to show control and flow diagrams.

Type Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating all manufacturers' instructions.

SUBMISSION

Submit three (3) copies of completed volumes in final form fifteen (15) days following final acceptance inspection.

Revise content of documents as identified by the City of New Westminster Representative, or designate.

Submit two copies of revised complete volumes of data in final form as well as one reproducible copy of all as-built, contract and shop drawings at application for final payment.

Provide electronic [*pdf] format complete manuals on CD Rom structured per hardcopy and complete with navigational tools. Information contained within electronic manuals shall be maintainable and updatable in Microsoft Excel or Word format, balancing schematic diagrams in AutoCAD [latest version].

RECORDING "AS BUILT" CONDITIONS

Record information on a set of blue or black line drawings and in a copy of project manual obtained from the City of New Westminster Representative, or designate at the commencement of the project.

Record information concurrently with construction progress. Do not conceal work until required information is recorded.

Contract drawings and shop drawings: Legibly mark each item to record actual construction, including:

- .a measured locations of internal utilities and appurtenances, concealed elements of mechanical and electrical services referenced to visible and accessible features of construction and building grid lines.
- .b field changes of dimension and detail.
- .c changes made by change orders.
- .d references to related shop drawings and modifications.
- .e refer to mechanical and electrical specifications for additional specific technical requirements.

Specifications: Legibly mark each item to record actual construction, including:

- .a manufacture, trade names, and catalogue number of each project actually installed, particularly optional items and substitute items.
- .b Changes made by addenda and change orders.

Other Documents: Maintain manufacturer's certifications, inspection certifications and field test records required by individual specifications sections.

EQUIPMENT AND SYSTEMS

Each item of equipment and each system: Include description of unit or system, and component parts. Give function, normal operation characteristics and limiting conditions.

Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replacement parts.

Provide electrical service characteristics, controls and communications.

Include installed colour coded wiring diagrams.

Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping shutdown and emergency instructions. Include summer, winter and any special operating instructions.

Maintenance Requirements: Include routine procedures and guide for troubleshooting, disassembly, repair and reassembly instructions; and alignment, adjusting, balancing and checking instructions.

- Provide service and lubrication schedule, and list of lubricants required.
- Include manufacturers' printed operation and maintenance instructions.
- Include sequence of operation by controls manufacturers.
- Provide original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
- Provide installed control diagrams by controls manufacturer.
- Provide Contractor's coordination drawings, with installed colour coded piping diagrams.
- Provide charts of valve tag numbers, with location and function of each valve keyed to flow and control diagrams.
- Include test and balance reports.
- Additional requirements: As specified in individual specification sections.

MATERIALS AND FINISHES

Applied Materials and Finishes: Include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.

Instruction for Cleaning Agents and Methods: Precautions against detrimental agents and methods, and recommend schedule for cleaning and maintenance.

Moisture Protection and Weather-Exposed Products: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommend schedule for cleaning and maintenance.

Additional Requirements: As specified in individual specifications section.

WARRANTIES

Separate each warranty with index tab sheets keyed to the Table of Contents listing.

List subcontractors, contractor and manufacturer, with name, address and telephone number of responsible principal.

Obtain warranties executed in duplicate by Contractors, contractors and manufacturers within ten days after completion of the applicable item of work.

Except for items put into use with the City of New Westminster's permission, leave date of beginning of time of warranty until the date of final inspection and acceptance is determined.

Verify that documents are in proper form and contain full information.

Co-execute submittals when required.

Retain warranties until time specified for submittal.

SCHEDULE B – TECHNICAL SPECIFICATIONS AND REQUIREMENTS



NEW WESTMINSTER

**Title: SUPPLY & DELIVERY OF ONE (1)
 1500 G.P.M. TRIPLE COMBINATION
 PUMPER UNIT**

Reference No.: RFP 10-124

**SCHEDULE B – TECHNICAL SPECIFICATIONS AND
REQUIREMENTS**

This Specification part incorporates the traditional “Comply”, “Not Comply” or “Variation” schedules. This Section MUST be completed in its entirety and submitted with the Proposal. Proponents should identify any variations from that as listed. If further room is needed for variation, please supply additional page(s) referring to the section title and item number.

SECTION 1 – CAB AND CHASSIS SPECIFICATIONS

Specification Item	Comply	Not Comply	Variation
<p>Custom Fire Chassis</p> <p>The vehicle detailed in this specification is a 1500 G.P.M. Rescue Pumper unit. This vehicle must comply with all D.O.T. and British Columbia Motor Vehicle Act regulations.</p> <p>A custom cab and chassis shall be provided, designed and engineered specifically for fire service application.</p> <p>The manufacturer shall provide a Customer Assistance Center manned twenty-four (24) hours, each day of the year by knowledgeable technicians who can provide service assistance by telephone and/or facsimile as well as locate the nearest available technician to provide specific apparatus component repairs whenever necessary.</p> <p>The cab and chassis shall be specifically designed and engineered for the emergency vehicle market while the chassis shall be assembled in an ISO 9001 certified facility to insure the highest level of consistent quality components and assembly procedures are utilized in support of long service life with minimum maintenance.</p> <p>State: If the body will be built in an ISO 9001 certified facility.</p> <p>The Fire Apparatus shall be engineered to provide an allowance of 4,000 pounds of Owner provided loose equipment.</p>			
<p>Contractors Duties</p> <p>Prepare and submit a build schedule within ten (10) days after the pre-construction meeting, indicating the timing (start and completion date of activities noting the first work day of each week) of all major activities of the work, providing a separate schedule for each trade or operation including, mechanical, plumbing and electrical work, and provides details of the critical events and their inter-relationship to demonstrate the work will be performed in conformance with the agreement time;</p> <p>Monitor the progress of the work relative to the construction schedule and update the schedule on a monthly basis for review by the City of New Westminster Representative, at time of submission for application for payment and as stipulated by the agreement documents;</p> <p>Promptly advise the City of New Westminster of any revisions required to the schedule;</p>			

<p>Indicate changes occurring since previous submission of schedule such as major changes in scope, activities modified since previous submission, revised projections of progress and completion, and other identifiable changes;</p> <p>Provide a narrative report to define problem areas, anticipated delays, the impact on the schedule, corrective action recommended and its effect; and,</p> <p>Provide status updates (preferably weekly) once the apparatus starts manufacturing. These update will include photos of the progression of the truck during the truck build. The fire department has the right to request more pictures of the truck at any point at no extra cost.</p> <p>Submit a construction schedule and itemize activities separately for each phase.</p>			
<p>Performance Test</p> <p>A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus will meet NFPA 1901 acceleration requirements and NFPA 1901 braking requirements. The apparatus when fully loaded will not have less than 25% or more than 50% on the front axle and not less than 50% or more than 75% on the rear axle.</p>			
<p>NFPA Standards</p> <p>This unit will comply with the current NFPA standards, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.</p> <p>Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus.</p> <p>A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.</p> <p>The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications.</p> <p>An official of the company will designate, in writing, who is qualified to witness and certify test results.</p>			
<p>Chassis Frame</p> <p>The chassis frame should be a heavy duty ladder type frame and each frame rail should be mechanically punched for the components selected and should bear the engraved vehicle serial</p>			

<p>number.</p> <p>Cross members should be formed steel and reinforced. Cross member spacing should sustain the chosen Gross Vehicle Weight Rating, permit properly engineered installation of chosen chassis components and support a lifetime warranty against cracking of either rail in emergency vehicle service.</p> <p>The rear of the frame should be square and should incorporate a cross member that allows service access between the frame rails to the top of the fuel tank from inside the rear compartment.</p> <p>The Frame should be a heavy duty chassis frame. Please state size and strength of frame rails. This is critical to the life of the fire apparatus.</p> <p>The frame shall carry a lifetime warranty to the original Owner.</p> <p>The frame and running gear of the chassis shall be painted with a standard black paint. The frame paint shall be applied before air lines and electrical wiring is installed.</p> <p>The chassis frame rails shall be cross-checked for length and squareness. Front and rear axles shall be laser aligned with NFPA required weighting. The tires and wheels shall be aligned and toe-in set on the front tires at the chassis manufacturer's facility.</p>			
<p>Inspection Certification</p> <p>The complete apparatus will be certified and tested to the ULC, <i>Automobile Fire Fighting Apparatus Standard</i>, CAN/ULC-S515-04, by Underwriters Laboratories Inc. / Underwriters Laboratories of Canada, and the vehicle will bear the ULC Mark, indicating compliancy to the standard.</p>			
<p>Bumper with 16" Extension</p> <p>The bumper will be extended approximately 16.00" from front face of cab.</p> <p>A one (1) piece, ten (1) gauge, 304-2B type polished stainless steel bumper, a minimum of 10.00" high, will be attached to a bolted modular extension frame constructed of 50,000 psi tensile steel "C" channel mounted directly behind it to provide adequate support strength.</p> <p>Mounted to the frame extension will be lift and tow mounts. The lift and tow mounts will be designed and positioned to adapt to certain tow truck lift systems.</p> <p>The bumper will include an aluminum hose tray with the capacity to hold 100' of 1.75" double jacket cotton-polyester hose. The bottom of the tray will have black rubber grating and drain holes.</p> <p>The front bumper cross-lay area should be covered with a hinged, aluminum diamond plate cover. The cover should extend the full width of the cross-lay hosebed, hinged at the rear and provided with retaining latches and one (1) chrome D-Ring lifting handle.</p> <p>Two (2) chrome plated Chicago style tow eyes will be mounted</p>			

<p>through the top of the bumper extension. The tow eyes will be designed and positioned to allow up to a 6,000 pound straight horizontal pull in line with the centerline of the vehicle. The tow eyes will not be used for lifting of the apparatus.</p>			
<p>Front Axle Suspension and Components</p> <p>The front axle shall be an independent front suspension with a minimum capacity of 22,000 pounds. It should be provided with oil lubricated wheel bearings and a clear oil level viewing window.</p> <p>Steering geometry should be capable of 45 degree cramp angle, minimum, in both directions limited only by specified tires and wheels.</p> <p>Dual steering gears, with integral heavy-duty power steering, shall be provided. The steering wheel shall be 18.00" in diameter, have tilting and telescoping capabilities, and a four-spoke design.</p> <p>The front axle must include heavy-duty shock absorbers</p>			
<p>Front Brake Components</p> <p>The front brakes should be 17" Bendix disc brakes with a minimum capacity of 22,000 pounds non-asbestos brake shoe linings, specifically designed for fire and emergency severe service should be supplied.</p> <p>The front brakes should be equipped with dust shields.</p> <p>The front brakes should be equipped with automatic slack adjusters. (If applicable)</p>			
<p>Front Wheels</p> <p>All tires shall be balanced and outer tires shall be mounted on polished aluminum disc wheels. Chrome plated lug nut covers shall be installed on all lug nuts.</p> <p>There shall be rubber mud flaps furnished and installed behind each set of tires.</p> <p>State: Cost of one spare tire and wheel (Do not include in the cost of the truck)</p>			
<p>Rear Axle Components</p> <p>The rear axle should have a fire and emergency rating of approximately 27,000 pounds. The axle should include single reduction hypoid gearing and oil lubricated wheel bearings.</p> <p>A gear ratio should be selected for the specified drive train components to provide a top road speed of approximately one hundred (100) KPH.</p> <p>State: Cost of a limited slip differential (Do not include in the cost of the truck)</p>			

<p>Magnetic Drain Plugs</p> <p>The engine, transmission and rear axle(s) fill and drain should be equipped with magnetic plugs.</p>			
<p>Rear Suspension</p> <p>Rear suspension shall be a Hendrickson FMX 272 EX, air ride with a ground rating of approximately 27,000 lb.</p>			
<p>Rear Brake Components</p> <p>The rear brakes should be 16.5" x 7" cam type, equipped with non-asbestos brake shoe linings, specifically designed for fire and emergency severe service and for application with a single drive axle. Cast iron, outboard mounted, rear brake drums should also be supplied.</p> <p>The rear axle should be equipped with dust shields.</p> <p>The rear brakes should be equipped with automatic slack adjusters.</p> <p>Tamper proof spring set parking brake chambers should be supplied with a dash mounted PB-1 yellow handle push/pull control located convenient to the driver and reachable by the officer. A light located in the driver's dash panel should illuminate whenever the park brake is activated.</p>			
<p>Rear Wheels</p> <p>Four rear wheels should be aluminum 10-bolt, hub piloted disc. Each outer rear wheel outer surface should be polished.</p> <p>There shall be rubber mud flaps furnished and installed behind each set of tires.</p> <p>Prefer tires to be 11R22.5</p> <p>State: Cost of two spare rear tires and wheels (Do not include in the cost of the truck)</p>			
<p>Air Brake System</p> <p>A dual circuit, air operated braking system, meeting the design and performance requirements of FMVSS-121 and the operating test requirements of NFPA 1901, will be installed. The system will be powered by an engine mounted, gear driven air compressor.</p> <p>The air system should be plumbed with reinforced, color coded nylon air brake tubing in conformance to SAE J844-94, Type B and US D.O.T. Standards. The compressor discharge should be plumbed with stainless steel braided hose lines with a Teflon lining. Nylon air lines will be enclosed in high temperature convoluted loom run along the inside frame rails, secured with non-conductive, corrosion resistant strapping mounted with stand-off fasteners. Cord reinforced rubber hose</p>			

<p>lines with brass fittings will be installed from frame rail to axle mounted air connections.</p> <p>A pressure protection valve will be installed to prevent the use of air horns or other air operated devices should the air system pressure drop below 80 psi (552 kPa).</p> <p>The chassis air system will meet NFPA 1901, latest edition for rapid air pressure build-up within sixty (60) seconds from a completely discharged air system. This system will provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the sixty (60) seconds build-up time.</p> <p>A Meritor Wabco, or equal four-channel Anti-Lock Braking System with four-wheel sensors and four modulators to control and compensate braking force at each wheel should be installed. A dash mounted system diagnostic light should be installed for servicing the system.</p> <p>A vehicle control system will be provided as an integral part of the ABS brake system from Meritor Wabco.</p> <p>The system will monitor and update the lateral acceleration of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system will automatically reduce engine RPM, engage the engine retarder (if equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.</p> <p>The system will monitor directional stability through a lateral accelerometer, steer angle sensor and yaw rate sensor. If spinout or drift out is detected, the vehicle control system will selectively apply brakes to the individual wheel ends of the front and rear axles to bring the vehicle back to its intended direction.</p> <p>A Bendix heated automatic drain valve should be installed on the wet tank. All other tanks should be equipped with manual drain valves remote mounted for easy access. The manifold should be extended out to the left side just below body compartments.</p> <p>An anti-slip feature will be included with the ABS. The Automatic Traction Control will be used for traction in poor road and weather conditions.</p> <p>A dash mounted system diagnostic light should be installed. The system should prevent wheel lock-up during braking thereby allowing the vehicle to accomplish a controlled stop while remaining substantially in the direction of travel at the time of brake application.</p> <p>The brake system should have the following features and items:</p> <ul style="list-style-type: none"> • A "mud/snow" switch will be provided on the instrument panel. Activation of the switch will allow additional tire slip to let the truck climb out and get on top of deep snow 			
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<p>or mud.</p> <ul style="list-style-type: none"> • Air Inlet, with disconnect coupling (located at drivers step well) • Kussmaul Air compressor, 120v (shore line powered) • Air Dryer, Wabco System Saver 1200 • A separate gauge for applied air during brake application. • Each air tank shall be permanently tagged or labelled as to its function in the air brake/truck air system to allow for easy identification 			
<p>Chassis Details</p> <p>The gross vehicle weight rating should be approximately of 50,000 pounds.</p> <ul style="list-style-type: none"> • Overall Height (<u>Must not exceed 9'8"</u>) STATE: _____ • Overall Length (<u>Must not exceed 33'10"</u>) STATE: _____ • Front axle rating: STATE: _____ • Rear axle rating: STATE: _____ • Turning Radius (<u>Turning performance analysis document to be included in response.</u>) Shortest possible turning radius is desired. STATE: _____ • Front cramp angle shall be: STATE: _____ • Turning angle shall be: STATE: _____ • Wheelbase shall be: STATE: _____ • State Approach Angle: STATE: _____ • State Departure Angle: STATE: _____ 			

<p>Custom Four Door Aluminum Raised Roof Cab</p> <p>The cab should be designed and engineered specifically for the rigors and ergonomics of emergency response. The cab and chassis should be designed, engineered and assembled as a premium quality, integrated unit which provides for safe and comfortable entry and egress of firefighters properly clothed in full protective gear. Safe and comfortable transport should be afforded each occupant who is properly seated, restrained and attentive.</p> <p>The cab and chassis should meet and/or exceed all applicable FMVSS and FMCSR, Title #49, U.S. Code Requirements for vehicles domiciled in the United States and all applicable CMVSS and Canada Transport Regulations for vehicles domiciled in Canada. The completed unit should be certified at the cab manufacturer's facility and should bear the CMVSS sticker.</p> <p>The cab should have passed all load and impact tests required for compliance certification with United Nations Agreement, "Standard for Protection of Cab Occupants", Regulation #29. A copy of test reports should be available upon request.</p> <p>The engine hood shall be insulated for protection from heat and sound. The noise insulation keeps the dBA level within the limits stated in the current NFPA series 1900 pamphlet.</p> <p>Emphasis should be on the safety aspects of the cab and the Standards met. The description should include the benefits the cab would have for mechanics doing their periodic checks and access to the engine compartment for maintenance.</p> <p>The Fire Apparatus manufacturer should provide, at the time of bid, a cab integrity certification. Non-conformance may lead to immediate rejection of bid.</p> <p>The cab shall be capable of seating 4 fire-fighters. A label shall be installed in cab to denote the exact number of passengers to be carried in cab and crew cab</p> <p>The cab will be equipped with a frontal impact protection system consisting of one (1) air bag in front of the driver, one (1) knee bolster air bag in front of the forward passenger seating position, and S4 for suspension seats or belt pretensioners for fixed seats in the driver and forward passenger positions. The air bags will be designed specifically for the cab configurations.</p> <p>The cab shall be equipped with an advanced side roll protection system shall be provided. A side air curtain will be mounted in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.</p> <p>A seat belt monitoring system (SBMS) shall be provided and it shall include a visual display on the multiplexing system.</p> <p>The chassis shall include a Data Recorder (VDR). The VDR will be capable of reading and storing vehicle information. The VDR will be capable of operating in a voltage range from 8VDC to</p>			
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<p>16VDC. The VDR will not interfere with, suspend, or delay any communications that may exist on the CAN data link during the power up, initialization, runtime, or power down sequence. The VDR will continue operation upon termination of power or at voltages below 8VDC for a minimum of 10ms.</p> <p>STATE MAKE & MODEL: _____</p>			
<p>Cab Construction and Dimensions</p> <p>The cab should be an aluminum structure. All metal joints should be caulked. The cab design should not require the use of body fillers to achieve smooth contours or flat surfaces.</p> <p>The exterior surface of the rear cab wall should be covered using .060" aluminum tread plate.</p> <p>The cab and crew cab flooring will be constructed with bright aluminum treadplate.</p> <p>The cab width and length should permit installation of two seats in the front portion and two forward facing seats in the rear portion. The rear cab section roof should provide 72" clear standing room. The entire roof should be aluminum; The roof exterior should be free of indentations and should have a convex profile to provide water run off to the incorporated drip moldings over the doors.</p> <p>The cab shall be minimum 70" from the center of the front wheel to the rear of the cab. To allow for increased cab storage and large exterior EMS cabinets.</p> <p>The cab should be completely insulated against heat and sound intrusion. The cab roof and side walls should be covered with closed cell foam insulation. The cab dash insulation should be covered with ABS form-fit paneling. The cab and crew cab flooring will be constructed with bright aluminum treadplate. The floor should be insulated to minimize exterior noise intrusion. Cab interior noise should not exceed 80 dB at any seat position at 70 kph when the engine fan is not engaged.</p> <p>The interior will include a deluxe automotive interior, the engine tunnel, side walls and rear wall will be covered by a leather grain vinyl that is resistant to oil, grease, and mildew.</p> <p>The cab should include full-circular, aluminum, inner fender liners in the wheel wells.</p>			
<p>Cab Doors and Steps</p> <p>The cab doors should be flush, full length type with hidden stainless steel door hinges. A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door, suitable for use with fire-fighter gloves, and keyed alike locks that are designed to prevent accidental lock-out.</p> <p>All cab door jambs will be furnished with a polished stainless steel scuffplate, mounted on the striker side of the jam.</p>			

<p>Each door should be equipped with a nylon strap assembly (or equivalent) to prevent doors from opening beyond eighty degrees.</p> <p>Each cab entry door shall be equipped with an electrically operated window and power door lock. The driver control panel will contain a control switch for each cab door's window. All other door control panels will contain a single switch to operate the window within that door.</p> <p>For improved convenience, the cab door locks will include a keypad entry system to provide complete keyless entry to the cab. There will be two (2) keypads provided, located one each side of the cab behind the front cab doors. The keypads will include visual and audio feedback to confirm activation and acknowledge correct entry code. For enhanced night time use, the keypads will be lighted.</p> <p>The interior latches should be flush paddle types.</p> <p>Cab door shall have stainless steel door panels on all 4 doors.</p> <p>Chevron reflective striping should be installed on the inside of each cab door.</p> <p>A stirrup step will be provided below each cab and crew cab door. The steps will be designed with a grip pattern punched into bright aluminum treadplate material providing support, slip resistance, and drainage. The steps will be a bolt-on design and provide a 18.50" wide x 5.00" deep stepping surface. Each step will provide a step height of 8.25" from the top of the stirrup step to the first step of the cab.</p> <p>Rubber covered 11" grab handles should be provided on the hinge post inside the cab at all doors for entering and exiting the cab.</p> <p>Appropriate Cab Steps and slip-resistant handrails shall be provided to be safety requirements and ULC regulations.</p>			
<p>Front Cab Section</p> <p>A 10.00" band of 22 gauge polished stainless steel trim will be installed across the front of the cab, from door hinge to door hinge. The trim band will be centered on the head lights and applied with two-sided tape. A 0.625" self adhesive trim strip will be applied around the perimeter of the trim band.</p> <p>A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, will be provided on the front center of the cab, and will serve as an air intake to the radiator.</p>			
<p>Cab Glass</p> <p>The cab doors and side windows should have tinted automotive safety plate glass with solar management treatment to assist with the reduction of interior heat loading from UV penetration. The windshield should be tinted laminated safety</p>			

<p>glass also with solar management treatment. The chassis should have dual heavy-duty bus, pantograph type, and wet arm windshield wipers, with mist and delay options.</p> <p>Each cab entry door shall be equipped with an electrically operated window and power door lock. The driver control panel will contain a control switch for each cab door's window. All other door control panels will contain a single switch to operate the window within that door.</p> <p>For improved convenience, the cab door locks will include a Trimark keypad entry system to provide complete keyless entry to the cab. There will be two (2) keypads provided, located one each side of the cab behind the front cab doors. The keypads will include visual and audio feedback to confirm activation and acknowledge correct entry code. For enhanced night time use, the keypads will be lighted.</p>			
<p>Headlights and Running Lights</p> <p>Exterior lighting will comply with Federal Department of Transportation, Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements in effect at time of proposal.</p> <p>Front headlights will be rectangular shaped, quad style halogen lights mounted in the front trim housing. Headlights will consist of two (2) lights mounted in the front trim on each side of the cab grill. The outside light on each side will contain a low and high beam. The inside light on each side will contain of a high beam light only.</p> <p>The headlamps should be equipped with a "Daytime Running" light feature which will illuminate the headlights to 80% brilliance when the ignition switch is in the "On" position and the parking brake is released</p> <p>Each side of the front bumper should have a Whelen #52 halogen light or equal with a white lens surface mounted. The lights should be activated by the turn signal to illuminate passage through a turn.</p> <p>The following LED lighting package will provide long life lights for a lower cost of ownership:</p> <ul style="list-style-type: none"> - One (1) Whelen 600 series LED combination directional/marker light will be located in the outside corners of the headlamp trim housing on each side. - Three (3) Ri-Tar LED identification lamps will be installed in the center of the cab on the trim above the windshield. - Four (4) Ri-Tar LED clearance lamps will be installed, one (1) each side, facing forward and one (1) each side, facing the side on the cab trim above the windshield. 			
<p>Exterior Grab Handles</p> <p>Four (4) knurled anti-slip exterior grab handles, one at each cab door opening. The grab handles shall be brightly finished extruded aluminum. The grab handles shall be in compliance with NFPA 1901.</p>			

<p>Cab Mirrors</p> <p>Velvac 2025 (with vmax head) polished aluminum mirror shall be mounted on each of the cab doors with a convex section. Each mirror shall be heated and adjustable, with remote controls.</p>			
<p>Cab Accent Moulding</p> <p>The body wheel well openings should be equipped with round radius, polished stainless steel fenderettes bolted in place.</p> <p>Bright finished wrap-around housings shall be provided on each side of the front cab face for mounting of the headlights and front directional lights.</p> <p>Aluminum 4-way on rear wall of crew cab will wrap around the corners of crew cab and extend 2.00" forward on each side sheet of crew cab.</p> <p>Chrome molding shall be provided on both sides of cab.</p>			
<p>Cab Tilt Mechanism</p> <p>A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump will have a backup manual override, for use in the event of an electrical failure. A monitor light should warn the driver if the cab is not latched.</p> <p>The cab lift controls will be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls will include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch will be supplied on a coiled cord.</p> <p>The rear of the cab will be locked down by a two-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2 1/4" diameter hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.</p> <p>For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.</p> <p>The cab lift safety system will be interlocked to the parking brake. The cab tilt mechanism will be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism will be disabled.</p>			
<p>Interlock Control and Monitoring</p> <p>The electrical package should be equipped with an interlock monitoring system that can be readily configured to meet the interlock requirements of various PTO and pump configurations, without wiring modifications from the pre-engineered harness and interconnect system. The module should consolidate all interlock</p>			

<p>signals, relays and indicators and should attach to the harness system through connectors. Independent relays dispersed about the apparatus for the purpose of pump and throttle interlocks should not be utilized.</p> <p>The interlock module should also control and indicate the following functions: Transmission lockup command, high idle control logic with adjustable speed potentiometer for electronic engines, engine run/starter lockout relay, select switch for foot throttle inhibit during pump operation, and cab and body "door ajar" indication with relay for "door open" alarm.</p>			
<p>Cab Interior</p> <p>The front dash area should be styled into two cockpits; one in front of the driver and one in front of the officer. They should be separated by the insulated engine enclosure which should have a contoured front, symmetrical with the dual cockpits. The center section also should provide a generous service access for the main HVAC air ducting, dash mounted electrical power distribution modules, air brake control plumbing as well as the instruments and controls in the center dash.</p> <p>Two (2) smoked Lexan sunvisors 7.75" x 28.12" long will be provided. The sunvisors will be located above the windshield with one (1) mounted on each side of the cab.</p> <p>Daily engine and transmission inspection and service checks should be accessed from inside the cab. Fluids checked from inside the cab should be engine oil, transmission oil, and power steering fluid and.</p> <p>The engine enclosure should be a flat rectangular shape and include a 3/16" Painted aluminum mounting plate on the entire engine tunnel with a 1" gap between engine tunnel and plate.</p>			
<p>Cab EMS Compartments</p> <p>Exterior EMS compartments will be provided on either side of the crew cab.</p> <p>The compartments will provide access from outside the cab with a double pan lap style door having a minimum clear door opening of 26.75" wide x 40.50" high x 30.50" deep. The door will include a D-ring latch and will be located on the side of the cab over the wheel well. The compartments will have the following features:</p> <p>Compartment lighting will be provided and mounted in each EMS compartment. Opening the exterior cabinet door will automatically turn compartment lighting on.</p> <ul style="list-style-type: none"> • There will be one (1) shelf provided in each EMS compartment. Each shelf will be constructed of 0.090" aluminum with a 1.25" up-turned lip. Shelving will be infinitely adjustable by means of a threaded tightener sliding in a track. 			

<ul style="list-style-type: none"> • The shelf in the right side EMS compartment will stop 6” short of the door pan to allow the mounting of an oxygen bottle. • The doors will be at an angle greater than 90 degrees when wide open. • Shelving and compartment floor shall have black rubber drain style floor mats (Drain tile) 			
<p>Interior Storage</p> <p>Interior EMS compartments, 21.00" wide x 60.00" high x 14.00" shall be provided on either side of the rear seating. The compartments will have the following features:</p> <ul style="list-style-type: none"> • Roll up door, non-locking, with white finish. The compartment will be constructed of smooth aluminum, and painted to match the cab interior. • There will be two (2) shelves provided in each EMS compartment. Each shelf will be constructed of 0.090" aluminum with a 1.25" up-turned lip. Shelving will be infinitely adjustable by means of a threaded tightener sliding in a track. • Compartment lighting will be provided and mounted in each EMS compartment. Opening the interior cabinet door will automatically turn compartment lighting on. • There should be two (2) 120v receptacles 1 in each interior cabinet. They are to be powered by shore power and automatically switch over to the generator when powered. <p>There will be an overhead rear-facing storage compartment installed at the raised roof within the crew cab. The compartments will be constructed of smooth aluminum and painted to match the cab interior.</p>			
<p>Cab Instrumentation</p> <p>The cab instrument panel will consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section directly forward of the driver. Gauges and switch panels will be designed to be removable for ease of service and low cost of ownership.</p> <p>Text messages shall automatically activate to describe the cause of an audible caution or warning alarm. The LCD shall be capable of displaying multiple text messages should more than one caution or warning condition exist.</p> <p>The bidder needs to include a sample layout and details descriptions of the switch panel and cab instrumentation proposed.</p>			

<p>Driver and Officer Instruments and Controls</p> <p>The following instruments and warning lights and alarms should be installed.</p> <ul style="list-style-type: none"> • Voltmeter gauge (Volts): • Tachometer (RPM) • Speedometer (Primary (outside) Km/hr, Secondary (inside) Mph) • Additional Speedometer on officer’s side. • Fuel level gauge (Empty - Full in fractions) • Engine oil pressure gauge (kPa/Psi) • Front air pressure gauge (kPa/Psi) • Rear air pressure gauge (kPa/Psi) • Applied air pressure gauge (kPa/Psi) • Transmission oil temperature gauge (Celsius): • Engine coolant temperature gauge (Celsius): <p>The following amber telltale lamps will be present:</p> <ul style="list-style-type: none"> • Low coolant • Trac cntl (traction control) (where applicable) • Check engine • Check trans (check transmission) • Aux brake overheat (Auxiliary brake overheat) • Air rest (air restriction) • Caution (triangle symbol) • Water in fuel • DPF (engine diesel particulate filter regeneration) • Wait to start (where applicable) • HET (engine high exhaust temperature) (where applicable) • ABS (antilock brake system) • MIL (engine emissions system malfunction indicator lamp) (where applicable) • Side roll fault (where applicable) • Front air bag fault (where applicable) • High Air Restriction Warning Indicator Light: LCD message with amber warning indicator and audible alarm. <p>The following red telltale lamps will be present:</p> <ul style="list-style-type: none"> • Warning (stop sign symbol) • Seat belt • Parking brake • Stop engine • Rack down (where applicable) <p>The following green telltale lamps will be provided:</p> <ul style="list-style-type: none"> • Left turn • Right turn • Battery on <p>The following blue telltale lamp will be provided:</p> <ul style="list-style-type: none"> • Highbeam 			
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<p>The following audible alarms will be present:</p> <p>Audible steady tone warning alarm: A steady audible tone alarm will be provided whenever a warning message is present.</p> <p>Audible pulsing tone caution alarm: A pulsing audible tone alarm (chime/chirp) will be provided whenever a caution message is present without a warning message being present.</p> <p>Alarm silence: Any active audible alarm will be able to be silenced by holding the ignition switch at the top position for three (3) to five (5) seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.</p> <p>The system will be provided which automatically tests telltale indicator lights and alarms located on the cab instrument panel. Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.</p>			
<p>Cab LCD Display</p> <p>A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel. The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function. The upper left section will display the outside ambient temperature.</p> <p>The upper right section will display, along with other configuration specific information:</p> <ul style="list-style-type: none"> • Odometer • Trip mileage • PTO hours • Fuel consumption • Engine hours <p>The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm. The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.</p>			
<p>Cab Hazard Warning Light</p> <p>A red "HAZARD" warning light shall be provided in chassis cab. Light should illuminate automatically to warn the Driver of the following when the Fire Apparatus parking brake is not fully engaged:</p> <ul style="list-style-type: none"> • Any passenger or compartment door is open <p>The light should be labelled "DO NOT MOVE FIRE APPARATUS WHEN LIGHT IS ON".</p>			

<p>There should also be an open door warning and indicator system utilising the "Compartment Eye". The "Compartment Eye" is composed of a small dash mounted display that shows the side and rear views of the Fire Apparatus. Each door circuit is represented by a red LED lamp in the appropriate area on the display. The LED will light when a door is ajar and indicate the exact circuit to be checked. When all of the doors are closed, a green LED light will illuminate.</p>			
<p>Diagnostic Panel</p> <p>A diagnostic panel will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow engine and ABS systems to provide blink codes should a problem exist.</p> <ul style="list-style-type: none"> • The diagnostic panel will include the following: • Engine diagnostic port • Transmission diagnostic port • ABS diagnostic port • Roll sensor diagnostic port • USB diagnostic port • Engine diagnostic switch (blink codes flashed on check engine telltale indicator) • ABS diagnostic switch (blink codes flashed on ABS telltale indicator) • Diesel particulate filter regeneration switch (where applicable) • Diesel particulate filter regeneration inhibit switch (where applicable) 			
<p>Control Switches</p> <p>For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver.</p> <p>Emergency master switch: A molded plastic push button switch with integral indicator lamp will be provided. Pressing the switch will activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.</p> <p>Headlight / Parking light switch: A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking lights and the headlights. The second switch position will activate the parking lights. The third switch position will activate the headlights.</p> <p>Panel backlighting intensity control switch: A three (3)-position momentary rocker switch will be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting</p>			

<p>intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.</p> <p>The following standard controls will be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.</p> <p>High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp will be provided. The first switch position is the default switch position. The second switch position will activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.</p> <p>"Ok To Engage High Idle" indicator lamp: A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.</p> <p>The following standard controls will be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches will have backlit labels for low light applications.</p> <p>Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will deactivate vehicle ignition. The second switch position will activate vehicle ignition. The third momentary position will disable the Command Zone audible alarm if held for three (3) to five (5) seconds. A green indicator lamp will be activated with vehicle ignition.</p> <p>Engine start switch: A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.</p> <p>4-way hazard switch: A two (2)-position maintained rocker switch will be provided. The first switch position will deactivate the 4-way hazard switch function. The second switch position will activate the 4-way hazard function. The switch actuator will be red and includes the international 4-way hazard symbol.</p> <p>Heater, defroster, and optional air conditioning control panel: A control panel with membrane switches will be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds. A green LED status bar will indicate the relative temperature and fan speed settings.</p> <p>Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls will be provided. The windshield wiper control will have high, low, and intermittent modes.</p> <p>Parking brake control: An air actuated push/pull park brake control valve will be provided.</p> <p>Chassis horn control: Activation of the chassis horn control will be provided through the center of the steering wheel.</p>			
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<p>Additional Switches</p> <p>There will be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches will have backlit labels for low light applications.</p>			
<p>Interior Lighting</p> <p>There shall be two (2) LED dome lights installed in the cab. The lights shall be mounted above the inside shoulder of the driver and officer. The forward, clear, light shall be controlled by the door switch and the lens switch. The rear, red, light shall be controlled by the lens switch only. In addition, there shall be two (2) adjustable map lights with an integral switch recessed into the cab ceiling. One (1) light shall be located above the driver's seat and one (1) light shall be located above the officer's seat.</p> <p>There shall be two (2) incandescent dome lights installed in the crew cab. The forward, clear light shall be controlled by the door switch and the lens switch. The rear, red light shall be controlled by the lens switch only.</p> <p>There shall be four (4) LED step lights provided and installed at each cab and crew cab door, one (1) per step, in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep. The lights shall be activated when the adjacent door is opened.</p>			
<p>Two Way Radio</p> <p>There shall be one (1) Owner supplied 2-way radio installed in the centre of cab dash area. This radio shall also be wired to interface with specified intercom system.</p> <p>There will be one (1) Johnny Ray, Model JR-300 heavy duty swivel mount bracket(s) provided for the fire department's equipment. The swivel mount bracket(s) will be located over head center for customer furnished/PI installed radio.</p> <p>The city will provide two (2) antennas one for the two-way radio installation and the other for the GPS modem installation. They will be located on the cab roof, just to the rear of the officer seat and the additional mount(s) will be located rear of the driver seat on cab roof. The cable for the GPS will be routed to the top to the EMS cabinet on the officer side of the cab. The 2-way radio antenna will be wired to the center of the overhead console for the radio installation.</p>			
<p>Radio Circuits</p> <p>There shall be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment. The studs shall consist of the following:</p>			

<ul style="list-style-type: none"> • 12-volt 40-amp battery switched power • 12-volt 60-amp ignition switched power • 12-volt 60-amp direct battery power • There shall also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center. 			
<p>AM/FM Radio</p> <p>There will be a Panasonic AM/FM/Weatherband stereo radio with compact disc player and MP3 jack installed. There will be one (1) pair of 5.25" speakers located in the cab and one (1) pair of 5.25" speakers located in the crew cab.</p> <p>The type and location of the antenna will be a roof-mounted rubber antenna located in an open space, on the cab roof.</p>			
<p>Intercom System</p> <p>A Sigtronics US-67S emergency vehicle intercom system should be installed on Fire Apparatus. The system shall provide intercom communications for five (5) positions. All positions will have voice activated intercom and three (3) positions (Driver, pump operator and Officer) will have push-to-talk radio transmit abilities. The system shall interface with the Owner supplied radio head.</p> <p>Six (6) SE-8 dual ear headsets, behind-the-head style (to use with helmet), with integrated noise cancelling electric mike, coiled cord, and flex boom shall be provided. Headsets with headset hanger hooks shall be located at driver, pump operator and officer positions, both forward facing crew seats.</p>			
<p>Auxiliary Interior Wiring</p> <ul style="list-style-type: none"> • There shall be (2) 20amp / 12v DC circuits that terminate with a six position terminal strip located one each in the two forward facing EMS cabinets, high on the rear wall. • There shall be (1) 30 amp / 12v DC circuit that terminates with heat shrinkable butt splicing to terminate at the rear of the instrument panel for use at computer mounting plate on engine tunnel. • There shall be (2) 15 amp / 12v DC circuits that terminate with heat shrinkable butt splicing to terminate at the instrument panel in the area of the HVAC filter for future use with computer mounting plate on engine tunnel. • There shall be (3) 30 amp / 12v DC circuits that terminate with 3/8" studs and plastic covers, two located on the officer's side of instrument panel and one behind the passenger's seat with 2 feet of extra wire. • There shall be (3) 15 amp / 12V DC circuits that terminate with a 15 amp power point plug with rubber cover, (1) dash mounted on the rear of the engine tunnel, (1) on the officer's side and (1) on the driver's side. The one at the rear of engine tunnel shall be direct 12V battery unswitched power. • There shall also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center. 			

<p>HVAC System</p> <p>The cab should have a combination heater/air conditioning unit.</p> <p>A minimum of 52,000-BTU heater-defroster unit with 558 SCFM of air flow shall be provided inside the cab. The defroster system shall meet or exceed SAE J382 (minimum defrosting system performance requirements).</p> <p>A minimum of two (2) 32,000-BTU auxiliary crew cab heaters with 276 SCFM (each unit) of air flow shall be provided inside the crew cab, one in each outboard rear-facing seat riser. The heaters shall include high performance dual scroll blowers (one for each unit). An optional dual control for the passenger position shall also be available.</p> <p>A minimum of 19.1 cubic inch compressor shall be installed on the engine with a roof-mounted condenser with a minimum 63,000 BTU output that meets and exceeds the performance specification shall be installed on the cab roof. The air conditioner shall be controlled by a single integral electronic control panel for the heater, defroster and air conditioner. An optional dual control for the passenger position shall also be available.</p>			
<p>Gray Vinyl Interior</p> <p>The cab interior upholstery will be dark silver gray. All cab interior materials will meet FMVSS 302 (flammability of interior materials).</p>			
<p>Cab Seating</p> <p>All seats shall be covered in Imperial 1200 black vinyl or equivalent water resistant material with red seatbelts. Seating details:</p> <ul style="list-style-type: none"> • The seating capacity in the cab shall be four (4). • Driver and Officer seat shall be with air suspension with electric controls to adjust the rake, height and horizontal position. The seat back shall be a high back style with manual lumbar adjustment lever, for lower back support. The seat shall include the following features incorporated into the side roll protection system. • All (4) seats shall be furnished with three (3)-point shoulder type seat belts shall include a height adjustment. • DS & PS Crew cab forward facing center SCBA seats. The seat shall include the following features incorporated into the side roll protection system. • Rear seats shall have a "Hands-Free" auto clamp style bracket in its backrest with an auto release system • The seating system shall include a seat belt monitoring system (SBMS). 			

<p>Cab Interior Accessories:</p> <p>The following accessories shall be included in the interior of the cab:</p> <ul style="list-style-type: none"> • Map box, 3 bin with 30 degree slant to be shipped loose. • A hand-held spotlight should be mounted on the engine tunnel. It should have a coil-cord, a momentary switch and a minimum 500,000 candle power lamp. The location will be determined at the time of order. • 4 cup holders • One (1) red indicator light will be supplied on the officer side of the cab that will activate when the emergency master switch is engaged. The indicator light will be located Officer's side overhead in panel • There shall be four (4) helmet holder bracket(s) provided in the cab. The brackets shall provide quick access and secure storage of the helmet(s). • There shall be six (6) hangers mounted in the cab. Four will be for the intercom headsets and Two will be for the rear seat SCBA masks. • Four (4) 12 VDC handheld rechargeable hand lights with charging station should be supplied and installed in the cab. Final mounting location shall be approved during preconstruction meeting. Survivor LED Orange each w/ spare battery • A 2.5 lb. BC DOT approved fire extinguisher shall be installed at driver's area in the cab. • There will be one (1) Safety Vision model 620 color rear view camera with microphone located at the rear of the apparatus as close to center as possible and activated when the vehicle is in reverse. Images will be displayed in the cab on the MUX display provided. An amplified speaker with volume control permitting audio from the active camera will also be provided in the cab Camera System Audio. 			
<p>Back-Up Alarm</p> <p>An ECCO, Model SA917-PM2, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum five (5) dBA above surrounding environmental noise levels.</p>			

<p>Air Horns</p> <p>Two (2) Grover air horns will be provided and located, in the front bumper, recessed on either side of the hose bed in bumper. The horn system will be piped to the air brake system wet tank utilizing .38" tubing. A pressure protection valve will be installed in-line to prevent loss of air, in the air brake system.</p> <p>The air horns will be actuated by a push button located on officer side instrument panel and by the horn button in the steering wheel. The driver will have the option to control the air horns or the chassis horns from the horn button by means of a selector switch located on the instrument panel.</p>			
<p>Pa/Siren with Speaker</p> <p>A Federal, model 690001, PA-300-012MSC, electronic siren will be provided.</p> <p>The electronic siren head will be recessed in the passenger side inside switch panel. It will be powered up after the emergency master switch has been activated.</p> <p>The electronic siren will be actuated by a push button located on the officer's side instrument panel and by the horn button in the steering wheel.</p> <p>The driver will have the option to control the siren or the chassis horns from the horn button by means of a selector switch located on the instrument panel.</p> <p>There will be one (1) speaker provided. Each speaker will be a Federal, Model ES100, 100 watt. Each speaker will use a Federal, Model ESFMT recess mount polished trim ring. Each speaker will be connected to the siren amplifier.</p> <p>The speaker(s) will be recessed in the front bumper on the driver's side.</p>			
<p>Mechanical Siren</p> <p>A Federal Q2B siren will be furnished. A siren brake button will be installed on the switch panel.</p> <p>The control solenoid will be powered up after the emergency master switch is activated.</p> <p>The mechanical siren will be mounted on the bumper deckplate. It will be mounted on the left side. A reinforcement plate will be furnished to support the siren.</p> <p>The mechanical siren will be actuated by a chrome push button located on the officer's side instrument panel and by the horn button in the steering wheel.</p> <p>The driver will have the option to control the siren or the chassis horns from the horn button by means of a selector switch located on the instrument panel.</p> <p>A second siren brake switch will be installed Officer side panel. The switch will be a chrome push button style.</p>			

<p>Cab Roof LED Light Bar</p> <p>A LED (Light Emitting Diode) warning light bar with clear lenses should be installed and meet NFPA 1901, current edition requirements for Zone A. The center section should contain a clear (white) LED lens.</p> <p>One (1) Whelen LED light bar 72" long should be permanently mounted to cab roof</p> <p>On each side of the center section, a clear lens should emit flashes from red LED lights. At the front corners of the cab a right angle clear lens should contain two (2) red LED lights, one (1) facing forward and one (1) facing to the side in each corner lens. Two (2) side facing sections should each have clear lenses and red LED lights.</p> <p>State: Lighting Options</p>			
<p>Traffic Directional Light</p> <p>There will be one (1) Whelen model TAL65 36.01" long x 2.84" high x 2.24" deep, amber LED traffic directing light installed at the rear of the apparatus.</p> <p>The Whelen model TACTLD1 control head will be included with this installation.</p> <p>The auxiliary warning mode will be activated with the emergency master switch.</p> <p>This traffic directing light will be surface mounted over the rear door, inside a treadplate box at the rear of the apparatus as high as practical.</p> <p>The traffic directing light controller will be located within the overhead recessed console above the engine tunnel on the driver's side.</p>			
<p>Alternating Headlights</p> <p>An alternating high beam head lamp flashing system should be installed into the high beam head lamp system that will allow the high beams to flash alternately from left to right. The completed system should be capable of using high beam to override flashing function and will flash high beams when low beam head lamps are selected.</p> <p>Headlight flasher shall work when head lights are on or off and shall be interlocked with the park brake as per NFPA 1901</p>			
<p>Scene Lights</p> <p>There will be four (4) Whelen Model PFP2, 12 volt LED floodlight(s) installed in semi-recessed housing(s) Model PBA103 located two each side on either side of the body as high as possible. Locations will be determined at time of preconstruction</p>			

<p>meeting.</p> <p>There will be two (2) Whelen Model PFP1, 12 volt LED floodlight(s) installed in semi-recessed housing(s) Model PBA103 located One each side at the rear of the truck, as high as possible.</p> <p>The light(s) selected above will be controlled by a switch at the driver's side switch panel</p> <p>These light(s) may be load managed when the parking brake is set</p>			
<p>Lower Lights</p> <p>There will be a Truck-Lite, model 60, grommet mount weatherproof light provided for each cab door. Lighting will be designed to provide illumination on areas under the driver, officer, and crew cab riding area exits, which will be activated automatically when the exit doors are opened and by the same means as the body perimeter lights.</p> <p>There will be a total of four (4) Truck-Lite, model 60, grommet mount, weatherproof lights provided on the apparatus body. Two (2) lights will be provided under the rear step area and two (2) lights will be provided under the pump panel running boards. The lights will be spaced one (1) each side of apparatus and have a clear lens. The perimeter scene lights will be activated by a parking brake.</p> <p>The lighting will be capable of providing illumination at a minimum level of two (2) foot-candles on ground areas within 30.00" of the edge of the apparatus in areas designed for personnel to climb onto the apparatus or descend from the apparatus to the ground level.</p>			
<p>Paint</p> <p>The cab will be two-tone, with the upper section painted white along with a shield design on the cab face and lower section of the cab and body painted red. (Must match existing fleet)</p> <p>The roll-up compartment doors shall be painted the same colour as the body.</p> <p>Interior of compartmentation shall be painted with gray spatter type paint.</p> <p>The chassis frame assembly shall be painted black before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc. Components that are included with the chassis frame assembly that shall be painted black are frame rails, cross members, axles, suspension, steering gear, fuel tank, body substructure supports, miscellaneous mounting brackets, etc.</p> <p>The underside of the apparatus will be undercoated with an asphalt petroleum based material, dark in color.</p>			
<p>Reflective Stripe</p> <p>Three (3) reflective stripes will be provided across the front of the vehicle and along the sides of the body. The reflective band will consist of a 1.00" white stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" white stripe on the</p>			

<p>bottom. A Black outline will be applied on the top and the bottom of the reflective band. There will be three (3) set of outline stripes required.</p> <p>The reflective band provided on the cab face will be below the headlights on the fibreglass</p> <p>Z" type ribbon(s) will be added to the reflective stripe. Areas adjacent to the "Z" portion of the stripe will be shaded and highlighted with an air brush to give it a ribbon affect. There will be one (1) pair on the vehicle.</p>			
<p>Chevron Striping, Rear</p> <p>There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces will include the rear wall, aluminum doors, and roll up door.</p> <p>The colors will be red and fluorescent yellow green diamond grade.</p> <p>Each stripe will be 6.00" in width and include a black vinyl outline will be provided for each chevron stripe at the rear of the truck.</p> <p>This will meet the requirements of NFPA 1901, 2009 edition, which states that 50% of the rear surface will be covered with chevron striping.</p>			
<p>Chassis Options/Features</p> <p>The chassis shall include the following items:</p> <ul style="list-style-type: none"> • One (1) set(s) of folding NFPA COMPLIANT aluminum alloy wheel blocks, with easy-grip handle provided complete with brackets mounted under the front compartment • A tire alert pressure management system provided that shall monitor each tire's pressure. A chrome plated brass sensor shall be provided on the valve stem of each tire for a total of six (6) tires. • Two (2) chrome plated rear tow eye plates constructed of 3/4" steel plate shall be bolted directly to the rear chassis frame rails with grade eight bolts. The tow plates shall be equipped with 3" inside diameter holes. • Tire pressure monitoring valve caps 			
<p>Generator</p> <p>The Fire Apparatus should be equipped with an AMPS (Advanced Modular Power Systems) hydraulic driven 120/240 volts AC, 6,000 watt, 60hz, single phase generator.</p> <p>The system shall utilise a chassis driven PTO to power a hydraulic pump. The generator system should produce stable voltage (+/- 3% regulation) and frequency (+/- 1hz) from engine idle of 1000 RPM to engine high speed of 2200 RPM. A stable frequency should also be provided regardless of fluctuations in either applied electrical load or engine RPM (1000-2200 RPM).</p> <p>Operation of the generator should be by a rocker switch located in</p>			

<p>chassis cab. Generator will be able to be engaged at any time including while vehicle is moving. A panel should be mounted in the Fire Apparatus body for volts, amps, frequency and hour meter for monitoring generator operation if needed.</p> <p>STATE MAKE & MODEL:</p>			
<p>Generator Mounting</p> <p>The hydraulic generator module shall contain all system components necessary to comprise a complete hydraulic generating system. The components shall be grouped and assembled into a compact modular unit.</p> <p>The generator unit shall be modular, packaged with a heavy steel protective frame. All connections to the module (both hydraulic and electrical) shall be easily removable for easy removal of unit from compartment.</p> <p>Hydraulic oil reservoir and filter shall be easily accessible with adequate clearance to facilitate oil filling and filter changing. The generator should be mounted above the pump module.</p>			
<p>Hydraulic Rescue System Power Unit</p> <p>The manufacturer shall supply and install a Holmatro Model DPU60PH (C) Honda gas powered hydraulic power unit. The unit shall be mounted on a sliding tray in the lower rear compartment. The power unit shall be easily removable for access or maintenance purposes. Unit shall be CORE compatible.</p>			
<p>Hydraulic Reel with 100' of Hose</p> <p>Two hydraulic hose reels shall be provided. The reel shall have a polished stainless steel and chrome finish. The reel shall be operated by a 12 volt electric motor controlled by a rewind switch. The motor shall be protected by a circuit breaker and the rewind circuit shall be protected by a fuse. The switch shall be guarded to prevent accidental operation and installed at a height not to exceed 72 inches above the operators standing position.</p> <p>The reel capacity shall be a minimum of 100 feet of Holmatro Core Technology hydraulic hose. There shall be 100 feet of Core Technology hose shall be provided and installed on the reel. The color of the hose shall be blue/black.</p> <p>A Nylatron guide to be provided to aid in the payout and loading of the reel. A ball stop shall be provided to prevent the hose from being wound around the reel.</p> <p>A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate maximum flow pressure and total hose length.</p> <p>The reels shall be located above the rearmost body compartment on the curb side in the upper dunnage bins. The reels must be easily removable for maintenance purposes.</p>			

<p>Hydraulic Tool Mounts</p> <p>Brackets shall be installed for the mounting of one hydraulic ram tool, one hydraulic spreader tool at 30 degrees with rubber strap safety hook included, one hydraulic cutter tool at 30 degrees, a rubber strap safety hook included.</p> <p>The tool mount locations will be determined at the preconstruction meeting.</p>			
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SECTION 2 – ENGINE AND TRANSMISSION SPECIFICATIONS

Specification Item	Comply	Not Comply	Variation
<p>Engine</p> <p>Minimum 450 HP engine</p> <p>TYPE:</p> <p>HORSEPOWER: ___ HP at ___ to ___ rpm / Governed at ___ rpm</p> <p>TORQUE: ___ lb. Ft. @ ___ rpm</p> <p>DISPLACEMENT: ___ cu. in.</p> <p>GOVERNOR: Electronic</p> <p>STATE:</p> <p>Must include:</p> <ul style="list-style-type: none"> • The engine starter shall include over crank protection (OCP) and thermal protection. The starter will be controlled by a dash mounted three (3) position rocker switch. • Engine brake with Hi, Medium, Low switch • Exhaust modified for Nederman system 6” • High idle switching shall be available from inside cab • A minimum 65 gal fuel tank shall be supplied • A fuel shutoff shall be installed in the fuel line on both sides of fuel filters • An auxiliary electric fuel pump will be added to the fuel line for priming the engine. A switch located on the cab instrument panel will be provided to operate the pump. • An air to fuel cooler shall be installed in the engine fuel return line. • An engine mounted Fleetguard combination full flow/by-pass oil filter with replaceable spin on cartridge should be part of the engine's lubrication system. • The air cleaner shall be a dry type with a replaceable element, it should have an outside air intake with an ember separator filter and an indicator light in the warning light cluster to show when the air cleaner element requires replacement. • A low engine oil level switch should be provided that will indicate when the engine oil is approximately four (4) quarts or more low. The switch shall light a red "LOW OIL LEVEL" indicator light in the dash. The indicator shall only function while the ignition switch is on and the engine is not running. • The engine compartment shall include Two (2) engine compartment lights will be installed under the engine hood, with an integral switch. The lights will have a .125" diameter hole in its lens to prevent moisture retention. • A 1500 watt, 120 volt, immersion type engine heater will be installed with the AC power inlet located to the rear of the driver's door. • The shoreline will be connected to battery charger, and block heater. 			

<p>Cooling System</p> <p>The cooling system should have sufficient 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 engine and transmission manufacturer and EPA requirements. The complete cooling system shall be mounted in a manner to isolate the system from vibration and stress. The individual cores shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining core.</p> <p><u>Radiator</u> The radiator should be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator shall have a minimum of a 571 sq. in. core. The radiator shall also be equipped with a drain cock to drain the coolant for serviceability.</p> <p><u>Surge Tank</u> The cooling system shall be equipped with a surge tank that is capable of being filled and removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant. The surge tank shall have a cap that meets the engine manufactures pressure requirements as well as the system design requirements.</p> <p><u>Overflow Tank</u> Cooling system requires an overflow tank to catch any expelled coolant.</p> <p><u>Coolant</u> The cooling package should have Extended Life Coolant (ELC) installed. The use of supplemental coolant additives (SCA) will not be allowed, as this is part of the extended life coolant makeup. The coolant should contain ethylene glycol and deionized water to keep the coolant from freezing to a temperature of -34 degrees F.</p> <p><u>Hoses/Clamps - Radiator</u> All radiator tubes should be formed from aluminized steel tubing and installed with silicone hoses with stainless steel constant torque clamps.</p> <p><u>Recirculation Shields</u> Recirculation shields shall be installed where required to prevent heated air from re-entering the cooling package and affecting the performance</p> <p><u>Hoses/Clamps - Charge Air Cooler</u> All charge air cooler tubes should be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "T" style clamps meeting the engine manufactures requirements.</p> <p><u>Coolant Filter</u> An engine coolant filter with a shut-off valve should be installed on the engine. The location of the filter shall allow for easy maintenance.</p> <p><u>Low Coolant Indicator</u></p>			
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<p>A low engine coolant indicator light located in the warning lamp centre in the instrument panel should be provided. In addition an audible tone alarm should be provided to warn of low coolant condition.</p> <p><u>Engine-Pump Heat Exchanger</u> A single bundle type heat exchanger should be provided and plumbed so that water from the pump does not come in contact with the engine coolant to allow the use of water from the discharge side of the pump for cooling the engine coolant. The heat exchanger is to be installed between the engine and the radiator without a shut-off valve.</p>			
<p>Transmission</p> <p>The top speed of the vehicle should be approximately 100 kilometres per hour at governed engine rpm.</p> <p>An Allison Gen IV 3000 EVS P transmission with Prognostics shall be supplied Two (2) PTO openings shall be located on left side and top of converter housing.</p> <p>The transmission should be equipped with an air to oil transmission cooler located below the radiator allowing a single depth core and efficient cooling package. The transmission cooler shall be mounted in a manner to allow maximum approach angle by not protruding below the frame more than an inch. The transmission cooler should be constructed of aluminum with welded side tanks. An external transmission cooler should also be plumbed into the system to provide retarder-cooling capacity.</p> <p>The transmission shall have the following features:</p> <ul style="list-style-type: none"> • Fifth gear hold-in range may be accomplished by wiring for a pumping application. • Transmission retarder with auto control. • An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and reach. • The transmission, upon start-up, will select five- (5) speed operation. By pressing the "mode" switch on the shift pad (mode on) provides six- (6) speed overdrive. • Spicer 1710 heavy duty series driveline with “glide coat” splines on all slip shafts. 			

SECTION 3 – ELECTRICAL SPECIFICATIONS

Specification Item	Comply	Not Comply	Variation
<p>Multiplex Electrical System with Color LCD Display The apparatus shall have a multiplex electrical system with a full color LCD screen minimum 7". The display shall be fully programmable to the needs of the customer and shall offer virtually infinite flexibility for screen configuration options. A solid-state electronics based control system shall be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network shall consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system shall comply with SAE J1939-11 recommended practices. The system shall utilize a Real Time Operating System (RTOS) providing a lower cost of ownership. A system shall be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.</p> <p>The bidder shall supply details and documentation to illustrate the benefits and features of the proposed multiplexed system.</p>			
<p>Advanced Diagnostics An advanced, diagnostic software program shall be provided for this control system. The soft-ware shall provide troubleshooting tools to service technicians equipped with a computer.</p> <p>The service and maintenance software shall be easy to understand and use and have the ability to view system input/output (I/O) information.</p>			
<p>Voltage Monitor System A voltage monitoring system shall be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system shall provide visual and audible warning when the system voltage is below or above optimum levels.</p> <p>The alarm shall activate if the system falls below 11.8 volts DC for more than two (2) minutes.</p>			
<p>Dedicated Radio Equipment Connection Points There shall be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment. The studs shall consist of a 12-volt 40-amp battery switched power, a 12-volt 60-amp ignition switched power, a 12-volt 60-amp direct battery power. There shall also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.</p>			
<p>Jumper Studs One (1) set of battery jumper studs with plastic color coded covers will be located at the drivers side cab step area. A tag will be provided for positive/negative terminals.</p>			
<p>Battery Charger A Phase 3 Model: PT-80 battery charger will be provided. This charging system will include the remote panel with indicators displaying charging status and level of charge status.</p> <p>The charger will have a maximum output of 80 amps and is able</p>			

<p>to charge up to 3 battery banks.</p> <p>The battery charger will be wired to the 120-volt kussmal shoreline to activate automatically when power is connected.</p> <p>Location of the battery charger and battery charger indicator will be determined at the time of the preconstruction meeting.</p>			
<p>Diagrams, Electrical Wiring</p> <p>There will be a laminated electrical wiring layout for each particular power distribution area to allow for immediate component identification.</p> <p>Each layout will identify the following:</p> <ul style="list-style-type: none"> • Diagram with module layout for the particular power distribution area. • Output number and function for each programmed input and output for the particular power distribution area. • The corresponding circuit number for each programmed input and output for the particular power distribution area. <p>The laminated electrical wiring layouts will be shipped loose.</p>			
<p>Electronic Load Manger & Sequencer</p> <p>An electronic load management (ELM) system shall be provided to ensure the integrity of the electrical system. A sequencer shall be provided as well to automatically activate and deactivate vehicle loads in a preset sequence thereby protecting the alternator from power surges.</p>			
<p>AMP Draw Report</p> <p>The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system as per the applicable NFPA 1901 or 1906 (Current Edition).</p>			
<p>120/240 Volt Wiring System</p> <p>The complete wiring and electrical installation shall conform to present National Electrical Code and the National Fire Protection Association standards. The wiring, electrical fixtures and components shall be to the highest industry quality standards available on the market. The equipment shall be the type as designed for mobile type installations subject to vibration, moisture, and severe continuous usage. The following electrical components and wire shall be the minimum acceptable standard for this type of Fire Apparatus.</p> <p>Wiring: All electrical wiring shall be fine stranded copper type THHN. The wire shall be sized to load and circuit breaker rating. Wiring shall be colour coded and printed with function every 3" for easy identification.</p>			

<p>Conduit: All 120/240 volt wiring in the Fire Apparatus body shall be through flexible moisture resistant reinforced conduit, with proper seal tight connectors and hardware.</p> <p>Labelling of Equipment: All circuit breakers shall be labelled as to usage. Metal engraved or plastic coded labels shall be provided for all exterior and interior outlets indicating output amperage.</p> <p>Schematic: An as-built electrical wiring diagram schematic will be supplied with the completed Fire Apparatus.</p>			
<p>Circuit Breaker Box</p> <p>The circuit breaker box shall be placed in a suitable location so it will not come into contact with water yet easily assessable.</p>			
<p>Outlets and Circuits</p> <p>The generator shall supply the electrical equipment and outlets with wiring to circuit breaker box as outlined below. Proper circuit protection shall be installed as noted: Two (2) 120 volt interior outlets, one (1) each side in cabinet.</p> <p>Two (2) 120 volt exterior outlets, one (1) each side near rear wheel well area.</p> <p>The outlet will be 120 volt, 15 amp household straight prong. Each outlet shall be protected by a 15 amp circuit breaker.</p>			
<p>Electric Cable Reel</p> <p>Furnished with the 120 volt AC electrical system will be a Hannay, series 1600, cord reel. The reel will be provided with a 12-volt electric rewind switch, that is guarded to prevent accidental operation and labeled for its intended use. The switch will be protected with a fuse and installed at a height not to exceed 72 inches above the operators standing position.</p> <p>The exterior finish of the reel(s) will be painted #269 gray from the reel manufacturer..</p> <p>A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop will be provided to prevent the cord from being wound on the reel.</p> <p>A label will be provided in a readily visible location adjacent to the reel. The label will indicate current rating, current type, phase, voltage and total cable length.</p> <p>A total of one (1) cord reel will be provided In special reel compt above the PS front outrigger.</p> <p>The cord reel will be configured with three (3) conductors.</p>			
<p>Reel Cord</p> <p>Provided for electric distribution will be one (1) length installed on the reel of 200 feet of yellow 10/3 electrical cord, weather resistant 105 degree C to -50 degree C, 600 volt jacketed SOOW</p>			

<p>cord. No connector will be installed on the end of the cord.</p>			
<p>Portable Junction Box (Reel)</p> <p>There will be four (4)-120 vac, 15 amp straight blade receptacles provided in a portable junction box. The junction box will be of weatherproof construction and have flip up lids lined with soft neoprene rubber at each outlet opening. The junction box should include a 12" pigtail and plug should be provided with an integral pilot light to indicate electrical current.</p>			

SECTION 4 – COMPARTMENT AND STORAGE SPECIFICATIONS

Specification Item	Comply	Not Comply	Variation
<p>Body Design and Construction</p> <p>Compartmentation will be fabricated of .125" 5052 aluminum with a tensile strength of 38,000 pounds per square inch. The side compartments are an integral assembly with the rear fenders. Fully enclosed rear wheel housings will be provided to prevent rust pockets and for ease of maintenance.</p> <p>The backbone of the support system will be the chassis frame rail, which is the strongest component of the chassis and is designed for sustaining maximum loads.</p> <p>A support system will be used which will incorporate a floating substructure by using isolators to allow the body to remain rigid while the chassis goes through its natural flex. The isolators will have a broad range of proven viability in vehicular applications, be of a fail safe design, and allow for all necessary movement in three (3) transitional and rotational modes. This will result in a 500 pound equipment rating for each lower compartment of the body.</p> <p>A design with body compartments hanging off of the chassis frame in an unsupported fashion will not be acceptable.</p> <p>Compartment flooring will be of the sweep out design with the floor higher than the compartment door lip. The compartment door openings are framed by flanging the edges in 1.75" and bending out again .75" to form an angle.</p> <p>Drip protection is provided over all door openings by means of bright aluminum extrusion or formed bright aluminum treadplate. Side compartment tops will be covered with bright aluminum treadplate with a 1.00" rolled over edge on the front, rear and outward side. The covers are fabricated in one piece and have the corners "Tungsten Inert Gas" welded.</p> <p>All screws and bolts which protrude into a compartment will have acorn nuts at the ends to prevent injury.</p> <p>The body design has been fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, stress coating and strain gauging have been performed with special attention given to fatigue life and structural integrity of the compartment body and substructure.</p> <p>All body compartments will have a minimum of one (1) set of louvers stamped into a wall to provide the proper airflow inside the compartment and to prevent water from dripping into the compartment. These louvers will be formed into the metal and not added to the compartment as a separate plate.</p> <p>All compartments will include a guard/drip pan designed to protect the roll-up door from damage when in the retracted position and contain any water spray. The guard will be fabricated from stainless steel and installed side and rear compartments.</p>			

<p>Aggressive Walking Surface</p> <p>All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.</p>			
<p>Compartment Lights</p> <p>There should be two (2) LED strip lights installed in each compartment, one (1) on each side of the compartment.</p>			
<p>Roll-up Doors</p> <p>All roll-up doors shall be Amdor and have aluminum painted slats.</p>			
<p>Compartment Threshold</p> <p>Thresholds should be fabricated of brushed finished stainless steel. Threshold protection plates shall be installed on the lower door opening sills of each exterior compartment.</p>			
<p>Adjustable Shelves</p> <p>Adjustable shelves should have a 2" vertical flange along the front and rear edges. Shelves should be designed to be used with flanges either in the upward position to hold various equipment on shelf or in the downward position for sweep-out shelf surface.</p> <p>All shelves shall be fully adjustable, from top to bottom of the compartment. There shall be at least four (4) vertical mounting channels and shelving hardware, two (2) each side of compartment. Shelving hardware shall be of heavy duty quality with unlimited vertical adjustment settings.</p>			
<p>Plastic Floor and Shelf Tile</p> <p>All compartment floors, shelves and trays should be covered with a plastic interlocking grating. The grating shall be black in colour.</p>			
<p>Compartmentation, Drivers Side</p> <p>A full height, roll-up door compartment near the front of the body, ahead of the rear wheels shall be provided. The pump operator's panel shall be located in this compartment. The interior dimensions of this compartment shall be approximately 31.00" wide x 54.50" high x 25.88" deep.</p> <p>A full height, roll-up door compartment immediately ahead of the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 50.50" wide x 54.50" high x 25.88" deep.</p> <p>A roll-up door compartment over the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 60.00" wide x 23.00" high x 25.88" deep.</p> <p>A full height, roll-up door compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be</p>			

<p>approximately 52.00" wide x 54.50" high x 25.88" deep.</p>			
<p>Compartmentation, Passenger Side</p> <p>A full height compartment with a roll-up door near the front of the body, ahead of the rear wheels shall be provided as convenient large storage compartment for often used items for the crew. The interior dimensions of this compartment shall be approximately 42.00" wide x 54.50" high x 25.88" deep.</p> <p>A full height, roll-up door compartment immediately ahead of the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 42.00" wide x 54.50" high x 25.88" deep.</p> <p>A roll-up door compartment over the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 60.00" wide x 23.00" high x 25.88" deep.</p> <p>A full height, roll-up door compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 52.00" wide x 54.50" high x 25.88" deep.</p>			
<p>Pull-Out Trays</p> <p>There shall be four (4) slide-out trays with 2.00" sides and a minimum capacity of 500 pounds provided. Capacity rating shall be in the extended position. Slides shall be ball bearing type with automatic locks provided for both the "in" and "out" positions. The trip mechanism for it shall be located at the front of the tray for ease of use with a gloved hand.</p> <p>The tray location shall be selected during the preconstruction meeting.</p>			
<p>Slide-Out/Tilt-Down Tray</p> <p>There shall be two (2) slide-out trays provided. The capacity rating (in the extended position) shall be 215 pounds minimum. Approximately two-thirds of the tray shall slide-out from its stored position and shall tilt 30 degrees down from horizontal. The vertical position within the compartment shall be adjustable. The tray shall be equipped with ball bearing rollers and two spring loaded locks at the front of the tray, one on each end.</p> <p>The tray location shall be selected during the preconstruction meeting.</p>			

<p>Slide Out Toolboard</p> <p>There shall be (10) slide out aluminum toolboards with .203" diameter holes in a pegboard pattern with 1.00" centers between holes provided. They shall have a painted finish to match the compartment interior. A 1.00" x 1.00" aluminum tube frame shall be welded to the edge of the pegboard. The boards shall be mounted on a General Device track on the bottom to allow easy extension and retraction with a maximum tool load of 250 lb. The boards shall have positive lock in the stowed and extended position mounted on adjustable tracks side to side within the compartment.</p> <p>The toolboards location shall be selected during the preconstruction meeting.</p>			
<p>Partition, Transverse Rear Compartment</p> <p>Two (2) partitions shall be bolted in place to separate driver and passenger side rear compartments from the rear tailboard compartment.</p>			
<p>Pegboard</p> <p>There shall be (2) partitions aluminum pegboard partition/s bolted in one (1) passenger side rear compartment (P1) rear of fill enclosure & panel and one (1) in passenger side front compartment (P3) forward of toolboards and approx 24" from rear compartment wall.</p> <p>The pegboard shall be .188" thick with .20" diameter holes punched 1.00" on center in a pegboard pattern. Each partition shall be the full vertical height of the compartment and painted to match the compartment interior.</p>			
<p>Long Equipment and Ladder Compartment</p> <p>A vertically mounted equipment and ladder storage compartment should be provided in the center of the Fire Apparatus. The compartment shall be an integral part of the body construction. Compartment access should be through a hinged door at the center rear of the Fire Apparatus. Fibreglass type slide guides shall be provided within the compartment to separate the ladders and allow ease in ladder removal. Storage for all pike poles and folding ladder shall be provided.</p> <p>The compartment shall house the following equipment:</p> <ul style="list-style-type: none"> • 1- 10 foot Alum. Folding ladder Duo-Safety 585-A 10Ft • 1- 12 foot Fresno Ladder - Duo-Safety 701-A 12Ft • 1 -16 foot Alum. Roof Ladder - Duo-Safety 875-A 16 Ft w/hooks • 1- 35 foot Alum. 3 section - Duo – Safety 1225-A 35 Ft 3 Section • 1- 6Ft Fiber Glass pike pole with D Handle - Duo Safety FG-6 With D Handle • 1- 6 Ft Fiber Glass pike pole - Duo Safety FG-6 • 1- 8 Ft Fiber Glass pike pole - Duo Safety FG-8 • 1- 10 Ft Fiber Glass pike pole - Duo Safety FG-10 			

<p>SCBA Bottle Storage</p> <p>As many SCBA bottle compartments as possible should be provided at the rear wheel well area of the Fire Apparatus body at rear wheel well area. Each compartment should have a sealed door assembly with a latch installed on the exterior of the wheel well panel.</p> <p>The compartments are intended to hold Scott 4,500 PSI, 30 minute cylinders.</p> <p>State number of bottles stored in the each side of the body</p> <p>Left _____ Right _____</p> <p>State number of bottles stored if changed to Scott 4,500 PSI, 45 minute cylinders.</p> <p><u>The vehicle must be able to store a total of 40 air bottles.</u> A storage bin (or storage bins) shall be provided to store the remaining bottles. (<u>Subtract the bottles stored in wheel well area</u>). This storage bin shall be installed driver side rear compartment. Each separate air bottle storage compartment shall be 7.50" square x 23.00" deep. The storage bin shall be formed out of aluminum and the flooring lined with Dura-surf coating.</p>			
<p>Hose Bed Storage Area</p> <p>Hose bed storage area shall be located over water tank and body, and shall exit at rear of Fire Apparatus. The interior of storage area shall be free from all projections such as nuts, sharp angles, or brackets that may damage equipment.</p> <p>Hose bed deck should be constructed from 3" x 3/4" hollow aluminum extrusions welded into a one-piece grid to allow ventilation and water drainage. The extrusions should have an anodised radiused ribbed top surface. The deck will be completely removable for easy access to booster tank. The booster tank fill tower shall be protected as necessary to prevent damage from equipment located in storage area.</p> <p>There should be LED lighting in the hosebed area to assist in the loading of hose at nighttime.</p> <p>Hose bed shall be designed to hold the following hose:</p> <ul style="list-style-type: none"> • 1000 feet of 5" LDH with Stortz couplings in 100' lengths <p style="padding-left: 40px;">State: If 50' lengths of 5" LDH will fit.</p> <ul style="list-style-type: none"> • 500 feet of 2.5" hose in total with two separate lays of 250 feet. (500' with one divider) • Two (2) lengths of 6.00" corrugated hard suction hose (one length with strainer), 10' in length with strainer one shall be provided. <p>The bottom of the hose bed shall not exceed 80" from the ground.</p>			

<p>Hosebed Dividers</p> <p>Three (3) hose bed dividers constructed of aluminum should be installed in the hose bed.</p>			
<p>Hosebed Covers</p> <p>The truck shall include an aluminum hose bed cover made of aluminum tread plate. The rear of the hose bed will include an easily removable hose restrain.</p>			
<p>Horizontal Speedlays</p> <p>Ahead of the pump enclosure will be two (2)-1.75" speedlay hose beds. Each bed will have a 1.75" preconnect line and terminate with a 1.50" NPSH hose thread 90 degree swivel. The swivel will be located at the top of the speedlay compartment to allow easy removal of the hose in either direction.</p> <p>Individual controls for the speedlays will be at the pump operator's panel.</p> <p>The speedlay hose beds will be full width of the body.</p> <p>Below the above speedlay will be one (1)-2.50" speedlay hose bed. Each bed will have a 2.50" preconnect line and terminate with a 2.50" BAT or BCT thread 90 degree swivel. The swivel will be located at the top of the speedlay compartment to allow easy removal of the hose in either direction.</p> <p>Each compartment will be capable of carrying 250 feet of double jacketed hose with the one (1) compartment located above the other. The upper two compartments will carry 1.75" hose and the lower compartment will carry 2.50" hose.</p> <p>A removable tray will be provided for each speedlay hosebed.</p> <p>The speedlay trays will be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment.</p> <p>The floor of the trays will be perforated to allow for drainage and hose drying. The bottom of the speedlay compartments will be lined with stainless steel to allow the tray to slide with ease.</p> <p>Scuffplates will be provided on both sides, at the sides and bottom of each opening to protect the paint.</p> <p>The front of the speedlays shall be enclosed with a lapping door with a D-ring style handle.</p> <p>Required Hose Length Capacity:</p> <ul style="list-style-type: none"> • 200' of 1.75" Adapted to 1 ½" NPSH thread • 250' of 1.75" Adapted to 1 ½" NPSH thread • 150' of 2.5" Adapted to 2 ½" BAT or BCT thread 			

SECTION 5 – WATER & FIRE PUMP SYSTEM SPECIFICATIONS

Specification Item	Comply	Not Comply	Variation
<p>Mid-ship Mount Fire Pump</p> <p>Pump shall be a low profile, 1500 US gpm single stage midship pump. The pump shall have a 15% reserve capacity to allow for extended time between pump rebuild. To ensure efficient pump/vehicle design the capacity to weight ratio shall not be less than 1.5:1.</p> <p>Pump shall provide for both pump and roll mode and stationary pumping mode. Pump and roll mode shall be accomplished by the use of the main pump and shall not require the use of a secondary pump. There shall be an automatic opening tank to pump valve and an automatic opening recirculation valve with the pump and roll mode so the operator does not have to leave the cab.</p> <p>Please describe the operation of the stationary and pump and roll mode.</p> <p>Silicon carbide mechanical seals shall be provided. The seals shall be spring loaded and self-adjusting. The seals shall have a minimum thermal conductivity of 126 W/m*K to run cooler. Seals shall have a minimum hardness of 2800 kg/mm² to be more resistant to wear, and have thermal expansion characteristics of no more than 4.0 X10⁻⁶mm/mm*K to be more resistant to thermal shock.</p> <p>Note: A conventional mid-ship pump without pump and roll capacity would be accepted if all other storage requirements are met.</p>			
<p>Auxiliary Cooling System</p> <p>A supplementary heat exchange cooling system shall be provided to allow the use of water from the discharge side of the pump for cooling the engine water. A water-to-coolant heat exchanger shall be used.</p>			
<p>Intake Relief Valve</p> <p>An Akron relief valve shall be installed on the suction side of the pump preset at 125 psig. Relief valve shall have a working range of 75 psig to 200 psig. Outlet shall terminate below the framerrails with a 2.50" National Standard hose thread adapter and shall have a "do not cap" warning tag. Control shall be located behind an access door at the right (passenger's) side pump panel.</p>			
<p>Pressure Controller</p> <p>A FRC Pump Boss or equivalent Pressure Governor shall be provided. Please specify details of what is supplied as well as operations. The pressure controller shall include a USB port for easy software upgrades, which can be downloaded through a USB memory stick, eliminating the need for a laptop for software installations. A complete interactive manual shall be provided with the pressure controller. Engine monitoring graduated LED</p>			

<p>indicators shall be incorporated with the pressure controller</p>			
<p>Priming Pump</p> <p>The priming pump will be a Trident Emergency Products compressed air powered, high efficiency, multi-stage venturi based AirPrime System, conforming to standards outlined in NFPA pamphlet #1901.</p> <p>One (1) priming control will open the priming valve and start the pump primer.</p>			
<p>Plumbing</p> <p>All inlet and outlet plumbing, 3.00" and smaller, will be plumbed with either stainless steel pipe or synthetic rubber hose reinforced with high-tensile polyester braid. If hose is used, it must have a minimum burst rating of 1,000 psi and be equipped with high pressure couplings. Larger inlets and outlets will be threaded or welded black iron pipe. Small diameter secondary plumbing such as drain lines will be stainless steel, brass or hose.</p> <p>Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings.</p> <p>All lines to drain through either a master drain valve or will be equipped with individual drain valves. All individual drain lines for discharges will be extended with a hose to drain below the chassis frame.</p> <p>All water carrying gauge lines will be of flexible polypropylene tubing.</p>			
<p>Tank to Pump</p> <p>The booster tank shall be connected to the intake side of the pump with heavy duty 4" piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel.</p>			
<p>Tank to Pump Recirculation</p> <p>Shall include a tank to pump recirculation valve. To cool pump during operation.</p>			
<p>Tank Refill</p> <p>A 1.50" combination tank refill and pump re-circulation line shall be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.</p>			
<p>Pump Control Panel (Left Side Control)</p> <p>Pump controls and gauges shall be located midship at the left (driver's) side of the apparatus and properly identified.</p> <p>The main pump operator's control panel shall be completely enclosed and located in the forward section of the body compartment, to protect against road debris and weather elements. The pump operator's panels shall be no more than 31.00" wide, and made in four (4) sections with the center section easily removable with simple hand tools.</p>			

<p>The upper section shall contain the master gauges. This section shall be angled down for easy visibility. The center section shall contain the pump controls aligned in two horizontal rows. The pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable) shall be located on or adjacent to the center panel, on the side walls for easy operation and visibility. The lower section shall contain the outlet drains.</p> <p>Manual controls shall be easy moving 8" long lever style controls that operate in a vertical, up and down swing motion. These handles shall have a 2.25" diameter knob and be able to lock in place to prevent valve creep under any pressure. Bright finish bezels shall encompass the opening, be securely mounted to the pump operator's panel, and shall incorporate the discharge gauge bezel. Bezels shall be bolted to the panel for easy removal and gauge service. The driver's side discharges shall be controlled directly at the valve. There shall be no push-pull style control handles. (no exception)</p> <p>Identification tags for the discharge controls shall be recessed within the same bezel. The discharge identification tags shall be color coded, with each discharge having its own unique color as per NFPA 1901 Color Code.</p> <p>The identification must be viewable in both the open and closed positions.</p> <p>All remaining identification tags shall be mounted on the pump panel in chrome-plated bezels.</p> <p>All discharge outlets shall be color coded and labeled to correspond with the discharge identification tag.</p> <p>The pump panels for the midship discharge and intake ports shall be located ahead of the body compartments with no side discharge or intake higher than the frame rail. The pump panels shall be easily removable with simple hand tools.</p> <p>A recessed cargo area shall be provided at the front of the body, ahead of the water tank above the plumbing.</p>			
<p>Pump and Plumbing Access</p> <p>Simple access to the plumbing shall be provided through the front of the body area by raising the cab for complete plumbing service and valve maintenance. Access to valves shall not require removal of operator panels or pump panels. Access for rebuilding of the pump shall not require removal of more than the tank to pump line and a single discharge line. This access shall allow for fast, easy valve or pump rebuilding, making for reduced out of service times. Steps shall be provided for access to the top of the pump.</p> <p>Access to the pump shall be provided by raising the cab. The pump shall be positioned such that all maintenance and overhaul work can be performed above the frame and under the tilted cab. The service and overhaul work on the pump shall not require the removal of operator panels or pump panels. Complete pump casing and gear case removal shall require no more than removal of the intake and discharge manifolds, driveline, coolers and a single discharge line. The pump case and gear case shall be able to be removed by lifting upward without interference from piping</p>			

<p>and be removable in less than 3 hours.</p>			
<p>Pump and Gauge Panel</p> <p>The pump operators panel and gauge panels shall be constructed of stainless steel with a brushed finish. The pump panels on the driver and passenger's side shall be constructed of stainless steel with a brushed finish.</p>			
<p>Pump Panel Lights</p> <p>The pump operator's control panel should each be illuminated by a minimum of four (4) lights. Each light assembly shall consist of a stainless steel or chrome plated base with a plastic or Lexan lens.</p>			
<p>Pump Access Panels</p> <p>The instrument and gauge panel should be vertically hinged on the forward edge to provide ease of access for service.</p> <p>There should be a removable front access panel in front of the pump module to allow access when the cab is tilted.</p> <p>The pump panel on the right (passenger's) side is removable with lift and turn type fasteners.</p> <p>The gauge and control panels will be two (2) separate panels for ease of maintenance. The gauge panel will be hinged with a stainless steel hinge. The fasteners used to hold the panel in position will be quarter turn type.</p>			
<p>Pump Panel</p> <p>The following should be located at the pump operator's panel:</p> <ul style="list-style-type: none"> • Fire Research Pressure Governor (PSG). • Engine monitoring graduated LED indicators shall be incorporated with the pressure controller. • Operator instrument panel lights. • Pressure and vacuum test gauge adapter with 1/4" chrome plugs. • Pump shift indicating light. • Pump cooling and re-circulating valve. • Engine cooling valve. • Air primer activating switch. • Air horn button. • One (1) Class 1 LED Foam Cell Level Indicators. • Foam System controller. • External foam pick-up. • Manual pump shift (With cover to prevent accidental operation) • Sigtronics Radio Interface • Drain Valves <p>STATE MAKE & MODEL: _____</p>			
<p>Master Pump Discharge and Intake Gauge</p> <p>The pump vacuum and pressure gauges will be silicone filled and</p>			

<p>manufactured by Class 1, Inc.</p> <p>The gauges will be a minimum of 6.00" in diameter and will have white faces with black lettering, with a pressure range of (30-0-600 PSI).</p> <p>The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.</p> <p>Test port connections will be provided at the pump operator's panel. One will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and polished stainless steel plugs. They will be marked with a label.</p>			
<p>Pressure Gauges</p> <p>The individual "line" pressure gauges for the discharges will be Class 1 interlube filled.</p> <p>They will be 2.50" in diameter and have white faces with black lettering and the gauges will have a pressure range of (0-400psi).</p> <p>The individual pressure gauge will be installed as close to the outlet control as practical.</p>			
<p>Water Level Gauge</p> <p>An electric water level gauge will be incorporated in the pressure controller that registers water level by means of 9 LEDs. They will be at 1/8 level increments with a tank empty LED. The LEDs will be a bright type that is readable in sunlight, and have a full 180-degree of clear viewing of the pump operator, the gauge will have a warning flash when the tank volume is less than 25%, and will have "Down Chasing LEDs when the tank is almost empty.</p> <p>To further alert level measurement will be ascertained by sensing the head pressure of the fluid in the tank or cell.</p> <p>There must be an additional water level gauge located in the cab. The exact location will be determined during the pre construction meeting.</p>			
<p>Foam Level Gauge</p> <p>An electric foam level gauge shall be provided on the operator's panel that registers foam level by means of nine (9) LED's. There shall also be a mini foam level gauge with five (5) LED's in the cab. The gauge shall match the water level gauge in the pressure controller. To further alert the pump operator, shall have a warning flash when the tank volume is less than 25 percent, and shall have Down Chasing LED's when the tank is almost empty.</p> <p>There must be an additional water level gauge located in the cab. The exact location will be determined during the pre-construction meeting.</p>			
<p>Air Horn Red Switch</p> <p>An air horn control red switch with label shall be provided on the pump operators panel.</p>			

<p>Main Pump Inlets</p> <p>A 6.00" pump manifold inlet shall be provided on each side of the vehicle. The suction inlets shall include removable die cast zinc screens and be supplied with a long handle chrome cap.</p> <p>The right side 6" main inlet shall be gated with an electronic controlled valve and dressed out to a 5" Stortz inlet with 5" Stortz cap.</p>			
<p>Inlet, Right Side</p> <p>On the right side pump panel shall be (1) 2.50" suction inlet, terminating in 2.50" BCT Hose Thread and include a strainer, chrome swivel and plug, recessed behind the pump panel. Sacrificial zinc anode shall be provided.</p>			
<p>Inlet Control</p> <p>Control for the side auxiliary inlets shall be located at the inlet valve.</p>			
<p>Inlet Bleeder Valves</p> <p>A .75" bleeder valve shall be provided for each side gated inlet. The valves shall be located behind the panel with a swing style handle control extended to the outside of the panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders shall be routed below the chassis frame rails.</p>			
<p>Intake Strainers</p> <p>The 6" intakes and 2-1/2" gated intake should have a removable or accessible strainers provided inside each external intake.</p>			
<p>Valves</p> <p>All ball valves shall be Akron Brass in-line valves. The Akron valves shall be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve. Valves shall have a ten (10) year warranty.</p>			
<p>Discharge Outlets, Right Side</p> <p>There shall be three discharge outlets 2.50" valve on the right side of the apparatus, terminating with a male 2.50" BCT hose thread. The discharge shall be electrically controlled at the pump operator's panel.</p>			
<p>Discharge Outlet 4", Right Side</p> <p>There shall be a 4.00" discharge outlet with a 4.00" Akron valve body installed on the right side of the apparatus, with a male 4.00"</p>			

<p>National Standard hose thread and furnished with a 4.00"(F) National Standard hose thread x 5.00" Storz elbow adapter with Storz cap. This discharge outlet shall be electrically controlled at the pump operator's control panel.</p>			
<p>Discharge Outlet, Front</p> <p>There shall be one (1) 2.50" BAT or BCT gated discharge outlet with a swivel, piped to the passenger's side on top of the front bumper extension. Plumbing shall consist of 2.50" piping and flexible hose according to the design requirements of the chassis. A 2.50" full flow ball valve controlled at the pump operator's panel shall be used in the outlet plumbing. Automatic drains shall be provided at all low points of piping. Dressed out with a 2.50" BAT or BCT Female to 1.50" NPSH Male adapter.</p>			
<p>Outlet Bleeder Valves</p> <p>A .75" bleeder valve shall be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application. The valves shall be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders shall be located at the bottom of the pump panel. They shall be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders shall be routed below the chassis frame rails.</p>			
<p>Discharge Outlet Controls</p> <p>The discharge outlets shall incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism shall indicate the position of the valve or an indicator shall be provided to show when the valve is closed.</p> <p>All other outlets shall have manual swing handles that operate in a vertical up and down motion. These handles shall be able to lock in place to prevent valve creep under pressure.</p>			

SECTION 6 – POLYPROPYLENE PLASTIC WATER TANK SPECIFICATIONS

Specification Item	Comply	Not Comply	Variation
<p>Polypropylene Plastic Water Tank</p> <p>The water tank should be 500 gallons U.S. capacity, not including any specified integral foam tanks. The UPF Poly-Tank IIE water tank should be constructed of 1/2" thick PT2E polypropylene sheet stock. This material shall be non-corrosive stress relieved thermoplastic, natural in colour, and UV stabilised for maximum protection.</p> <p>Tank shall be warranted to be free from manufacturing defects in material and workmanship for the service life of this vehicle.</p>			
<p>Tank Vent/Fill Tower</p> <p>The tank will have a combination vent and manual fill tower marked "Water Fill". The fill tower will be constructed of 1/2" PT2E polypropylene and will be a maximum dimension of 8" x 8" outer perimeter. The tower should be located in the front curb side corner of tank. The tower will have a 1/4" screen and PT2E polypropylene hinged cover. Inside the fill tower, approximately 4" down from the top, will be fastened a vent/overflow pipe. The vent overflow is schedule 40 polypropylene pipe with a minimum 3-1/2" I.D. that will run through the tank, and piped behind the rear wheels so as to maximise traction.</p>			
<p>Tank Cover</p> <p>The tank cover should be constructed of 1/2" thick PT2E polypropylene, natural in colour, and UV stabilised, to incorporate a 3-piece locking design, which allows for individual removal and inspection if necessary.</p> <p>The tank cover should be recessed 3/8" from the top of the tank and should be welded to both sides and longitudinal partitions for maximum integrity. Each one of the covers should have hold downs consisting of 2" polypropylene dowels spaced a maximum of 30" apart. These dowels should extend through the covers and should assist in keeping the covers rigid under fast filling conditions. A minimum of two lifting dowels should be drilled and tapped 1/2" x 13" so as to accommodate the lifting eyes.</p>			
<p>Tank Sump</p> <p>There shall be one standard sump provided per tank. The sump should be constructed of 1/2" PT2E polypropylene and shall be located in the front street side corner. The sump should have a 2-1/2" NPT threaded outlet on the bottom for a drain plug. This shall be used as a combination clean-out and drain. All tanks should have an anti-swirl plate located approximately 2" above the sump. Plump tank sump drain should be below drive for drainage.</p>			

<p>Tank Fill Connection</p> <p>All tank fill couplings shall be backed with flow deflectors to break up stream of water entering the tank, and shall be capable of withstanding sustained fill rates of up to 1,000GPM.</p>			
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SECTION 7 – FOAM SYSTEM SPECIFICATIONS

Specification Item	Comply	Not Comply	Variation
<p>Foam System</p> <p>A foam proportioning system will be provided that is an on demand, automatic proportioning, single point, direct injection system suitable for all types of Class "A" & "B" foam concentrates, including the high viscosity (6000 cps), alcohol resistant Class B foams. Operation will be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The system will automatically balance and proportion foam solution at rates from 0.1% to 9.9% regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump.</p> <p>The design of the system will allow operation from draft, hydrant, or relay operation. This will provide a versatile system to meet the demands at a fire.</p> <p>System Capacity</p> <p>The system will have the ability to deliver the following minimum foam solution flow rates at accuracies that meet or exceed NFPA requirements at a pump rating of 250 PSI.</p> <p>200 GPM @ 6%</p> <p>400 GPM @ 3%</p> <p>1200 GPM @ 1%</p> <p>Class A foam setting in .1 % increments from .1% to 1%. Typical settings of 1%, .5% and .3% (Maximum capacity will be limited to the plumbing and water pump capacity)</p> <p>The following discharges shall have the capability of either foam or water:</p> <p>Front Bumper Trash line Discharge 150' 1.75" (2.5" plumbing) 250GPM flow Two (2) 1.75" Cross-lay Discharges One (1) 2.5" Cross-lay Discharge</p> <p>The system shall be capable of handling both Class "A" and most Class "B" foam concentrates. The foam proportioning operation shall be based on direct measurement of water flows and remain consistent within the specified flows and pressures.</p> <p>There should be a strainers inline on both A and B foam lines before pump and in a serviceable location.</p> <p>The apparatus shall be equipped with an electronic, automatic concentrate refill system. It shall be separate from the proportioning system to allow for simultaneous operations. The system shall be capable of handling Class A or Class B foam concentrate. The apparatus shall be plumbed from the externally accessed intake/flush port to the foam cell. The external intake/flush connection shall be quick connect, cam-lock type and incorporated a</p>			

<p>check valve to prevent backflow. The refill line shall be positioned in the lower portion of the foam cell to minimize agitation.</p>			
<p>Foam Cell</p> <p>There should be one (1) 50 gallon foam cell incorporated into the UPF Poly water tank for Class A foam concentrates.</p> <p>The foam cell should be incorporated in the right front section of the water tank.</p>			
<p>Foam Cell Level Indicator</p> <p>One (1) tank level gauges should be installed on the Fire Apparatus to monitor CLASS "A" tank levels. A rectangular digital LED bar-graph display shall be provided to indicate to the operator percent of foam available in the foam tank. The display shall be weatherproof with super bright digits at least 1/2" high and should be scaled 0 to 100 percent. The bar-graph display should flash when levels dip below 25 percent of tank capacity. The displays shall be located on the pump operator's instrument panel in foam control panel area, next to each air operated foam tank control.</p>			
<p>Foam Drain System</p> <p>A system of 1.00" foam tank drains will be provided, integrated into the foam systems strainer and tank to foam pump valve management system. The tank to pump hoses running from the tank(s) to the panel mounted strainer will 1.00" diameter. The foam system controller will have a mode that allows for a given foam valve to be opened at will. Flow of foam from the tank valve to the strainer will be usable as a tank drain mode.</p> <p>An adaptor will be supplied, that allows the 1.00" foam intake screen to assembly to be used as a drain outlet. The standard supplied 1.00" foam pick up hose will be attached to the screen assembly by way of the adapter. The drain mode will allow the operator to open and close the tank valve as required from the control head, to drain foam and re-fill foam containers through the connected hose, without foam spillage beneath the vehicle.</p>			

SECTION 8 – AUXILLARY EQUIPMENT INSTALLATION SPECIFICATIONS

Specification Item	Comply	Not Comply	Variation
<p>Installation</p> <p>All auxiliary equipment to be provided by and installed by the Contractor. Cost of installation of auxiliary equipment to be included in the proposed Price.</p>			

SECTION 9 – OPTIONAL EQUIPMENT (NOT INCLUDED IN PURCHASE PRICE)

Specification Item	Comply	Not Comply	Variation
<p>Compressed Air Foam System</p> <p>The CAFS system is rated to provide 140 cfm capacity for generating compressed air foam. It is capable of providing foam solution or compressed air foam from any of the specified CAFS discharges simultaneously. In addition, the consistency of the compressed air foam (wet to dry) from each discharge is adjustable. All CAF capable discharges have a discharge valve control, an air injection control, and a discharge pressure gauge mounted in a group on the operator’s panel.</p> <p>The CAFS system will include the following:</p> <ul style="list-style-type: none"> • Air compressor is powered by the vehicle’s engine through a PTO. • A rotary screw type air compressor capable of delivering air at 140 cfm at 150 psi. • The air compressor is equipped with two pressure controls. One pressure control automatically synchronizes the compressor output pressure to the water system pressure. A second pressure control is an NFPA required manual override to manually control air pressure output. The fixed output pressure control is adjustable from 80 to 160 psi. • The compressor system includes a cooling system with a bypass cooler, allowing the use of the compressor in ambient temperatures as high as 115°F. • Air pressure is supplied by the air system to each of the foam discharges on the vehicle. • An electric control valve located near the discharge controls, controls the air supply. The water pump must be engaged to activate the compressor. • Interlocks are used to prevent activation of the compressor unless the water pump is engaged. • An auxiliary air discharge (CAFS air supply outlet) is also provided on the pump panel for operating air tools. • Training on the operation and use of the CAFS system will be provided to eight (8) EVO instructors. The training will cover theory, familiarization, maintenance, and operation of the system. The training should be a minimum 2 days in length and include in class training and hands on training. 			<p>State Cost:</p>
<p>Low Pressure Air Reel</p> <p>There shall be one (1) reel complete with hose and fittings supplied. The hose reel shall be rated for 250 psig working pressure and shall be capable of holding 150 feet of low pressure</p>			<p>State Cost:</p>

<p>.50", inside dimension, hose.</p> <p>A Nylatron guide to be provided to aid in the payout and loading of the reel. A ball stop shall be provided to prevent the end of the hose from being wound onto the reel.</p> <p>The low pressure reel shall be equipped with 150 feet of Hytron hose. The hose shall be continuous with no unions. The hose end shall have a female Hansen quick disconnect.</p> <p>To monitor the pressure in the supply line, a gauge shall be provided at the air control panel downstream of the regulator. An audible warning device shall be provided on the air supply side upstream of the regulator.</p> <p>A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate that the supply is for breathing, the operating pressure, total hose length and hose size (inside dimension). The air reel shall come with a five (5) year warranty provided by the reel manufacturer.</p>			
<p>40 -Scott Air Bottles or Equivalent SCI bottles</p> <p>Scott Cylinder: 4500 p.s.i. 30 minute Part Number: 804721-01 Details:</p> <ul style="list-style-type: none"> • Carbon Cylinder & Valve Assembly <p>State individual cost: State total cost:</p>			
<p>8 - Scott Air Packs</p> <p>Scott SCBA - AP75 Air-Pak: Part Number: AP2140204010202 Details:</p> <ul style="list-style-type: none"> • Pressure: 4500 psig • Standard Harness • E-Z Flow Regulator with QC • Extended Duration Airline (with Hansen connections) • Integrated PASS, HUD, & RIT/UAC connection (no Pak-Tracker or SEMS unit) • No Case, No Cylinder <p>State individual cost: State total cost:</p>			

SECTION 9 – REQUIRED EQUIPMENT SPECIFICATIONS

Specification Item	Comply	Not Comply	Variation
<p>Ladders</p> <p>The following ladders will be provided:</p> <ul style="list-style-type: none"> • 1- 10 foot Alum. Folding ladder Duo-Safety 585-A 10Ft • 1- 12 foot Fresno Ladder - Duo-Safety 701-A 12Ft • 1 -16 foot Alum. Roof Ladder - Duo-Safety 875-A 16 Ft w/hooks • 1- 35 foot Alum. 3 section - Duo – Safety 1225-A 35 Ft 3 Section 			
<p>Pike Poles</p> <p>The following pike poles will be provided:</p> <ul style="list-style-type: none"> • 1- 6Ft Fiber Glass pike pole with D Handle - Duo Safety FG-6 With D Handle • 1- 6 Ft Fiber Glass pike pole - Duo Safety FG-6 • 1- 8 Ft Fiber Glass pike pole - Duo Safety FG-8 • 1- 10 Ft Fiber Glass pike pole - Duo Safety FG-10 			
<p>Hard Suction Hose</p> <p>Two (2) lengths of 6.00" corrugated hard suction hose, 10' in length, shall be provided. The hose shall be equipped with a long handle female coupling on one (1) end and a rocker lug male coupling on the other end. Couplings shall be hard coated aluminum.</p> <p>A strainer shall also be included. 6”NH Thread</p>			
<p>Five (5) inch Hose</p> <p>One Thousand feet (1000’) of five inch (5”) LDH with Stortz couplings in 50’ lengths yellow extruded hose shall be provided.</p>			
<p>120v Lighting</p> <ul style="list-style-type: none"> • 2-FRC 750W 120V FCA600-S75 Tripod focus lt. Hd. Mounting location to be determined at preconstruction meeting. • 2- FRC 750W 120V FCA700-S75 portable 20Amp Straight Plug with mounts. 			
<p>Manuals and Documentation</p> <p>A. The successful Contractor will be required to provide the following documentation upon delivery:</p> <p>B. All keys [four (4) full sets], parts and service manuals are to be delivered with the vehicle;</p>			

<p>C. Manufacturer’s Certificate of Origin;</p> <p>D. Warranty document(s) and/or certifications as may be required in the Specifications;</p> <p>E. Two complete overhaul manuals to cover engine, transmission, rear axle, electrical components etc. to cover completed Fire Apparatus. They will include as-built wiring schematics of chassis;</p> <p>F. One (1) engine operation and maintenance manual and one (1) transmission operation manual shall be included in the operator's manual.</p> <p>G. Two parts catalogues covering the entire fire apparatus and complete drive train. This must include any equipment supplied with Fire Apparatus;</p> <p>H. Two pump manuals covering repair and operation of pump;</p> <p>I. Two sets of as-built electrical wiring schematics to cover any and all wiring not installed by chassis manufacturer. This diagram to include part numbers and brand names of switches, lights, etc. of parts used;</p> <p>J. Calculations showing grade ability and speed;</p> <p>K. Any special tools that are required in the care and maintenance or overhaul of the Fire Apparatus and its components; and,</p> <p>L. A complete list of all belts, hoses, and filters; to include part numbers, manufacturer and use.</p> <p>M. All fluid capacities in litres.</p> <p>N. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.</p>			
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SCHEDULE C – FORM OF PROPOSAL



NEW WESTMINSTER

REQUEST FOR PROPOSAL

Title: **SUPPLY & DELIVERY OF ONE (1)
1500 G.P.M. TRIPLE COMBINATION
PUMPER UNIT**

Reference No.: **RFP 10-124**

SCHEDULE C – FORM OF PROPOSAL

RFP Title: SUPPLY & DELIVERY OF ONE (1)1500 G.P.M. TRIPLE COMBINATION PUMPER UNIT

RFP Reference No.: RFP 10-124

Legal Name of Proponent: _____

Contact Person and Title: _____

Business Address: _____

Email Address: _____

- 1.0 I/We, the undersigned duly authorized representative of the Proponent, having received and carefully reviewed all of the Proposal documents, including the RFP and any issued addenda and having full knowledge of the Site, and having fully informed ourselves as to the intent, difficulties, facilities and local conditions attendant to performing the Services, submit this Proposal in response to the RFP.
- 2.0 I/We confirm that I/we agree to all terms of the RFP, including without limitation Section 5.4 of the RFP (No Claims).
- 3.0 I/We confirm that the following appendices are attached to and form a part of this Proposal:
 Schedule C-1 – Proponent’s Experience, Reputation and Resources;
 Schedule C-2 – Proponent’s Technical Proposals (Services);
 Schedule C-3 – Proponent’s Technical Proposal (Schedule); and
 Schedule C-4 – Proponent’s Financial Proposal.
- 4.0 I/We confirm that, if I/we am/are awarded the Agreement, I/we will at all time be the “prime contractor” as provided by the Workers’ Compensation Act (British Columbia) with respect to the Services. I/We further confirm that if I/we become aware that another contractor at the place(s) of the Services has been designated as the “prime contractor”, I/we will notify the City of New Westminster immediately, and I/We will indemnify and hold the City of New Westminster harmless against any claims, demands, losses, damages, costs, liabilities or expenses suffered by the City of New Westminster in connection with any failure to so notify the City of New Westminster. I/We confirm that this proposal is accurate and true to the best of my/our knowledge.

This Proposal is submitted this _____ day of _____, 2010.

(Name of Proponent)

(Signature of Authorized Signing Officer)

(Print Name and Position of Authorized Signing Officer)

SCHEDULE C-2 – PROPONENTS TECHNICAL PROPOSAL (SERVICES)

Proponents should describe the technical aspects of the performance of the Services and provide the following:

- (a) A short narrative that illustrates an understanding of the City of New Westminster’s requirements and Services;
- (b) Submit three (3) sets of preliminary engineering drawings, showing at a minimum the following information:
- major structural components,
 - ease of maintenance of major components [including dimensions and clearances];
 - with performance charts [characteristics and capacities], and scans, illustrations and other standard descriptive data;

views of:

- top view;
- Front-end view;
- rear end view
- left side view; and,
- right side view;

N.B. The drawings shall clearly indicate to scale, all exterior portions of the proposed Fire Apparatus, controls, lights, railings, gauges, etc. Each Proponent shall make accurate statements in their specifications as to weight, wheelbase, and other principal dimensions such as overall length, height, width, compartment sizes and the total cubic storage space for all compartments, door openings, etc.

The body manufacturer shall submit all applicable drawings, and calculations to the City of New Westminster with the Proposal package. Drawings supplied with this document are for evaluation purposes, and are not intended to assist with the production of design and manufacturing drawings for the project. No Proposal will be considered unless complete engineering drawings to the Proposal specifications are submitted with the Proposal package. Failure to submit factory prepared drawings may result in rejection of the Proposal. The engineering drawings will allow the City of New Westminster the ability to fully evaluate each Proposal, design, engineering and drawing quality in comparison to the specifications.

Proponent to State:

Showing weight distribution, front and rear, and the centre of gravity of the Fire Apparatus when fully loaded;

Ladder storage;

Schematic piping layout of the hydraulic system with all major components described; and,

Showing the valves and piping layout of the fire pump system with all major components described.

Photocopied product literature will not be accepted as shop drawings.

- Amp draw report: an itemized print out of the expected amp draw of vehicle's electrical system
 - State G.V.W.R.;
 - State Wheelbase;
 - State Overall Height;
 - State Overall Length;
 - Engine Weight and Electrical Data 2;
 - Engine performance computer scans shall be submitted with Proposal;
 - Chassis manufacturer and assembly location;
 - Number of years this chassis and cab has been manufactured;
 - Proposed make and model;
 - G.V.W.R. front, rear, and total weight computer analysis, with proposed City of New Westminster equipment mounted in noted locations;
 - Document displaying turning radius performance analysis.
 - Computer electrical analysis of "response" and stationary "on scene" modes of electrical operations and equipment shall be submitted with proposal;
 - Wiring and piping diagrams and controls;
 - Service and warranty data submitted; and,
 - Delivery Time;
- (c) A description of the standards to be met by the Proponent in providing the Services; and, include manufacturer's standard schematic drawings, catalogue sheet(s), diagrams schedules, performance charts, illustrations and other standard descriptive data where certain specification sections of your Proposal specify.

This information is to show as a minimum the following:

- (i) Clearly mark each copy to identify pertinent products or models;
- (ii) Show performance characteristics and capacities;
- (iii) Show dimensions and clearances required, relative to apparatus requirements;
- (iv) Show wiring or piping diagrams and controls; and,
- (v) Supplement standard information to provide information specifically applicable to the Work.

- (d) A complete list of all Warranty information;
- (e) Documentation clearly defining nearest support and warranty center;
- (f) Any suggested recommendations designed for standardization on future Fire Apparatus purchases;
- (g) Any suggested amendments to the Services as described in Schedules A and Schedule B (such as changes in the scope of Services, or changes in allocated risks and responsibilities) that the Proponent suggests would be of benefit to the City of New Westminster in terms of value for money, cost savings, environmental benefits or other benefits, together with a description of the resulting change in the Contract price and the method used to calculate the change;
- (h) Additional data and/or details relating to ergonomics and other operational considerations of the Fire Apparatus for the intended purpose stated in the RFP, including, but not limited to:
 - Training;
 - Maintenance training availability;
 - Noise emissions level and type of noise;
 - Manoeuvrability;
 - Mechanical/Fabrication assessment;
 - Location of affiliated service facilities with trained technicians and parts availability;
 - Repair friendly (access to major components, ease of fluid levels checks, etc.);
 - Degree to which the Fire Apparatus design and configuration incorporates advantageous features in the opinion of the City of New Westminster's Fire Department;
 - Firefighter Operator/Ergonomic assessment;
 - Visibility; and
 - Other detailed specifications.

SCHEDULE C-3 – PROPONENTS TECHNICAL PROPOSAL (SCHEDULE)

Proponents should provide an estimated schedule, indicating a commitment to perform the contract within the time specified. (Complete the chart below or provide any other descriptive work schedule with major item descriptions and time frames).

Proponents should include as part of their Proposals a proposed work plan with project phases, a detailed listing of project tasks, key deliverables, and milestone dates.

ACTIVITY	SCHEDULE IN MONTHS (State)									
	1	2	3	4	5	6	7	8	9	10
Start Date:										
Completion Date:										
Delivery Date:										
Penalties Late Delivery \$500 penalty per day will be assessed if delivery date exceeds projected completion date.										

SCHEDULE C-4 – PROPONENT’S FINANCIAL PROPOSAL

PRICING, DELIVERY AND PAYMENT SCHEDULE

The Contractor offers to supply and deliver to the City of New Westminster of Engineering Operations Works Yard, goods for the prices in Canadian currency plus applicable tax as follows:

A. Fire Apparatus Timetable: Number of days from the date of receipt of order to guaranteed delivery date _____ days.

Year: _____ Make: _____ Model: _____

All costs to meet the minimum specifications shall be included in the following delivered prices:

<p>1) PRICING OPTION with trade-ins</p> <p>1988 – Mack Rescue Truck with mobile air filling station.</p> <p>Tenderer responsible to pick up trade-in(s).</p> <div style="text-align: center;">  <p>SEOP555281103241 5130.pdf</p> </div>	<p>Quantity</p> <p>1</p>	<p style="text-align: right;">Unit Price</p> <p>\$ _____</p> <p style="text-align: right;">LESS: Trades</p> <p style="text-align: right;">Sub Total</p> <p style="text-align: right;">HST 12%</p> <p style="text-align: right;">Environmental Tax</p> <p style="text-align: right;">Total Tendered Price</p>	<p style="text-align: right;">Extended Price</p> <p>\$ _____</p> <p style="text-align: right;">\$ _____</p>
<p>2) PRICING OPTION with no trade-in(s)</p>	<p>Quantity</p>	<p style="text-align: right;">Unit Price</p> <p>\$ _____</p> <p style="text-align: right;">HST 12%</p> <p style="text-align: right;">Environmental Tax</p> <p style="text-align: right;">Total Tendered Price</p>	<p style="text-align: right;">Extended Price</p> <p>\$ _____</p> <p style="text-align: right;">\$ _____</p> <p style="text-align: right;">\$ _____</p> <p style="text-align: right;">\$ _____</p>

B. DELIVERY

F.O.B. destination, Freight Prepaid to: the City of New Westminster of Engineering Operations Works Yard located at 901 First Street, New Westminster, V3L 2J1, British Columbia, Canada.

PAYMENT SCHEDULE

The Contractor should propose a Payment Schedule. The proposal should identify the Net Total Cost per unit based on the general and technical requirements identified in Schedule A and Schedule B. The Net Total Cost must include all equipment, material and labour costs, applicable taxes, inspection, testing, certification, and any other relevant charges so as to be the final cost to the City of New Westminster for the proposed equipment.

ADDITIONAL EQUIPMENT PRICING

The following list of equipment is to be quoted separately from the total Proposal price. All care and maintenance and operation manuals for the additional equipment listed provided by the manufacturer shall be with the completed Fire Apparatus if purchased by the Owner and if so, mounted as specified with the completed Fire Apparatus.

These items are additional and may or may not be ordered with the Fire Apparatus. Please quote the unit in Canadian funds FOB the City of New Westminster of Engineering Operations Works Yard (including all customs and duties if applicable). Tax (HST) will be extra.

Scott Air Bottles

Ten (10) 4500psi Scott 30 minute air bottles \$ _____ unit cost

Ventilation Fan

One (1) Super Vac Honda Gas powered PPV fan MODEL # 718G4-H \$ _____ unit cost