



## **REQUEST FOR QUOTATIONS**

**Title:** SUPPLY AND DELIVERY OF MOBILE AIR SUPPORT VEHICLE

**Reference No.:** 1220-040-2014-038

### **FOR THE SUPPLY OF GOODS**

**(General Services)**

**REQUEST FOR QUOTATIONS**

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## REQUEST FOR QUOTATIONS

### 1. INTRODUCTION

The City of Surrey (the "City") invites contractors to provide a quotation on the form attached as Schedule B to Attachment 1 (the "Quotation") for the supply of the goods (if any) and services described in Schedule A to Attachment 1 (the "Goods"). The description of the Goods sets out the minimum requirements of the City. A person that submits a Quotation (the "Contractor") should prepare a Quotation that meets the minimum requirements, and may as it may choose, in addition, to also include goods, services or terms that exceed the minimum requirements.

### 2. ADDRESS FOR DELIVERY

A Quotation should be labelled with the Contractor's name, RFQ title and number. A Quotation should be submitted in the form attached to this RFQ as Schedule B – Form of Quotation.

The Contractor may submit a Quotation either by email or in a hard copy, as follows:

#### (a) Email

If the Contractor chooses to submit by email, the Contractor should submit the Quotation electronically in a single pdf file to the City by email at: [purchasing@surrey.ca](mailto:purchasing@surrey.ca)

PDF emailed Applications are preferred and the City will confirm receipt of emails. Note that the maximum file size the City can receive is 10Mb. If sending large email attachments, Contractors should phone to confirm receipt. A Contractor bears all risk that the City's equipment functions properly so that the City receives the Application.

#### (b) Hard Copy (Courier/ Hand Deliver)

If the Contractor chooses NOT to submit by email, the Contractor should submit one original unbound Quotation and two (2) copies (three (3) in total) which should be delivered to the City at the office of:

Name: Richard Oppelt, Purchasing Manager  
at the following location:

Address: Surrey City Hall  
Finance & Technology Department - Purchasing Section  
Reception Counter, 5th Floor West  
13450 - 104 Avenue Surrey, BC, Canada V3T 1V8

E-mail for PDF Files: [purchasing@surrey.ca](mailto:purchasing@surrey.ca)

**3. DATE**

The City would prefer to receive Quotations on or before **May 16, 2014**. The City's office hours are 8:30 a.m. to 4:00 p.m., Monday to Friday, except statutory holidays.

**4. INQUIRIES**

All inquiries related to this Request for Quotations ("RFQ") should be directed in writing to the person named below (the "**City Representative**"). Information obtained from any other source other than the City Representative may not be relied upon.

Name: Richard Oppelt, Purchasing Section

E-mail: [purchasing@surrey.ca](mailto:purchasing@surrey.ca)

Reference No. 1220-040-2014-038

**5. ADDENDA**

If the City determines that an amendment is required to this RFQ, the City's Representative will issue a written addendum by posting it on the BC Bid Website at [www.bcbid.gov.bc.ca](http://www.bcbid.gov.bc.ca) (the "BC Bid Website) and the City Website at [www.surrey.ca](http://www.surrey.ca) (the "City Website") that will form a part of this RFQ. It is the responsibility of Contractor to check the BC Bid Website and the City Website for addenda. The only way this RFQ may be added to, or amended in any way, is by a formal written addendum. No other communication, whether written or oral, from any person will affect or modify the terms of this RFP or may be relied upon by any Contractor. By delivery of a Quotation, the Contractor is deemed to have received, accepted and understood the entire RFQ, including any and all addenda.

**6. NO CONTRACT**

This RFQ is simply an invitation for Quotations (including prices and terms) for the convenience of all parties. It is not a tender and no obligations of any kind will arise from this RFQ or the submission of Quotations. The City may negotiate changes to any terms of a Quotation, including terms in Attachment 1, Schedule A, and Schedule B including prices, and may negotiate with one or more Contractors or may at any time invite or permit the submission of Quotations (including prices and terms) from other parties who have not submitted Quotations.

**7. CONTRACTOR'S EXPENSES**

Contractors are solely responsible for their own expenses in preparing and submitting Quotations, and for any meetings, negotiations or discussions with the City or its representatives and consultants, relating to or arising from the RFQ. The City will not be liable to any Contractor for any claims, whether for costs, expenses, losses or damages, or loss of anticipated profits, incurred by the Contractor in preparing and submitting a Quotation, or participating in negotiations for a contract, or other activity related to or arising out of this RFQ.

## **8. CONTRACTOR'S QUALIFICATIONS**

By submitting a Quotation, a Contractor represents that it has the expertise, qualifications, resources, and relevant experience to supply the Goods and Services.

## **9. CONFLICT OF INTEREST**

A Contractor must disclose in its Quotation any actual or potential conflicts of interest and existing business relationships it may have with the City, its elected or appointed officials or employees. The City may rely on such disclosure.

## **10. SOLICITATION OF COUNCIL MEMBERS, CITY STAFF AND CITY CONSULTANTS**

Contractors and their agents will not contact any member of the City Council, City staff or City consultants with respect to this RFQ, other than the contact person named in Section 4, at any time prior to the award of a contract or the cancellation of this RFQ.

## **11. CONFIDENTIALITY**

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

## **12. SIGNATURE**

The legal name of the person or firm submitting the Quotation should be inserted in the Quotation. The Quotation 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 Quotation 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 Quotation on behalf of the corporation is submitted;
- (b) If the Contractor is a partnership or joint venture then the name of the partnership 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 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.

### **13. PRICES**

All prices submitted shall be for the entire equipment described in Schedule A with pricing options shown separately, where permitted.

Prices shall be shown on the Quotation form with GST/PST, Environmental Taxes and Levies are to be shown separately.

Deliver to:

City of Surrey  
Fire Hall 9  
Service Centre,  
14901 – 64th Avenue  
Surrey, BC V3S 1X8

Attention: Gordon Wilson, Chief Mechanic

Prices are to be quoted F.O.B. Destination, freight prepaid, unloading at destination, import duties, brokerage fees, royalties, handling charges, overhead, profit and all other costs included.

GST/PST or Environmental Tax Rates will be allowed.

Prices to be quoted in Canadian currency.

The lowest price of any Quotation will not necessarily be accepted but will be analyzed to determine best value.

### **14. BRAND NAME SPECIFICATIONS AND/OR REFERENCES**

The use of the name of a manufacturer or of any particular make, model or brand in describing an item does not restrict Contractors to that manufacturer or specific article unless limited by the term “no substitute”. However, the article being offered must be of such character and quality so that it will serve the purpose for which it is to be used equally as well as that specified, and the Contractor shall warrant to the City that it is fit for that purpose. Quotations on comparable items must clearly state the exact article being offered including any and all applicable options and the Contractor shall furnish such other information concerning the article being offered as will be helpful in evaluating its acceptability for the purpose intended. If the Contractor does not indicate that the article offered is other than as specified, it will be understood that the Contractor is offering the article exactly as specified. Contractors should complete documentation on the specifications and quality levels of the proposed products. Quotations submitted that do not contain this documentation may be subject to rejection.

**15. ANTICIPATED QUANTITIES**

The City reserves the right and discretion to place orders on quoted items during the duration of the term of the agreement as per Schedule B – Form of Quotation on an as per need basis. All quantities are anticipated quantities only and may or may not increase or decrease according to requirements.

## ATTACHMENT 1 – GENERAL TERMS AND CONDITIONS

### DEFINITIONS AND INTERPRETATION

1. In these General Terms and Conditions:
  - (a) "**Agreement**" has the meaning set out in Section 2;
  - (b) "**City**" means the City of Surrey;
  - (c) "**Contractor**" means a contractor who's Quotation has been accepted by the City and who is supplying the Goods under this Agreement;
  - (d) "**Goods**" means the equipment or materials that are the subject of this Agreement; and
  - (e) "**Purchase Price**" means the price quoted by the Contractor and accepted by the City, unless otherwise agreed by the parties in writing, and includes all taxes, duties, freight charges and other charges except PST and GST.
  
2. This Agreement may be modified only by express and specific written agreement. In the event of a conflict between the provisions of any documents listed below, then the documents shall govern and take precedence in the following order:
  - (a) these General Terms and Conditions;
  - (b) the specifications set out in Schedule A of the Request for Quotations ("**RFQ**");
  - (c) the RFQ;
  - (d) the Quotation; and
  - (e) other terms, if any, that are agreed to by the parties in writing.

### GOODS

3. The Contractor will supply the Goods in accordance with this Agreement. The Goods supplied will meet the specifications set out in Schedule A of the RFQ and as described in the Quotation set out in Schedule B of the RFQ.
  
4. The Contractor will deliver the Goods free and clear of all liens and encumbrances in the manner and to the destination stipulated. In the event of the Contractor's failure to meet this condition, the Contractor will, on written notice from the City, forthwith return all monies paid by the City on account of the Goods and in addition the City may by written notice terminate this Agreement without liability, and in such event, in addition to the above, the Contractor will be liable for any and all expenses or losses incurred by the City resulting from such failure.

### PURCHASE PRICE

5. The City will pay the Purchase Price to the Contractor in accordance with this Agreement. The Purchase Price shall also include without limitation all costs of boxing, packing, crating, and loading and unloading the Goods at the prescribed destination.

### TIME

6. Time is of the essence.

### PAYMENT

7. Invoices must include the Contractor's name, address and telephone number, the City's purchase order number, the Contractor's invoice number, the Contractor's GST registration number or an indication that it is not applicable if the Contractor is a small trader, the quantity, tax (if any) and the complete Purchase Price calculations, including extensions and discounts.



8. The City will pay the invoice, in the amount as the City determines is correct less any deductions for setoffs or holdbacks permitted by this Agreement including, without limitation, those described in Sections 10, 11 and 12, within 30 days of the receipt of the invoice, unless the parties have agreed in writing to other payment terms. The payment by the City of any invoice will not bind the City with respect to any subsequent payment or final payment and will not mean that the City has accepted that the Goods are in accordance with the requirements of this Agreement, or that the Contractor is in any manner released from its obligation to comply with this Agreement.

9. **Submit Invoices by Email:**

If the Contractor chooses to submit by email, the Contractor must submit the Invoice(s) electronically in a single pdf file (2Mb Maximum) to the City by email at: [surreyinvoices@surrey.ca](mailto:surreyinvoices@surrey.ca)

**Submit Invoices by Hard Copy:**

Invoices will be submitted by the Contractor by mail to:

City of Surrey  
Fire Hall 9  
Service Centre,  
14901 – 64th Avenue  
Surrey, BC, V3S 1X8

Attention: Gordon Wilson, Chief Mechanic

10. Unless otherwise provided, all dollar amounts referred to in this Agreement are in lawful money of Canada.

**DEFICIENCIES**

10. The City shall have a reasonable time to inspect and to accept the Goods. The City may reject any Goods not in accordance with this Agreement, whether due to damage resulting from improper packing, loading, unloading or otherwise. The City shall notify the Contractor of rejection of the Goods whereupon the Goods will be held subject to the disposition by the Contractor. Any costs or expenses incurred by the City as a result of the rejection of the Goods are, immediately upon written demand by the City, payable by the Contractor, and may be set off against any payments owing by the City to the Contractor.

11. The City may hold back from payments otherwise due to the Contractor up to 150% of a reasonable estimate, as determined by the City, on account of deficient or defective materials. This holdback may be held, without interest, until replacement Goods are received or such deficiency or defect is remedied.

**DEFAULT AND TERMINATION**

12. In the event the Contractor does not ship the Goods by the shipping date specified in this Agreement, or does not deliver the Goods by the delivery date specified in this Agreement, or otherwise fails to comply with the requirements of this Agreement, then:

(a) the City reserves the right to terminate this Agreement, in whole or in part, and in the event of such termination no payment will be owing by the City on account of this Agreement and the Contractor will be liable for any and all expenses or loss resulting from such failure or delay and will return all monies paid by the City; or

- (b) if the City does not terminate this Agreement for late shipping or delivery, the City may deduct and set off from any payments owing to the Contractor all additional costs the City reasonably incurs on account of the late shipping or delivery.
13. The City may by written notice at any time cancel this Agreement with respect to Goods which, as of the date of cancellation, have not been shipped.
14. If the Contractor becomes insolvent or makes an assignment for the benefit of creditors or a receiver or trustee is appointed for the property of the Contractor, then the City may, at its election, and without prejudice to its rights at law or in equity, terminate this Agreement.
15. The City will not accept nor be responsible for any restocking charges for any Goods shipped to the City and then, for whatever reason, returned to the Contractor pursuant to this Agreement. The Contractor is to bear all costs including shipping and handling of returned Goods.

#### **WARRANTIES AND INDEMNITIES**

16. The Contractor warrants that the Goods shall be free from defects in design, materials, workmanship and title, shall conform in all respects to the terms of this Agreement, shall be fit and suitable and perform satisfactorily for the purposes and under the conditions made known to the Contractor by the City or which were reasonably inferable. The Goods 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 will use the Goods. The Goods 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 or third party manufacturer or supplier of the Goods in connection with the purpose for which the Goods were purchased. The Contractor shall assign to the City any warranty or service guarantee offered by a third party manufacturer or supplier of the Goods. Notwithstanding this assignment, if at any time up to one year from the date of delivery or installation (if applicable) the City determines the Goods or any part do not conform to these warranties, the City shall notify the Contractor within a reasonable time after such discovery, and the Contractor shall then promptly correct such nonconformity at the Contractor's expense. Goods used to correct nonconformity shall be similarly warranted for one year from the date of installation. The Contractor's liability shall extend to all liabilities, losses, damages, claims and expenses incurred by the City caused by any breach of any of the above warranties.
17. The Contractor warrants and guarantees that Goods delivered under this Agreement do not infringe any valid patent, copyright or trademark, foreign or domestic, owned or controlled by any other corporation, firm or person, and agrees to indemnify and save harmless the City and all of its elected and appointed officials, officers, employees, servants, representatives and agents (collectively the "**Indemnitees**"), from and against any and all claims, demands, causes of action, suits, losses, damages and costs, liabilities, expenses and judgments (including all actual legal costs) by reason of any claim, action or litigation arising out of any alleged or actual infringement of any patent, copyright or trademark, foreign or domestic, relating to the Goods supplied under this Agreement.
18. The Contractor represents and warrants that all Goods delivered under this Agreement shall comply with all applicable codes, statutes, by-laws, rules and regulations, of any federal, provincial, municipal or other competent authority for the time being in force, including any environmental laws and that the Goods are not dangerous to the environment or to person or health.
19. The Contractor will indemnify and save harmless the Indemnitees from and against all claims, demands, causes of action, suits, losses, damages and costs, liabilities, expenses and judgments (including all actual legal costs) for damage to or destruction or loss of property, including loss of use, and injury to or death of any person or persons which any of the Indemnitees incur, suffer or

are put to arising out of or in connection with any failure, breach or non-performance by the Contractor of any obligation of this Agreement, or any wrongful or negligent act or omission of the Contractor or any employee or agent of the Contractor.

## **CUSTOMS**

20. Documentation for shipments of Goods from outside Canada shall be provided by a Contractor by airmail and will include all documents as required by law or customary practice. All packages are to be marked as follows:

"Upon arrival, please contact customs broker:  
Livingston International Inc.  
Telephone: 604-685-3555  
Fax: 604-605-8231  
Email: cst19@livingstonintl.com"

## **INSPECTIONS**

21. If this Agreement pertains to the fabrication, assembly or other processing of the Goods, representatives of the City shall be permitted free access at all reasonable times for the purpose of inspection, testing or obtaining information as to the progress of the fabrication, assembly or processing.

## **SAFETY**

22. If this Agreement includes any inspection, installation or other work on the City's premises by the Contractor, or representative or subcontractor of the Contractor, all such activity shall be performed and undertaken in strict compliance with all applicable health and safety laws and regulations, including, without limitation, the Workers Compensation Act, the Occupational Health & Safety Regulation and the Hazardous Products Act, and also in strict compliance with any published and issued by the City for use at the City's premises. The Contractor shall provide the City with the Contractor's Workers Compensation Board registration number and a letter from the Workers Compensation Board confirming the supplier is registered in good standing with the Workers Compensation Board and that all assessments have been paid to the date thereof prior to the City having any obligation to pay monies under this Agreement.

## **SHOP DRAWINGS**

23. 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; and,
- 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 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, etc.

The body manufacturer shall submit all applicable drawings, and calculations to the City with the Quotation 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 Quotation shall be considered unless complete engineering drawings to the Quotation Specifications are submitted with the Quotation package. Failure to submit factory prepared drawings may result in rejection of the Quotation. The engineering drawings will allow the City the ability to fully evaluate each Quotation, design, engineering and drawing quality in comparison to the specifications.

#### **WAIVER**

24. Any failure of the City at any time or from time to time to enforce or require the strict keeping or performance of any of the terms and conditions contained in this Agreement shall not constitute a waiver of the terms and conditions and shall not affect or impair the terms or conditions in any way or the City's right at any time to avail itself of any remedies as the City may have for any breach or breaches of the terms and conditions.

#### **APPLICABLE LAW**

25. This Agreement shall be governed by and construed in accordance with the laws of the Province of British Columbia. The City and the Contractor accept the jurisdiction of the courts of British Columbia and agree that any action under this Agreement shall be brought in such courts.

#### **NOTICES**

26. Any notice, report or other document that either party may be required or may wish to give to the other must be in writing, unless otherwise expressly provided for, and will be deemed to be validly given to and received by the addressee:
- (a) by hand, on delivery;
  - (b) by facsimile, on transmission; or
  - (c) by mail, five calendar days after posting.

The addresses for delivery will be as shown in Schedule B to the RFQ. In addition, the City may give notice to the Contractor by email at the Contractor's email address as shown in Schedule B to the RFQ, which email will be deemed to be validly given and received by the Contractor on transmission. The Contractor may not give notice to the City by email.

#### **MERGER AND SURVIVAL**

27. The representations, agreements, covenants and obligations set out in this Agreement, including without limitation Section 19, shall survive the delivery of the Goods and payment of the Purchase Price.

## **ENTIRE AGREEMENT**

28. This Agreement, including any other documents expressly included by reference in this Agreement, contains the entire agreement of the parties regarding the provision of the Goods, and no understandings or agreements, oral or otherwise, exist between the parties except as expressly set out in this Agreement. This Agreement supersedes and cancels all previous agreements between the parties relating to the Goods.

## **SPECIAL CONDITIONS**

### **INSPECTION/DELIVERY**

39. Each Contractor must state in their submission the guaranteed delivery date in number of calendar days from the date after receipt of order (ARO).
30. The item(s) specified, with packing slips/delivery slips and/or other required documents are to be delivered F.O.B. Destination, full freight prepaid to:

City of Surrey  
Fire Hall 9  
Service Centre,  
14901 – 64th Avenue  
Surrey, BC V3S 1X8

Attention: Gordon Wilson, Chief Mechanic

31. The Contractor is to notify the Gordon Wilson, Chief Mechanic, not less than three (3) working days prior to expected delivery / arrival to permit inspection scheduling. An authorized representative of the Seller is to supervise delivery and off-loading to the City. The City will not assume any liability for vehicle/equipment delivered to an unauthorized location.

32. Documentation at time of Delivery:-

Seller is to provide the following documentation upon delivery:

- Copy of Purchase Order and Original Invoice(s).
- Warranty Policy(ies) and/or certifications as may be required in the Specifications.
- Parts, service, operators and maintenance manual(s) as may be required in the Technical Specifications.

33. Each unit is to be delivered clean and shall be complete with all equipment operable. The unit(s) will be inspected by the City before delivery to determine compliance with the specifications and/or to test its ability to perform its intended use.

34. The Contractor will be responsible for securing any and all inspections required by law, including B.C. Provincial Inspection stickers. Any fee charged for these inspections will be the responsibility of the Contractor.

### **UNSUITABLE EQUIPMENT**

35. Quotations will not be considered for vehicles that have previously failed to perform satisfactorily or from Contractors who have a history of performance problems with the City.

## **MANUFACTURER'S WARRANTY**

36. The Contractor will be required to furnish a warranty by the manufacturer that the equipment Quotation on is suitable for the service intended, in accordance with the specifications defined herein. The Contractor shall agree to replace and install without charge [including all labour], within the scope of the warranty, any defective part or any parts that are determined by the City not to be suitable for the service intended.
37. The warranty period will go into effect at the time the vehicle is placed into service by the City. Contractors are to include a complete warranty statement with their Quotation.

## **DEALERSHIP EMBLEMS/LOGOS**

38. The Contractor will not install on the vehicle, any logos, nameplates or stickers denoting the name of the company or dealership that may be considered as advertising. Failure to comply with this requirement will result in the dealership being given the option to remove same, or reimburse the City for removal and restoration, if needed.

## **NEW VEHICLE**

39. Equipment/vehicles are to be new and unused and not previously titled.

## **FACTORY INSTALLATION**

40. Items that are available from the factory must be factory installed. If factory installation of an item is not available to the dealer and the dealer is making a dealer modification in order to meet the specification, it must be clearly noted in your response.

## **REJECTIONS**

41. All materials or equipment shall be subject to inspection or test and shall meet the approval of the Chief Mechanic and his decision shall be final and binding upon all parties. Such inspection, at the option of the City, may be carried out at the place of business of the Contractor and the Contractor shall assist the Chief Mechanic, or his designate in the performance of his duties.
42. Should materials or equipment be defective in quality of workmanship or otherwise fail to conform to the specifications set forth, the Chief Mechanic shall have the right to reject them or require their immediate correction.
43. Materials or equipment requiring correction shall be removed for correction or corrected in place as requested by the Chief Mechanic at no expense to the City. Unavoidable expense encountered by the City shall be chargeable to the Contractor and deductible from any monies owing the Contractor by the City.
44. If the Contractor fails to take proper action promptly when requested by the Chief Mechanic, the City may replace or correct materials as necessary and charge the cost of such replacement to the Contractor or the City may terminate the Agreement as provided for herein.

## **PRE-CONSTRUCTION CONFERENCE**

45. A qualified engineer of the body manufacturer is to meet with the City to discuss all facets of these specifications to ensure a complete and satisfactory understanding of the City's specifications and Contractor's Quotation. A pre-construction meeting will be held at the Contractor's facility. The Contractor will provide, arrange and pay for all direct and associated travel costs for this meeting. For scheduling purposes, notification of the pre-construction

conference shall be a minimum of fourteen (14) days before the date. ***N.B. Arrangements and dates for the pre-construction conference must be made within three (3) weeks following date of award.***

**PRICES AND DELIVERY**

46. All pricing shown on the Quotation is to be net, with GST and PST shown separately. All other taxes, duties, insurance in freight, customs clearance, etc. to be included in the net price.

Goods to be delivered Free on Board (F.O.B.) freight prepaid to:

City of Surrey  
Fire Hall 9, Service Centre,  
14901 – 64<sup>th</sup> Avenue,  
Surrey, BC  
V3S 1X8

Attention: Gordon Wilson, Chief Mechanic

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## **SCHEDULE A – SPECIFICATION OF GOODS**

**PROJECT TITLE:** SUPPLY AND DELIVERY OF MOBILE AIR SUPPORT VEHICLE

**PROJECT No.:** 1220-040-2014-038

### **1. DESCRIPTION OF THE GOODS**

The purpose of these specifications is to describe a Mobile Air Support Vehicle. This vehicle must comply with all D.O.T. and British Columbia Motor Vehicle Act regulations.

The City's requirements are as outlined in Schedule A-1 – Technical Specifications.

### **2. DELIVERY**

The truck shall be delivered F.O.B. Destination, Freight Prepaid to the City of Surrey in first class operating condition. If the Contractor must store, park, or hold the vehicles until such a time that the City, at its sole discretion, requires them, the Contractor will store the vehicles at no additional cost to the City.

Title of goods received under a purchase order agreement shall remain with the Contractor until they are delivered to:

City of Surrey  
Fire Hall 9, Service Centre,  
14901 – 64<sup>th</sup> Avenue,  
Surrey, BC  
V3S 1X8

Attention: Gordon Wilson, Chief Mechanic

Once delivery, inspected and accepted, the title will only then pass to the City of Surrey. The Contractor will bear all risks of loss, theft, injury, or destruction or damage of goods and materials ordered herein which occur prior to delivery and acceptance. Such loss, injury, or destruction or damage shall not release the Contractor from any obligations under.

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## SCHEDULE A-1 –TECHNICAL SPECIFICATIONS

### GENERAL SPECIFICATIONS

The specification herein states the minimum requirements of the City of Surrey. All Quotations must be regular in every respect. Unauthorized conditions, limitations, or provisions shall be cause for rejection. This vehicle must comply with all D.O.T. and British Columbia Motor Vehicle Act regulations.

#### TYPE OF VEHICLE

The vehicle detailed in this specification is a **Mobile Air Support Vehicle**. This vehicle must comply with all D.O.T. and British Columbia Motor Vehicle Act regulations.

#### SPECIAL AIR TRUCK QUALIFICATIONS

In addition to all other requirements herein, each Bidder will submit with their proposal the following items or subject their entire proposal to immediate rejection, **NO EXCEPTIONS**.

- A complete scaled engineering drawing of the proposed apparatus prepared by the Bidder showing all views of the apparatus including; streetside, curbside, front, rear and top views. The drawing will include views of the apparatus showing the doors open and closed and will show the location of all equipment, accessories and lighting as required in the specifications.
- In addition these drawings will show the location of the breathing air system components. The drawing will be signed by the engineering department of the breathing air compressor manufacturer indicating their approval of the proposed installation. The approval signature **MUST** be from the compressor manufacturer and not from the dealer, truck manufacturer, or sales person. **Failure to provide this required drawing will subject the entire bid submittal to immediate rejection.**
- Bidders will provide references of at least twenty (20) dedicated mobile air trucks with a breathing air compressor rated at a minimum of 13 SCFM, with the AC electric power provided by a PTO direct drive generator of at least 20 KW with light tower(s) providing a minimum of 3,000 watts. A listing of these delivered trucks with current contact names, addresses and phone numbers {will/shall} be provided at time of bid submittal or subject the entire submittal to immediate rejection.

**Failure to provide any of the items listed above will subject a bid submittal to immediate rejection.**

#### WARRANTY

A full statement shall be provided of the warranties for the vehicle(s) being bid. Warranties should clearly describe the terms under which the vehicle manufacturer accepts 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.

Cost of repairs refers to all costs related thereto including, but not limited to, the cost of materials and the cost of labor.

The Body Manufacturer shall warrant all materials and accessories used on the vehicle(s), whether fabricated by manufacturer or purchased from an outside source and will deal directly with the Surrey Fire Department on all warranty work.

## **TECHINICAL SPECIFICATIONS**

### **1. STATE WARRANTIES**

Cab Basic: \_\_\_\_\_  
Cab Paint: \_\_\_\_\_  
Frame Rails: \_\_\_\_\_  
Body Basic: \_\_\_\_\_  
Body & Structural Integrity: \_\_\_\_\_  
Body Paint Warranty: \_\_\_\_\_  
Body Corrosion Warranty: \_\_\_\_\_

Please refer to:  
**Schedule B – Appendix A**  
**Technical Specifications**  
**Worksheet**

### **2. OVERALL HEIGHT**

STATE:

### **3. OVERALL LENGTH**

STATE:

### **4. CHASSIS WHEELBASE**

STATE:

### **5. TURNING RADIUS**

STATE:

### **6. CAB AND CHASSIS**

CONVENTIONAL CHASSIS  
2015 MODEL YEAR SPECIFIED  
SET BACK AXLE – TRUCK  
106 INCH BBC FLAT ROOF ALUMINUM CONVENTIONAL CAB  
AIR CAB MOUNTS  
NFPA COMPLIANT EXTERIOR GRAB HANDLES  
HOOD MOUNTED CHROMED PLASTIC GRILLE  
CHROMED HOOD MOUNTED AIR INTAKE GRILLE  
TUNNEL & FIREWALL LINER  
DUAL 25 INCH ROUND STUTTER TONE HOOD MOUNTED AIR HORNS  
(1) RH FOOT SWITCH WITH DASH SWITCH FOR HORN BUTTON TO CONTROL AIR HORN,  
DEFAULT TO ELECTRIC <85 PSI  
SINGLE ELECTRIC HORN  
DOOR LOCKS AND IGNITION SWITCH KEYED THE SAME  
INTEGRAL HEADLIGHT/MARKER ASSEMBLY WITH CHROME BEZEL  
LED AERODYNAMIC MARKER LIGHTS  
DAYTIME RUNNING LIGHTS  
DUAL 102" WEST COAST BRIGHT FINISH HEATED MIRRORS WITH LH AND RH REMOTE  
LH AND RH 8" BRIGHT FINISH CONVEX MIRRORS MOUNTED UNDER PRIMARY MIRRORS  
RH/LH MANUAL WINDOWS & DOOR LOCKS  
63X14 INCH TINTED REAR WINDOW  
TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS  
TINTED WINDSHIELD  
2 GALLON WINDSHIELD WASHER RESERVOIR WITHOUT FLUID LEVEL INDICATOR,  
FRAME MOUNTED

### **7. FRAME**

11/32X3-1/2X10-15/16 INCH STEEL FRAME 120KSI  
GRADE 8 THREADED HEX HEADED FRAME FASTENERS

**8. PAINT FRAME AND CHASSIS UNDER CARRIAGE**

The chassis under carriage consisting of frame, axles, driveline running gear, battery boxes, air tanks and other assorted chassis mounted components shall be painted with standard black paint. Paint shall be applied before airlines and electrical wiring is installed.

**9. FUEL TANK**

50 GALLON ALUMINUM FUEL TANKS– LH/RH  
6 GALLON DIESEL EXHAUST FLUID TANK  
ALLIANCE FUEL FILTER/WATER SEPARATOR W/ HEATED BOWL

**10. FRONT BUMPER**

A three piece 14 inch chrome steel bumper with collapsible ends

**11. TOW HOOKS**

Two (2) front tow hooks are to be mounted to the frame. The tow hooks shall be painted to match the frame.

**12. AIR HORN ACTUATION**

Air horns actuation shall be accomplished by the steering wheel horn button and a right side Officer's push button switch located on the dash.

**13. SIREN 10" ELECTRIC**

There shall be a Federal model Q2B motor driven rotary siren with chrome plated grill and housing, recess in the extended front bumper. The siren shall be wired through the master warning light switch, and properly wired with heavy copper cable for minimum voltage drop.

The siren shall be located on the curbside of the front bumper.

There shall be a siren brake installed in the rocker switch control panel to activate the siren brake.

**14. ELECTRONIC SIREN SPEAKER**

A Federal Signal MS-100 siren speaker with polished "Electric F" grill mount will be installed on the outer left hand side of the front bumper extension.

**15. GROSS AXLE WEIGHT RATINGS FRONT**

The front gross axle weight rating (GAWR) of the chassis shall be 14,600 pounds. This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

**16. FRONT AXLE**

14,700# FF1 71.5 KPI/3.74 DROP SINGLE FRONT AXLE

**17. FRONT SUSPENSION**

14,600# TAPERLEAF FRONT SUSPENSION  
MAINTENANCE FREE RUBBER BUSHINGS - FRONT SUSPENSION  
FRONT SHOCK ABSORBERS

**18. POWER STEERING GEAR**

The hydraulic power assist steering gear shall be a TRW TAS-85.

**19. CHASSIS ALIGNMENT**

The chassis frame rails shall be cross-checked for length and square ness. Front and rear axles shall be laser aligned. Tires and wheels shall be aligned and toe-in set on the front tires at the chassis manufacturer's facility.

The completed apparatus should be rechecked for proper alignment after the chassis has been fully loaded.

**20. FRONT TIRES**

The front tires shall be Goodyear 12R22.5 16 tubeless radial G287 MSA.

**21. FRONT WHEELS STEEL**

The front wheels shall be Accuride hub piloted, white in color, 8.25" x 22.5" steel wheels.

**22. FRONT HUBS & WHEEL BEARINGS OIL LUBRICATED**

CONMET PRE-SET BEARING IRON FRONT HUBS  
SKF SCOTSEAL PLUS XL FRONT OIL SEALS  
VENTED FRONT HUB CAPS WITH WINDOW, CENTER AND SIDE PLUGS - OIL

**23. FRONT BRAKES**

BENDIX ADB22X-V AIR DISC FRONT BRAKES  
FIRE AND EMERGENCY SEVERE SERVICE, NON-ASBESTOS FRONT LINING  
FRONT DISC BRAKE ROTORS  
FRONT BRAKE DUST SHIELDS  
FRONT AIR DISC BRAKE INTERNAL ADJUSTERS

**24. GROSS AXLE WEIGHT RATINGS REAR**

The rear gross axle weight rating (GAWR) of the chassis shall be 23,000 pounds. This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

**25. REAR AXLE**

The rear axle shall have an iron rear axle carrier with standard axle housing. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 23,000 pounds.

**26. REAR SUSPENSION**

The single rear axle shall feature a minimum, 23,000 lb leaf spring suspension. One (1) adjustable and one (1) fixed torque rod shall be provided.

**27. TOP SPEED**

The top speed of the vehicle shall be approximately 65 MPH +/-2 MPH at governed engine RPM.

**28. REAR BRAKES**

BENDIX ADB22X-V AIR DISC REAR BRAKES  
FIRE AND EMERGENCY SEVERE SERVICE NON-ASBESTOS REAR BRAKE LINING  
STANDARD BRAKE CHAMBER LOCATION  
REAR DISC BRAKE ROTORS  
REAR BRAKE DUST SHIELDS  
AIR DISC LONGSTROKE 2-DRIVE AXLES SPRING PARKING CHAMBERS  
REAR AIR DISC BRAKE INTERNAL ADJUSTERS

**29. REAR TIRES**

The rear tires shall be Goodyear 11R-22.5 tubeless radial G182 RSD.

**30. REAR WHEELS**

The single rear axle wheels shall be Accuride hub piloted, white in color, 8.25" x 22.5" steel.

**31. PAINTED WHEELS**

The wheels on the chassis shall be pretreated in a zinc phosphate bath, and then coated with an acrylic cathode electro deposited white primer base coat (E-Coat) by the wheel supplier.

NOTE: Wheels are to be painted WHITE to match the upper paint of the cab. The Hubs to remain Black.

**32. VISUAL TIRE PRESSURE INDICATOR**

Each tire shall be equipped with a visual indicator to monitor tire pressure. The tire pressure indicator will display the following:

- Green – tire is properly inflated,
- Half green/half red – tire is approximately 10% under inflated,
- Red – tire is 20% or more under inflated.

**33. HUBODOMETER**

A hubodometer shall be installed on the left rear axle shaft. Require one (1) STEMCO DataTrac Pro

**34. ABS & ATC SYSTEM**

AIR BRAKE PACKAGE

WABCO 4S/4M ABS WITH TRACTION CONTROL

NFPA COMPLIANT ENHANCED STABILITY CONTROLS

STANDARD AIR SYSTEM PRESSURE PROTECTION

CUSTOM STEEL AIR BRAKE RESERVOIRS

**35. AIR DRYER**

A Meritor Wabco system saver 1200 spin-on desiccant air dryer with a 12-volt, 100-watt automatic heated moisture ejector shall be installed in the air brake system.

**36. ADDITIONAL AIR RESERVOIR**

An additional 1200 cubic inch air reservoir shall be installed and isolated to prevent depletion of the air to the air brake system and to act as a supply tank for operating air equipment. It shall be plumbed with a 90 psi pressure protection valve on the reservoir supply side.

**37. REMOTE MANUAL AIR DRAINS**

Remote manual drains shall be installed on all reservoirs of the air brake system. All drains are to be remote located to below L1 and name tagged, c/w quarter turn pet cocks.

**38. OUTSIDE AIR INTAKE CONNECTION**

A quick release outside air intake male connector shall be provided in the left cab step area for shoreline air intake to maintain air system build up. The air connector supplied shall be compatible with a Lincoln style fitting.

The inlet is to be located in the Driver's mid height step adjacent to the shorepower inlet.

**39. TIRE CHAINS**

Onspot brand six (6) strand automatic ice chains shall be installed on the rear axle of the chassis to provide instant traction while traveling on ice and snow at speeds below 35 MPH.

**40. TIRE CHAINS ACTIVATION**

The tire chain system shall be activated by a locking switch on the dash to deter accidental activation. The light on the switch shall illuminate when the tire chains are engaged. The tire chains shall be interlocked with the transmission and shall engage only if the vehicle is traveling 30 MPH or less. After traveling over 30 MPH, the vehicle must be reduced to a speed below 5 MPH for the tire chains to be engaged or re-engaged.

**41. ENGINE**

CUMMINS ISL 350 HP @ 2000 RPM, 2200 GOV RPM, 1000 LB/FT @ 1400 RPM, FIRE/EMERGENCY

**42. ENGINE EQUIPMENT**

2013 ONBOARD DIAGNOSTICS/2010 EPA/CARB/GHG14

NFPA COMPLIANT EMBER SCREEN AND FIRE RETARDANT DONALDSON AIR CLEANER  
DR 12V 275 AMP 40-SI QUADRAMOUNT PAD ALTERNATOR WITH REMOTE BATTERY  
VOLTAGE SENSE

(2) ALLIANCE MODEL 1231, GROUP 31, 12 VOLT MAINTENANCE FREE 2250 CCA  
THREADED STUD BATTERIES WITH POSITIVE JUMPSTART POST

BATTERY BOX FRAME MOUNTED

WIRE GROUND RETURN FOR BATTERY CABLES WITH ADDITIONAL FRAME GROUND  
RETURN

POSITIVE LOAD DISCONNECT WITH CAB MOUNTED CONTROL SWITCH MOUNTED  
OUTBOARD DRIVER SEAT

CUMMINS 18.7 CFM AIR COMPRESSOR WITH INTERNAL SAFETY VALVE

C-BRAKE BY JACOBS WITH LOW/OFF/HIGH BRAKING DASH SWITCH

RH MTD HORIZONTAL AFTERTREATMENT WITH TAILPIPE EXITING FORWARD OF REAR  
TIRES

6 GALLON DIESEL EXHAUST FLUID TANK

HORTON DRIVEMASTER ON/OFF FAN DRIVE

AUTOMATIC FAN CONTROL WITHOUT DASH SWITCH, NON ENGINE MOUNTED

CUMMINS SPIN ON FUEL FILTER

COMBINATION FULL FLOW/BYPASS OIL FILTER

1100 SQUARE INCH ALUMINUM RADIATOR

ANTIFREEZE TO -34F, ETHYLENE GLYCOL PRE-CHARGED SCA HEAVY DUTY COOLANT

GATES BLUE STRIPE COOLANT HOSES OR EQUIVALENT

CONSTANT TENSION HOSE CLAMPS FOR COOLANT HOSES

ELECTRIC GRID AIR INTAKE WARMER

DELCO 12V 38MT HD STARTER WITH INTEGRATED MAGNETIC SWITCH

Cooling system requires an overflow tank to catch any expelled coolant.

An engine coolant filter with a shut-off valve shall be installed on the engine. The location of the filter shall allow for easy maintenance.

**43. EXHAUST SYSTEM**

The exhaust system shall be right-hand mounted after treatment. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires to connect to the station Nederman exhaust extraction system.

**44. EXHAUST DIVERTER**

An exhaust diverter valve shall be located in-line of exhaust tubing and controlled from driver's position to re-route exhaust discharge. Exhaust diverter valve shall be constructed from 14 gauge stainless steel material with air actuated control.

As a default, the exhaust shall always discharge to curbside just ahead of rear wheels, and when PTO is engaged, the exhaust shall discharge to a vertical exhaust pipe, extending above the body height 12". An over-ride switch will be provided.

The exhaust piping and discharge outlet shall be located or shielded so as not to expose any portion of the apparatus or equipment to excessive heating.

Exhaust pipe discharge shall be directed away from any operator's position.

Where parts of the exhaust system are exposed so that they are likely to cause injury to operating personnel, protective guards shall be provided.

**45. RAIN CAP ON EXHAUST**

There shall be a rain cap furnished and installed on the chassis exhaust system.

**46. TRANSMISSION**

ALLISON 3000 EVS 5 SPD AUTOMATIC TRANSMISSION WITH PTO PROVISION.  
TRANSMISSION PROGNOSTICS – ENABLED 2013  
PUSH BUTTON ELECTRONIC SHIFT CONTROL, DASH MOUNTED  
WATER TO OIL TRANSMISSION COOLER  
TRANSMISSION OIL CHECK AND FILL WITH ELECTRONIC OIL LEVEL CHECK  
SYNTHETIC TRANSMISSION FLUID (TES-295 COMPLIANT)

**47. TRANSMISSION MODE**

The transmission, upon start-up, will select four- (4) speed operation. By pressing the "mode" switch on the shift pad (mode on) provides five- (5) speed overdrive.

**48. TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE**

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

**49. DRIVELINES**

All drivelines shall be Spicer 1710 half round heavy duty series with "glide coat" splines on all slip shafts.

**50. ELECTRICAL CONNECTIONS**

UPGRADED CHASSIS MULTIPLEXING UNIT  
UPGRADED BULKHEAD MULTIPLEXING UNIT  
Individual wires shall be run to the rear of the chassis for the stoplight, turn signal, taillight and back-up lights.

**51. CAB INTERIOR**

OPAL GRAY VINYL INTERIOR  
MOLDED PLASTIC DOOR PANELS WITH ALUMINUM KICKPLATES LOWER DOORS  
BLACK MATS WITH PREMIUM INSULATION  
FORWARD ROOF MOUNTED CONSOLE WITH UPPER STORAGE COMPARTMENTS WITHOUT NETTING  
IN DASH STORAGE BIN  
(2) CUP HOLDERS LH AND RH DASH  
HEATER, DEFROSTER AND AIR CONDITIONER  
MAIN HVAC CONTROLS WITH RECIRCULATION SWITCH  
SOLID-STATE CIRCUIT PROTECTION AND FUSES  
12V NEGATIVE GROUND ELECTRICAL SYSTEM  
DOME LIGHT WITH 3-WAY SWITCH ACTIVATED BY LH AND RH DOORS  
CAB DOOR LATCHES WITH MANUAL DOOR LOCKS  
(1) 12 VOLT POWER SUPPLY IN DASH  
SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR SUSPENSION DRIVER SEAT NFPA COMPLIANT  
SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR SUSPENSION PASSENGER SEAT NFPA COMPLIANT  
LH AND RH INTEGRAL DOOR PANEL ARMRESTS  
GRAY VINYL SEAT COVERS WITH GRAY CORDURA CLOTH BOLSTERS AND HEADRESTS  
3 POINT HIGH VISIBILITY ORANGE RETRACTOR DRIVER AND RH FRONT PASSENGER SEAT BELTS WITH NFPA 1901-2009 COMPLIANT SENSOR AND DASH HARNESS  
ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN  
4-SPOKE 18 INCH STEERING WHEEL  
DRIVER AND PASSENGER INTERIOR SUN VISORS



**52. INTERIOR GRAB HANDLE "A" PILLAR**

There shall be a grab handle installed inside the cab on the "A" post at the right door opening. The handle shall assist personnel in entering and exiting the cab.

**53. CAB CONSOLE**

A center cab console shall be provided between the Driver's and Officer's seats. Console shall be as large as possible and fabricated of 1/8" smooth aluminum. A textured powder coat paint finish shall be provided for durability and finished appearance.

The rear portion of the console shall be provided with open top storage for notebooks or maps. Two (2) adjustable dividers shall be provided in the storage area. The forward portion of console shall be slanted for easy viewing of the V-Mux display screen, and any siren or radio equipment. The area shall be within easy access to both Driver and Officer.

The final design of console shall be determined by the Surrey Fire Department at the pre-construction meeting.

**54. VEHICLE DATA RECORDER (VDR)**

The vehicle data recorder shall have the following features;

- Recorded Data Includes: Vehicle Speed, Acceleration, Deceleration, Engine Speed, Engine Throttle Position, ABS Event, Seat Occupied Status, Seat Belt Status, Master Optical Warning Switch, Park Brake, Service Brake, Time, Date and Engine Hours.
- Password Protected by the customer
- Six (6) seat position inputs for occupied and belts buckled. Additional six (6) seat expansion module available.
- Easily interfaces with V-MUX™ or other multiplexing systems
- Data is extracted by a standard, mini USB cable

**55. OCCUPANT RESTRAINT INDICATOR**

The occupant restraint indicator shall have the following features;

- Will be displayed on Vista IV panel.
- Supports commercial and custom cab seating layouts; up to 12 seats
- Built-in audible alarm
- Use in conjunction with Vehicle Data Recorder (VDR)

**56. INSTRUMENTATION AND CONTROLS**

WOODGRAIN INSTRUMENT PANELS

BLACK GAUGE BEZELS

LOW AIR PRESSURE LIGHT AND BUZZER

2 INCH PRIMARY AND SECONDARY AIR PRESSURE GAUGES

ENGINE COMPARTMENT MOUNTED AIR RESTRICTION INDICATOR WITH GRADUATIONS, WITH WARNING LIGHT IN DASH

ELECTRONIC CRUISE CONTROL WITH SWITCHES IN LH SWITCH PANEL

IGNITION SWITCH WITH REMOVABLE KEY

ODOMETER/TRIP/HOUR/DIAGNOSTIC/VOLTAGE DISPLAY: 1X7 CHARACTER, 26 WARNING LAMPS, DATA LINKED, ICU3

FIRE AND EMERGENCY SERVICE VEHICLES ENGINE WARNING

2 INCH ELECTRIC FUEL GAUGE

ELECTRICAL ENGINE COOLANT TEMPERATURE GAUGE

2 INCH TRANSMISSION OIL TEMPERATURE GAUGE

ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN DRIVER DISPLAY

ELECTRIC ENGINE OIL PRESSURE GAUGE

ELECTRONIC MPH SPEEDOMETER WITH SECONDARY KPH SCALE



ELECTRONIC 3000 RPM TACHOMETER  
DIGITAL VOLTAGE DISPLAY INTEGRAL WITH DRIVER DISPLAY  
SINGLE ELECTRIC WINDSHIELD WIPER MOTOR WITH DELAY  
MARKER LIGHT SWITCH INTEGRAL WITH HEADLIGHT SWITCH  
ONE VALVE PARK BRAKE SYSTEM WITH DASH VALVE  
ELECTRIC HORN WARNING SYSTEM FOR PARK BRAKE NOT SET WITH DOOR OPEN  
SELF CANCELING TURN SIGNAL SWITCH WITH DIMMER, WASHER/WIPER AND HAZARD  
IN HANDLE  
INTEGRAL ELECTRONIC TURN SIGNAL FLASHER WITH HAZARD LAMPS OVERRIDING  
STOP LAMPS

**57. IGNITION KEY**

If the vehicle is specified to have an ignition key it will be attached to steering column or dash with vinyl covered steel cable.

**58. ATO/ATC TYPE FUSE BLOCKS**

Two (2) Blue Sea, 6 circuit ATO/ATC fuse blocks c/w cover and negative bus, shall be provided and installed in the centre console. Operating amperage per block shall be 100 amps.

One block to be switched power, the other to be battery direct

**59. KUSSMAUL 20 AMP INLET**

A Kussmaul 20 amp electrical receptacle with a gray weatherproof cover and box.

This shorepower inlet is to be located in the driver's step area.

**60. BATTERY CONDITIONER 1200 KUSSMAUL**

A Kussmaul 1200 battery conditioner shall be supplied.

The battery conditioner shall be mounted in the cab behind the driver's seat.

The remote charge indicator display will be viewable near the shore power inlet or Surrey approved location

**61. BATTERY JUMPER STUDS**

Battery jumper studs shall be provided to allow the vehicle to be jump-started or due to battery failure.

**62. LED GROUND LIGHTING BELOW EACH DOOR**

There shall be two (2) OnScene 9" Night Axe LED lights installed below bumper capable of providing illumination at a minimum level of 2 fc (20 lx) on ground areas within 30 in. (800 mm) of the edge of the vehicle in areas designed for personnel to climb onto or descend from the vehicle to the ground level.

Lighting shall be switchable but activated automatically when the vehicle park brake is set.

**63. MAP LIGHT**

Havis Shield C-MAP-TL 18" Top-Mounted map light

**64. HAND HELD SPOTLIGHT**

A Collins CD-CL-HID-1 hand-held spotlight c/w mounting bracket shall be sent loose.

**65. EXTERIOR CAB ASSIST HANDLES**

Two (2) anti-slip one-piece exterior assist handles shall be installed, one (1) behind each cab door. The assist handle must enable easy grabbing with the gloved hand.

**66. TWO TONE CAB PAINT**

The cab shall be painted two tone with a finished break line below the cab side windows. Exact layout for paint break to be decided at pre-construction meeting

All cab painting must be completed prior to the installation of glass accessories or any other cab trim to assure complete paint coverage and maximum corrosion protection.

A .5" (1/2") gold reflective tape with black borders shall be applied on the break line between the two different colored surfaces.

Preferred brand of paint, upper color and lower color:  
PPG FBCH System  
Upper: 2185 WHITE  
Lower: 75390 ALT RED

**67. TOUCH UP PAINT**

One (1) container of touch-up paint will be supplied for each colour.

**68. OPERATORS MANUAL AND PARTS LIST**

A chassis operator's manual and parts list with wiring and air plumbing diagrams shall be provided. The wiring and plumbing diagrams shall be of the chassis model.

**69. ENGINE AND TRANSMISSION OPERATION MANUAL**

One (1) engine operation and maintenance manual and one (1) transmission operation manual shall be included in the Spartan operator's manual.

**70. AS BUILT DIAGRAMS**

"As built" wiring diagrams shall be supplied for the chassis model provided.

**71. BODY DESIGN**

The importance of public safety associated with emergency vehicles requires that the construction of this vehicle meet the following specifications. These specifications are written to establish the minimum level of quality and design. All Bidders shall be required to meet these minimum requirements.

It is the intent of these specifications to fully describe the requirements for a custom built emergency type vehicle. In order to extend the expected service life of this vehicle, the body module shall be removable from the chassis frame and be capable of being installed on a new chassis.

The sheet metal material requirements, including alloy and material thickness, throughout the specifications are considered to be a minimum. Since such materials are available to all Manufacturers, the material specifications shall be strictly adhered to. NO EXCEPTIONS

The fabrication of the body shall be formed sheet metal. Formed components shall allow the Surrey Fire Department to have the body repaired locally in the case where any object has struck the body and caused damage. The use of proprietary extrusions will prevent the Surrey Fire Department from such repair and shall NOT be used. NO EXCEPTIONS

Following construction of the subframe, which supports the apparatus body, the sheet metal portion of the body shall be built directly on the subframe. The joining of the subframe and body shall be of a welded integral construction. NO EXCEPTIONS

The sheet metal fabrication of the body shall be performed using inert gas continuous feed welders only. The entire body shall be welded construction. The use of pop rivets in any portion of structural construction may allow premature failure of the body structure. Therefore, pop rivets

shall NOT be used in the construction of the structural portions of the body. This includes side body sheets, inner panels of compartment doors, and any other structural portions of the body. NO EXCEPTIONS

**72. EXTERIOR ALUMINUM BODY**

The fabrication of the body shall be constructed from aluminum 3003H-14 alloy smooth plate. This shall include compartment front panel, vertical side sheets, side upper rollover panels, rear panels and compartment door frames.

The body compartment floors and exterior panels shall be constructed with not less than 3/16" (.187) aluminum 3003H-14 smooth plate. Interior compartment dividing walls shall be constructed with not less than 1/8" (.125) aluminum 3003H-14 smooth plate. Lighter gauge sheet metal will not be acceptable in these areas, No Exceptions.

The front and rear corners of body shall be formed as part of the front or rear body panels. This provides a stronger body corner and finished appearance. The use of extruded corners, or caps will not be acceptable, No Exceptions.

The door side frame openings shall be formed "C" channel design. An electrical wiring conduit raceway running the full length of exterior compartments shall be provided. This raceway shall contain all 12 volt wiring running to the rear of the apparatus, permitting easy accessibility to wiring.

Individual compartment modules, with dead air space voids between compartments, will not be an acceptable method of compartment construction.

The compartments shall be an integral part of the body construction. Compartment floors from front of body to ahead of rear axle, also from rear axle to rear of body shall be single one-piece sections. Compartment floors shall be preformed, then positioned in body and welded into final position.

Compartment floors shall have a "sweep-out" design with door opening threshold positioned lower than compartment floor, permitting easy cleaning of compartments. Angles, lips, or door moldings are not acceptable in the base of compartment door opening. One-way rubber drain valves shall be provided in compartment floors so that a water hose may be used to flush-out compartment area.

All exterior seams in sheet metal below frame, and around the rear wheel well area shall be welded and caulked to prevent moisture from entering the compartments. All other interior seams and corners shall be sealed with silicone based caulk prior to painting.

Only stainless steel bolts, nuts, and sheet metal screws shall be used in mounting exterior trim, hardware and equipment.

Exterior compartments shall have louvers in lower back wall of compartment for ventilation.

**73. DRIP RAILS**

The body shall have drip rails over the side full height compartments. The drip rails shall be formed into the upper body panels providing a ridged lower panel and a flat upper body panel surface. The use of mechanically fastened, taped or glued on drip rails will not be acceptable, No Exceptions.

**74. ROOF CONSTRUCTION**

The roof shall be integral with the body and shall be all welded construction. The roof of the body shall not be less than 3/16" aluminum 3003H-14 alloy tread plate, fully and continuously welded. The roof shall be reinforced with 2" x 2" x 1/4" aluminum tubing running the full width of the body.

All seams in the roof area shall be welded to the radius and supports prior to paint to prevent entry of moisture. All roof seams shall be continuously welded.

A 2" formed radius shall be provided along the body sides. The use of extruded radius will not be acceptable, No Exceptions.

**75. BODY SUBFRAME**

The chassis frame rails shall be fitted with 1/4" custom extruded UHMW polyethylene rail cap to isolate the body frame members from direct contact with chassis frame rails.

The body subframe shall be constructed from 6061T6 aluminum alloy tubing. Subframe shall consist of two (2) 2" x 6" x 1/4" aluminum tubes, the same width as the chassis frame rails, NO EXCEPTION. Welded to this tubing shall be cross members of 2" x 6" x 1/4" aluminum. These cross members shall extend the full width of the body to support the compartments. Cross members shall be located at front and rear of the body, below compartment divider walls, and in front and rear of wheel well opening. Additional aluminum cross members shall be located on 16" centers, or as necessary to support walkway or heavy equipment.

To form the frame, the tubing shall be beveled and welded at each joint using 5356 aluminum alloy welding wire.

**76. BODY MOUNTING**

The body subframe shall be fastened to the chassis frame with a minimum of six (6) spring loaded body mounts. Each mount shall be configured using a two-piece encapsulated slide bracket. The two (2) brackets shall be fabricated of heavy duty 1/4" thick steel and shall have a powder coat finish to prevent any corrosion. Each mounting assembly shall utilize two (2) 3/4" diameter x 6" long grade 8 bolts and two (2) heavy duty springs. The assembly design shall allow the body and subframe to act as one (1) component, separate from the chassis. As the chassis frame twists under driving conditions, the spring mounting system shall eliminate any stress from being transferred into the body. The spring loaded body mounts shall also prevent frame side rail or body damage caused by unevenly distributed stress and strains due to load and chassis movement.

Body mountings that do not allow relief from chassis movement will not be acceptable.

**77. EXTERIOR COMPARTMENT DOORS**

**78. ROLL-UP DOOR CONSTRUCTION - ROBINSON (ROM)**

The apparatus shall be equipped with Robinson ROM Series III roll-up exterior compartment doors. Robinson roll-up doors shall be complete with the following features;

- Doors shall be front roll with drum positioned at upper front portion of compartment to afford maximum clearances and head room for mounting equipment to ceiling of compartment
- There shall be a non-abrasive side brush seals
- Every slat must have interlocking end shoes to prevent slat from moving side-to-side and binding the door
- Between each slat must be a co-extruded PVC inner seal to prevent metal-to-metal contact and to repel moisture. This inner seal is not visible to detract from appearance of door

- Slats are to have interlocking joints with a folding locking flange to provide security and prevent penetration by sharp objects
- Slats to be double-wall extrusion 1.366" high by .315" thick. Exterior surface to be flat and interior surface to be concave to prevent loose equipment from interfering with door operation
- Latch system to be a full width one piece lift bar operable by one (1) hand
- A 2" wide finger pull integrated into the bottom rail extrusion for easy one (1) hand opening and closing
- Clip system that connects the curtain slats to the operator drum which allows for easy tension adjustment without tools
- Each roll-up door shall have a 4" diameter counterbalance operator drum to assist in lifting the door.
- Track shall be one-piece aluminum that has an attaching flange and finishing flange incorporated into its design
- Drip rail will have specially designed seal that prevents the seal from scratching the door
- Bottom rail extrusion must have smooth back to prevent loose equipment from jamming the door
- Bottom rail to have "V" shaped double seal to prevent water and debris from entering the compartment
- Standard replacement parts to be shipped from the United States and available in as little as 48 hours
- Will be free from manufacturing defects for a period of up to 7 years from date of purchase provided that the Product is used under conditions of normal use, that regular periodic maintenance and service is performed and that the product was installed in accordance with R•O•M's instructions.

Each shutter door shall decrease the compartment door frame opening approximately 2.00" in width and approximately 4.50" in height for the bottom section of door assembly.

The specified retroreflective stripe material shall be applied on the roll-up compartment doors. The stripe shall be precision machine cut for each door slat of the roll-up doors. Under no circumstance will the stripe material be cut on roll-up door surface. NO EXCEPTIONS

## **79. HINGED DOOR CONSTRUCTION**

The exterior compartment doors shall be custom manufactured and built for each compartment. The compartment doors must be able to withstand years of rugged service and wear. For this reason, the compartment door design, metal thickness, and attachments must be strictly adhered to.

The compartment doors shall be all aluminum 3003H-14 alloy construction. The exterior panel shall be of 1/8" thickness smooth plate aluminum and the interior panel shall be of 1/8" thickness smooth plate aluminum. Lighter gauge material will NOT BE ACCEPTABLE in these areas. The double panel doors shall be 1-3/4" thick to completely enclose the door latching assembly. Doors shall have drain hole openings for drainage and ventilation.

The doors shall be flush mounted so that the outer surface is in line with the side body surface. Lap or bevel type constructed doors, doors framed with extrusions, or doors requiring rubber bumpers to prevent unnecessary contact are NOT ACCEPTABLE.

Compartment door openings shall be sealed with closed cell automotive type rubber molding to provide a weather resistant seal around door. In addition, rubber molding shall be provided along hinge to prevent moisture entry. Open cell foam type rubber moldings are NOT ACCEPTABLE.

Hinged compartment doors shall have 14 gauge stainless steel hinge, with 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws. A

polyester barrier film gasket shall be placed between stainless steel hinge and any dissimilar metals as necessary.

Drip rails shall be installed above all compartment door openings. Drip rails shall be completely removable for easy replacement if necessary.

Each door shall be capable of being opened or closed without unlatching. Door checks shall be bolted to the upper compartment door header and the box pan of the door. Door checks that require unlatching by hand will NOT BE ACCEPTABLE.

The door handle type and door check type of hinged compartment doors shall be as specified with each door.

**80. BODY HEIGHT MEASUREMENTS**

The vertical body dimensions shall be as follows:

**AHEAD OF REAR AXLE**

<u>Description</u>	<u>Dimension</u>
Bottom of Subframe to Top of Body	88.7"
Bottom of Subframe to Bottom of Body	22.5"
Total Body Height	111.2"
Compartment Height Above Frame	48.0"
Compartment Height Below Frame	25.0"
Vertical Door Opening - (Full Height Compartment): -with roll-up door	65.0"
Vertical Door Opening (Below Frame Compartment): -with hinged door	19.0"

**ABOVE REAR AXLE**

<u>Description</u>	<u>Dimension</u>
Vertical Door Opening - Above Rear Wheel -with roll-up door	34.0"

**BEHIND REAR AXLE**

<u>Description</u>	<u>Dimension</u>
Bottom of Subframe to Bottom of Body	20.0"
Compartment Height Above Frame	48.0"
Compartment Height Below Frame	22.5"
Vertical Door Opening - (Full Height Compartment): -with roll-up door	62.0"
Vertical Door Opening - (Below Frame Compartment): -with hinged door	16.5"

**GENERAL**

<u>Description</u>	<u>Dimension</u>
Bottom of Drip Rail to Top of Body	38.5"
Walk-in Interior Height	78.0" (min.)

**81. BODY WIDTH DIMENSIONS**

The body shall be 100.0" wide, not including drip rail or non-permanent fixtures. Interior compartment depth dimensions shall be approximately:

<u>Area Description</u>	<u>Dimension</u>
Transverse Area above Subframe	95.0"

Compartment Depth below Subframe 24.5"

**82. LEFT SIDE COMPARTMENTS**

**83. COMPARTMENT L1**

The interior useable compartment width shall be approximately 49.0" wide.

The compartment door opening shall be approximately 42.0" wide.

- This compartment shall have a horizontally hinged, flip-up style box pan door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- The hinged door(s) shall have a stainless steel 6" offset bent D-ring non-locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.
- The hinged door(s) shall have a pneumatic cylinder to hold door in the open and closed positions. Each door shall be capable of being closed without unlatching. Door checks shall be bolted to the compartment door header and the box pan of the door.

**COMPARTMENT LAYOUT**

- One (1) OnScene 36" Night Axe LED compartment light, horizontally mounted at the top of the compartment toward the door opening.
- The 12 volt electrical distribution panel shall be located in the front lower compartment.

**84. COMPARTMENT L2**

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

- This compartment shall have a horizontally hinged, flip-up style box pan door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- The hinged door(s) shall have a stainless steel 6" offset bent D-ring non-locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.
- The hinged door(s) shall have a pneumatic cylinder to hold door in the open and closed positions. Each door shall be capable of being closed without unlatching. Door checks shall be bolted to the compartment door header and the box pan of the door.

**COMPARTMENT LAYOUT**

- There shall be one (1) 400 lbs. slide-out tray(s) approximately 24" deep and as wide as the compartment layout or door opening permits. The tray top shall be fabricated from 3/16" 3003



aluminum sheet with a 3" vertical lip and welded corners to form a box type tray surface. The sliding tracks shall extend 100% of the slide length. The tray assembly shall utilize a pneumatic cylinder mounted on underside to hold the tray in both the extended and closed positions.

- One (1) OnScene 36" Night Axe LED compartment light, horizontally mounted at the top of the compartment toward the door opening.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

**85. COMPARTMENT L3**

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

**COMPARTMENT LAYOUT**

- Two (2) OnScene 36" Night Axe LED compartment lights, vertically mounted.
- A Bauer model K-22.42-30-E3 air compressor with a recharging rate of 35.9 SCFM @ 6,000 PSI shall be provided, NO EXCEPTIONS. Compressor skid shall include 30 HP, 3-phase soft start electric motor, P10 Securus purification system, electronic CO monitor and calibration kit, and fill station inter-connecting harness.
- A boost system shall be provided and controlled from fill station compressor electronic control panel. Boost system components shall be located on air compressor skid.
- An Appleton inlet and base for providing shore power shall be provided for operating compressor system from in-house electrical building system. The matching Appleton plug shall be provided loose with delivered unit. Any building wiring shall be responsibility of Surrey Fire Department.
- Air storage system consisting of six (6) 491 SCF @ 6,000 PSI, ASME cylinders with gauges and valves shall be provided.



- There will be a welded reinforcement above the body frame to carry specified DOT or ASME cylinders. The mounting of the cylinders will be with adjustable track and powder coated steel band straps to securely hold all cylinders in place.
- The Bauer compressor shall be free from defects in material and workmanship for a period of two (2) years. The foregoing warranty period shall be extended to five (5) years from the date of shipment from Bauer for Customers that are Municipal Fire Departments with respect to the compressor block (breathing air application), provided that such extended warranty period shall only apply to product parts with proof of proper maintenance being completed in accordance with published Bauer factory recommendations. To be eligible for this limited warranty to cover Customer's product, Customer must return a properly completed start-up/warranty registration form to Bauer within ninety (90) days from the date of start-up.
- Training and instruction shall be provided by compressor manufacturer at Surrey Fire Department location on proper use of complete air compressor system.
- The NFPA required air quality test shall be completed by manufacturer prior to delivery. Complete results of test shall be provided to Surrey Fire Department upon delivery.

**86. STREETSIDE COMPARTMENT - REAR (S4)**

The interior useable compartment width shall be approximately 56.0" wide.

The compartment door opening shall be approximately 49.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

**COMPARTMENT LAYOUT**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be two (2) adjustable shelf/shelves approximately 24" deep located on right side of vertical partition. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edge.

- There shall be one (1) 400 lbs. slide-out tray(s) approximately 24" deep located on floor on right side of vertical partition. The tray top shall be fabricated from 3/16" 3003 aluminum sheet with a 3" vertical lip and welded corners to form a box type tray surface. The sliding tracks shall extend 100% of the slide length. The tray assembly shall utilize a pneumatic cylinder mounted on underside to hold the tray in both the extended and closed positions.
- There shall be one (1) slide-out smooth aluminum vertical tool board(s) approximately 24" deep located on left side of vertical partition. Each tool board(s) vertical exterior edge shall have a double 90 degree formed edge to provide an easy grip handle. The top and bottom of tool board(s) shall be provided with Accuride 9300 series slide tracks. Each board shall be rated for a maximum 200 lbs. evenly distributed load. Each tool board shall utilize a pneumatic cylinder to hold the tool board in both the opened and closed positions.
- The vertical tool board material shall be 3/16" (.188) 3003H-14 aluminum alloy sheet.
- Each tool board will be bolted to compartment floor.
- There shall be one (1) bolt-in vertical compartment partition(s) dividing the compartment into left and right sides.
- There shall be six (6) Zico 1000 series KD-UH walkaway type SCBA air pack bracket(s) with high cycle coated spring clips and angled foot plate (no CRS strap inc.) mounted on specified tool board.
- The floor of the compartment above the frame rails shall cover the area directly above the frame rails ONLY (non-extended floor).
- One (1) Hannay ECR1618-17-18 electric cable reel(s) capable of storing 200' of 10/3 electric cable. Reel(s) shall be designed to hold 110% of the capacity of cord length, with fully enclosed 45 amp, three (3) conductor collector rings. Reel(s) shall be mounted to channel structure that allows for side-to-side adjustment of reel position.
- Power rewind control(s) shall be in a position where the operator can observe the rewinding operation and not be more than 72 in. (1830 mm) above the operator's standing position, and shall be marked with a label indicating its function.
- A label shall be provided in a visible location adjacent to reel with following information: Current rating, Current type, Phase, Voltage, and Total cord length.
- The cable reel shall equipped with 200' of 10/3 SEOW yellow cable, a molded plastic ball clamp, and a single heavy duty L5-30 twist-lock female plug at the end.
- One (1) Akron model EJB series, cast aluminum electrical power distribution box with yellow powder coat painted finish shall be provided. The power distribution box shall meet all requirements described in NFPA 1901. The power distribution box shall include the following outlets mounted on a backlit face plate;
  - The electric junction box shall be direct wired to cable on the cord reel. The outlet configuration shall include:
    - One (1) L5-15 dual twist lock receptacles
    - One (1) L5-15 dual twist lock receptacles

- One (1) L5-15 dual twist lock receptacles
- One (1) 5-20 GFCI duplex straight-blade receptacle wired to protect all outlets in box
- One (1) Akron formed aluminum treadplate vertical mounting bracket shall be provided for specified power distribution box.
- The fairlead rollers shall be an OnScene Solutions extendable type to allow hoses or cords to be extended away from compartment door edges, slide trays, or shelving that may result in wear damage.
- Two (2) OnScene 63" Night Axe LED compartment lights, vertically mounted.
- One (1) OnScene 9" Night Axe LED ground light shall be provided below the body.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

**87. RIGHT SIDE COMPARTMENTS**

**88. COMPARTMENT R1**

The interior useable compartment space shall be approximately 70.0" wide.

The compartment door opening shall be approximately 63.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

**COMPARTMENT LAYOUT**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be two (2) 400 lbs. slide-out tray(s) approximately 24" deep and as wide as the compartment layout or door opening permits. The tray top shall be fabricated from 3/16" 3003 aluminum sheet with a 3" vertical lip and welded corners to form a box type

tray surface. The sliding tracks shall extend 100% of the slide length. The tray assembly shall utilize a pneumatic cylinder mounted on underside to hold the tray in both the extended and closed positions.

- There shall be one (1) SCBA cylinder storage module for 8" OD (maximum) SCBA bottles. The maximum length of the SCBA cylinder shall be 24.75". The module shall have an exterior shell fabricated from 1/8" (.125) 3003H-14 aluminum alloy sheet. The module shall have a shall be level front to back to allow pass-thru storage from either interior or exterior. The SCBA cylinder storage tubing shall be fabricated from PVC pipe to prevent damage or abrasion to cylinders. In addition there shall be rubber matting provided in the base of each storage tube for bottle protection and to prevent slipping.
- The SCBA cylinder module shall be capable of storing twenty eight (28) SCBA cylinders up to 7.5" diameter.
- Two (2) OnScene 18" Night Axe LED compartment lights, vertically mounted.
- One (1) OnScene 9" Night Axe LED ground light shall be provided below the body.

**89. COMPARTMENT R2**

**90. SIDE ENTRY DOOR**

Access to the interior body compartment shall be provided through a side entry door. The door opening shall be approximately 29" wide x 94" high.

Construction of the side entry door shall be with 1/8" aluminum exterior smooth plate, the interior door pan being constructed from 1/8" aluminum tread plate.

The door shall be hung on full height 14 gauge stainless steel hinge, with a 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws at offset 5" centers. The hinge shall be slotted horizontally and vertically for ease of adjustment. A polyester barrier film gasket shall be placed between the stainless steel hinge and door.

The latch mechanism shall include a paddle handle on inside and a locking offset bent "D"-ring handle on exterior. A polyester barrier film gasket shall be placed between the stainless steel handles and the aluminum door panels. The door latch shall be a double catch two-point safety slam latch recessed inside the double panel door with strike plate mounted top and bottom of door frame.

- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.
- One (1) OnScene 9" Night Axe LED ground light shall be provided below the body.

**91. ENTRY HANDRAILS**

There shall be two (2) handrails provided at entry door, one (1) 24" vertical on exterior of body on door handle side, and one (1) 48" on inside of door. The interior handrail shall be angled for optimum use when entering or exiting the walk-in portion of the body.

Handrails shall be NFPA compliant 1-1/4" knurled 304 stainless steel with welded end stanchions.

**92. WINDOW(S)**

There shall be one (1) 18" wide x 22" high, double-paned insulated, non-sliding window(s) installed in the entrance door. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

There shall be one (1) 18"wide x 22" high, double-paned insulated, vertical sliding window(s) installed in the entrance door. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

**93. COMPARTMENT R3**

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

**COMPARTMENT LAYOUT**

- Two (2) OnScene 36" Night Axe LED compartment lights, vertically mounted.
- Bauer air compressor with air storage module.

**94. CURBSIDE COMPARTMENT - REAR R4**

The interior useable compartment width shall be approximately 56.0" wide.

The compartment door opening shall be approximately 49.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.

- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

#### **COMPARTMENT LAYOUT**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be three (3) adjustable shelf/shelves approximately 24" deep located on left side of vertical partition. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edge.
- There shall be two (2) 400 lbs. slide-out tray(s) approximately 24" deep located on each side of vertical partition. The tray top shall be fabricated from 3/16" 3003 aluminum sheet with a 3" vertical lip and welded corners to form a box type tray surface. The sliding tracks shall extend 100% of the slide length. The tray assembly shall utilize a pneumatic cylinder mounted on underside to hold the tray in both the extended and closed positions.
- There shall be one (1) bolt-in vertical compartment partition(s) dividing the compartment into left and right sides.
- The floor of the compartment above the frame rails shall cover the area directly above the frame rails ONLY (non-extended floor).
- One (1) Hannay ECR1618-17-18 electric cable reel(s) capable of storing 200' of 10/3 electric cable. Reel(s) shall be designed to hold 110% of the capacity of cord length, with fully enclosed 45 amp, three (3) conductor collector rings. Reel(s) shall be mounted to channel structure that allows for side-to-side adjustment of reel position.
- Power rewind control(s) shall be in a position where the operator can observe the rewinding operation and not be more than 72 in. (1830 mm) above the operator's standing position, and shall be marked with a label indicating its function.
- A label shall be provided in a visible location adjacent to reel with following information: Current rating, Current type, Phase, Voltage, and Total cord length.
- The cable reel shall equipped with 200' of 10/3 SEOW yellow cable, a molded plastic ball clamp, and a single heavy duty L5-30 twist-lock female plug at the end.
- One (1) Akron model EJB series, cast aluminum electrical power distribution box with yellow powder coat painted finish shall be provided. The power distribution box shall meet all requirements described in NFPA 1901. The power distribution box shall include the following outlets mounted on a backlit face plate;
- A 12" pigtail that terminates in an L5-30 configuration to match the cable on the cord reel. The outlet configuration shall include:

- One (1) L5-15 dual twist lock receptacles
- One (1) L5-15 dual twist lock receptacles
- One (1) L5-15 dual twist lock receptacles
- One (1) 5-20 GFCI duplex straight-blade receptacle wired to protect all outlets in box
- One (1) Akron formed aluminum treadplate vertical mounting bracket shall be provided for specified power distribution box.
- The fairlead rollers shall be an OnScene Solutions extendable type to allow hoses or cords to be extended away from compartment door edges, slide trays, or shelving that may result in wear damage.
- One (1) Hannay EFH1516-17-18 high pressure air hose reel(s) shall be provided in this compartment. Reel shall be designed to hold 110% of the capacity needed.
- Power rewind control(s) shall be in a position where the operator can observe the rewinding operation and shall be marked with a label indicating its function and shall be guarded to prevent accidental operation.
- A label shall be provided in a visible location adjacent to reel with following information: (1) Utility air or breathing air, (2) Operating pressure, (3) Total hose length, (4) Hose size (ID).
- The hose reel shall be equipped with 600' of 3/16" Parker 6,000 PSI, high pressure air hose. A molded plastic ball clamp shall be provided on the hose to stop it at the 4-way roller. The hose shall be Gray in color with a red color coded end.
- The fitting on the end of the high pressure air hose reel shall be a CGA-347 high pressure fitting.
- The air supply shall be from the mobile breathing air system. A reel shut-off valve, pressure regulator, and 0-6,000 psi gauge shall be provided at the air control panel.
- The air supply shall be from the mobile breathing air system.
- The fairlead rollers shall be an OnScene Solutions extendable type to allow hoses or cords to be extended away from compartment door edges, slide trays, or shelving that may result in wear damage.
- Two (2) OnScene 63" Night Axe LED compartment lights, vertically mounted.
- One (1) OnScene 9" Night Axe LED ground light shall be provided below the body.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.



**95. REAR COMPARTMENT T1**

The rear center compartment shall be closed to both side rear compartments.

The rear center compartment shall start at the bottom of the body, between the frame rails, and shall be as high as the body permits. The frame shall extend to the back of the body, stopping just inside the door opening.

The interior useable compartment width shall be approximately 49.0" wide.

The compartment door opening shall be approximately 42.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.
- One (1) nylon strap shall be provided to assist in closing the door. The strap shall be fastened to the left side of the lower inside door sill. The strap shall extend from the left side of the lower inside door sill to a footman loop attached to the center of the left side of the door frame.
- One (1) aluminum drip pan/door finish guard shall be provided with the rollup door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

**COMPARTMENT LAYOUT**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be one (1) adjustable shelf/shelves approximately 56" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edges.
- There shall be one (1) 400 lbs. slide-out tray(s) approximately 24" deep and as wide as the compartment layout or door opening permits. The tray top shall be fabricated from 3/16" 3003 aluminum sheet with a 3" vertical lip and welded corners to form a box type tray surface. The sliding tracks shall extend 100% of the slide length. The tray assembly shall utilize a pneumatic cylinder mounted on underside to hold the tray in both the extended and closed positions.
- There shall be one (1) OnScene Solutions 81 series aluminum tray base with 100% extension, and rating of 1,000 lbs. Slide-out tray(s) base shall be approximately 56" deep and as wide as the compartment layout or door opening permits located above the level of the chassis frame rails. Each slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and red pull handle (Pull to Release) which will lock the tray in the closed and full extension positions. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and shall have welded corners to form a box type tray surface with an internal depth of approximately 3 1/2".



- There shall be one (1) OnScene Solutions 84 series aluminum tray base with 90% extension, and rating of 250 lbs. Slide-out tray(s) base shall be approximately 46" deep and as wide as the compartment layout or door opening permits. It shall be located above the level of the chassis frame rails and shall be vertically adjustable in height. Each slide shall have a cable operated, spring loaded latch complimented by a large hand opening and red pull handle (Pull to Release) which will hold the tray in the closed position. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and have welded corners to form a box type tray surface with an internal depth of approximately 3 ½".
- Two (2) OnScene 63" Night Axe LED compartment lights, vertically mounted.

**96. COMPARTMENT INTERIOR FINISH**

The compartment interiors shall be treated with phosphoric acid and then sprayed with an epoxy primer applied 1.0 mil thick. All body seams will be caulked with urethane seam sealer and painted with two (2) coats of Multicolor Specialties Inc. polyurethane waterborne multicolor finish. The Multicolor paint shall be solvent and oil resistant, impact and abrasion resistant, stain and household chemical resistant, as well as mildew and fungus resistant. Paint color shall be silver gray.

**97. SWEEP-OUT CONSTRUCTION**

Compartment floors will have a "sweep-out" design with door opening threshold positioned lower than compartment floor, permitting easy cleaning of compartments.

**98. PLASTIC FLOOR AND SHELF TILE**

All compartment floors, shelves, and trays shall be covered with Dri-Dek plastic interlocking grating.

- The plastic floor tile shall be red.
- The plastic edge trim shall be black.

**99. 10" REAR STEP BUMPER**

The full width rear bumper shall be constructed from 2" x 2" x 1/4" aluminum tubing frame and covered with 3/16" NFPA compliant aluminum tread plate. The bumper shall extend from the rear vertical body panel 10" and provide a rear step with a minimum of 1/2" space at body for water drainage.

**100. FASTENERS**

Prior to the assembly and reinstallation of exterior components; i.e. warning and DOT lights, handrails, steps, door hardware, and miscellaneous items, an isolation tape, or gasket shall be used to prevent damage to the finish painted surfaces. These components shall be fastened to body using either a plastic insert into body metal with stainless steel screws or zinc coated nutserts into body surface using stainless steel bolts to prevent corrosion from dissimilar metals.

**101. WHEEL WELL LINERS**

The wheel wells shall be provided with an easily removable polymer, circular inner fender liner. The inner liner shall be bolted to the wheel well with stainless steel bolts and spaced away from the wheel well so the liner will not accumulate dirt or water.

**102. STAINLESS STEEL BODY FENDERS**

The body wheel well openings shall be provided with round radius, polished stainless steel fenderettes. The fenderettes shall be bolted and easily replaceable if damaged. The fenderettes shall be installed using a rubber gasket to reduce buildup of moisture and/or debris.

**103. BODY RUB RAILS**

Rub rails shall be provided below the compartment door openings on both the streetside and curbside.

The rub rail shall be fabricated from 6063 extruded aluminum, measuring approximately 2-3/4" high x 1-3/8" thick with tapered aluminum end caps. The rub rail shall be bolted to the body using stainless steel bolts and 1-1/2" diameter x 5/8" thick rubber mount isolators to prevent damage to the body.

The rails shall incorporate LED clearance marker lighting recessed into the rail fascia to avoid damage to the light in case of impact. The rub rail shall have an accessory mounting track integrated into the backside of the rail to allow mounting of accessories such as ground lighting.

3M™ Diamond Grade™ Conspicuity striping shall be provided in the rub rail. The striping shall be red/white in color.

**104. FRONT GRAVEL GUARDS**

Gravel guards shall be provided on front lower body corners. Guards shall be 12" high, extend from behind cab or step and wrap around to the front compartment door opening fabricated from 20 gauge brushed stainless steel.

**105. REAR BODY HANDRAILS**

There shall be two (2) 24" vertical handrails on the rear of the body. Handrails shall be NFPA compliant 1-1/4" knurled 304 stainless steel with welded end stanchions.

**106. REAR TOW EYES**

There shall be two (2) heavy duty rear mounted tow eyes securely attached to the body subframe, below the apparatus body. The tow eyes shall be fabricated from 3/4" thick steel plate and shall have a black powder coat finish.

**107. ELECTRIC STEP**

There shall be one (1) Kwikkee 39 Series 12 volt, electric folding step(s) furnished and installed on completed vehicle under entry doors. Each step shall be 24" wide and shall fold up under the body to improve ground clearance during travel. Upon activation, the step shall drop out and down using electric actuators. The distance from the ground to the first step shall be no more than 24" per in accordance with NFPA 1901 guideline. The top surface of each step shall be covered with an NFPA 1901 nonskid compliant aluminum tread plate.

**108. ROLL-OUT AWNING CURBSIDE**

A Carefree Mirage, 110 Volt AC powered, Lateral Arm Acrylic Patio Awning with Direct Response Electronics shall be installed on the apparatus body. The Direct Response Electronics includes easy-to-use controls and a Motion Detection System. The awning shall have a system to detect canopy motion, the most important element to prevent wind/weather damage. The awning shall automatically retract when the canopy reaches a certain level of movement - you determine the movement level on the control panel.

The awning shall activate the door ajar warning system in the cab when not in the stowed position.

The 110V motor shall be completely sealed and UL approved. The awning pitch shall be adjusted to up to 30"

The awning shall be 19' wide with a 10' projection. (Size refers to box length; actual fabric length will be 8" shorter.)

The Mirage shall be covered by a "Two and Four" Limited Warranty - Two years 100% parts, labor, & freight on canopy, four years 100% parts, labor, and freight on motor, electronics, roller & hardware. Warranty covers manufacturer's defects only. Wind and rain damage are not covered.

- The awning fabric color shall be ivory.

The specified awning above shall be surface mounted to upper body side. The awning shall add approximately 5.75" to body width.

**109. AWNING HOUSING COLOR**

The awnings standard Polar White vinyl housing color shall be re-painted to match upper body color.

**110. ROOF ACCESS HATCH COVER**

One (1) roof access hatch cover(s) shall be provided in the roof structure to allow for installation or removal of large equipment into the compartment area. The roof around the hatch opening shall be reinforced as necessary to prevent deflection in the roof area. The hatch cover shall overlap a 2" vertical lip on the body roof to prevent entry of moisture. It shall be sealed with automotive type rubber molding to provide a weather resistant seal.

The hatch cover shall have a lift-up type door hinged on the front side. The door shall be fabricated from 3/16" aluminum treadplate with a pair of pneumatic type cylinders mounted to hold the door in the open position. The door shall be mounted using a full length 14 gauge stainless steel hinge, with 1/4" stainless steel pin. A polyester barrier film gasket shall be placed between the stainless steel hinge and any dissimilar metals as necessary to prevent corrosion.

**111. WALK-IN INTERIOR FINISH DETAILS**

**112. DESK, CABINET, CONSOLE FINISH**

All specified interior desks, cabinets, overhead cabinets, or consoles shall be fabricated from formed 1/8" 3003 H14 alloy smooth aluminum. After fabrication is completed they shall be painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray.

The use of wood materials or laminated surfaces in the construction of desks, cabinets, overhead cabinets, or consoles will not be allowed. There will be **No Exceptions** allowed on specified ruggedized finish.

**113. CAB TO BODY TALK THROUGH**

The rescue body and cab shall be interconnected through a flexible weatherproof pass through opening at the front center of the body.

Opening shall be as large as possible and match the cab rear window so that minimum amount of rework is performed on cab.

The connection shall be completely watertight and weatherproof, yet providing a flexible connection between the two units. The flexible collar shall be a rubber liner, mounted to metal angle and tubing framework the body and cab. The edges of the opening shall be protected with aluminum angle moldings with stainless sheet metal screws. The collar and rubber liner shall be easily replaceable in future years if necessary.

**114. INTERIOR SPECIFICATIONS**

**115. INTERIOR INSULATION**

Following the sheet metal fabrication the roof area, upper exterior walls and the entry door of the apparatus body shall be insulated with Dow Thermax, or equal 1-1/2" glass-fiber reinforced polyisocyanurate foam core laminated between 1.0 mil smooth, reflective aluminum foil facers on

both sides, with an R9.8 value. The reinforcement, along with chemical modifications, contributes to fire resistance and dimensional stability. This insulation shall be the type that will not absorb moisture, move once in place or deteriorate. Mat type fiberglass or spray in foam insulation is not acceptable.

**116. INTERIOR FINISH**

The interior of the apparatus body shall have a fully maintenance free and durable finish. The interior finish shall be installed on the ceiling, front wall, and interior side walls from top of exterior compartments to ceiling height.

The interior panels shall be installed with sheet metal screws with gray plastic plugs covering the screws. The seams between FRP panels, interior corners, and exterior corners shall be trimmed with gray plastic molding.

The interior finish shall be pearl gray pebble grain FRP.

**117. INTERIOR WALKWAY FLOOR**

There shall be Lonseal, Loncoin-II Flecks installed on the floor substrate. Loncoin II Flecks is a heterogeneous resilient sheet vinyl with a decorative raised coin texture, breathtaking color, and intriguing style. The fleck coloration provides camouflage for simpler maintenance while the raised coin embossing provides enhanced traction. Excellent for interior, retail, commercial, or institutional use where design parameters call for a high performance, sophisticated flooring solution.

The material shall be black in color (Loncoin-II Flecks - Onyx).

**118. INTERIOR SUB-FLOOR**

Above the body subframe shall be an isolation sheet that shall prevent outside elements from permeating the full length sound and thermal barrier of 3/4" thick grade plywood. The sheet shall be fabricated from the same type of material as is used in the subframe. The isolation sheet shall be flanged on both sides with a 1" high vertical break.

**119. HEATER**

The apparatus shall be provided with one (1) 35,000 BTU hot water type heater(s). The heater(s) shall be connected to the chassis engine cooling system and have three-speed, 12 volt blower. The cooling system lines shall be insulated and be provided with shut-off valves to isolate system, if required.

**120. AIR CONDITIONER - HEATER**

One (1) Dometic Penguin, model 641835 low profile, 120 VAC, 60 cycle, single phase air conditioner(s) shall be provided and installed on the body roof. The unit shall be a roof top contemporary contoured integral evaporator/condenser type with built-in heating elements.

Each unit shall be rated at minimum of 13,500 BTU cooling capacity with a heating element rated at 5,600 BTU.

A three-speed fan shall supply a maximum/minimum of 335/250 cfm air flow capacity.

The roof mounted air conditioner shall be approximately 9.5" high x 29" wide x 40" long and weigh approximately 96 pounds.

**121. STREETSIDE INTERIOR AREA (IS1)**

- One (1) Bauer model CFSII-3S (Containment Type), three (3) position filling station with compressor controls shall be provided with proper reinforcement for weight of fill station.

- Filling operation shall be controlled with panel mounted on front of fill station. Electronic auto cascade manifold shall be located on air compressor skid.
- An air storage refill port shall be provided on the fill station.
- One (1) high pressure air hose reel gauge(s), adjustable regulator(s), and fill control(s) shall be provided on front panel with outlet port located on the rear of the fill station.
- The fill station fill whip(s) shall terminate in a high pressure 4,500 PSI, CGA-347 threaded SCBA connectors.

**122. STREETSIDE INTERIOR AREA (IS2)**

- There shall be one (1) 36" wide x 22" high, double-paned insulated, horizontal sliding window(s) installed. The window shall slide open towards the front of the vehicle such that wind pressure would tend to shut the window. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish. Sliding style windows shall be complete with a sliding screen.
- There shall be two (2) interior counter height cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. Each cabinet shall be approximately 30" W x 42" H x 18" D.
- The above cabinet(s) shall have a 4" x 4" toe kick area at the base to allow for the top surface to be used as a working surface.
- The above cabinet(s) shall have double vertically hinged aluminum door(s) and painted with a hammer tone powder coat paint finish to match cabinet color choice.
- There shall be one (1) vertically adjustable shelf in each of the above cabinets. It shall have a 1.25" lip to contain items while minimizing space used.
- There shall be a work surface installed above the specified cabinet(s). The work surface shall be fabricated with 1/8" thick smooth aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray.

**123. CURBSIDE INTERIOR AREA (IC1)**

- The interior deck area over the top of the exterior side compartments shall be powder coat painted smooth aluminum.

**124. CURBSIDE INTERIOR AREA (IC2)**

- There shall be a side entry door located in this area.

**125. REAR INTERIOR AREA (IR1)**

**126. FLIP-UP SEAT**

There shall be a flip-up seat sized for two (2) person/people. The seat bottom cushion shall be mounted to a spring loaded bracket system which shall return the cushion to vertical when not in use. The cushion shall be approximately 3" thick with a wood platform for stability. The cushion shall be covered with Duraware heavy duty fabric material.

There shall be a lap-belt style seat belt for each position. The seatbelt(s) shall be red in color and comply with NFPA 1901 requirements. Seat(s) shall be connected into seat belt Occupant Restraint Indicator (ORI) and Vehicle Data Recorder (VDR).

## 127. LOW VOLTAGE ELECTRICAL SYSTEM- 12 VDC

### General

Any low voltage electrical systems or warning devices installed on the fire apparatus shall be appropriate for the mounting location and intended electrical load.

Where wire passes through sheet metal, grommets shall be used to protect wire and wire looms. Electrical connections shall be with double crimp water-tight heat shrink connectors.

All 12 VDC wiring running from front to back of vehicle body shall be run in full length electrical wiring raceway down each side of body.

### Wiring

All electrical circuit feeder wiring supplied and installed by the fire apparatus manufacturer shall meet the requirements of NFPA Chapter 13.

The circuit feeder wire shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 % of the maximum current for which the circuit is protected. Voltage drops in all wiring from the power source to the using device shall not exceed 10 %. The use of star washers for circuit ground connections shall not be permitted.

All circuits shall otherwise be wired in conformance with SAE J1292, *Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring*.

### Wiring and Wire Harness Construction

All insulated wire and cable shall conform to SAE J1127, *Low Voltage Battery Cable*, or SAE J1128, *Low Voltage Primary Cable*, type SXL, GXL, or TXL.

All conductors shall be constructed in accordance with SAE J1127 or SAE J1128, except where good engineering practice dictates special strand construction. Conductor materials and stranding, other than copper, shall be permitted if all applicable requirements for physical, electrical, and environmental conditions are met as dictated by the end application. Physical and dimensional values of conductor insulation shall be in conformance with the requirements of SAE J1127 or SAE J1128, except where good engineering practice dictates special conductor insulation. The overall covering of conductors shall be moisture-resistant loom or braid that has a minimum continuous rating of 194°F (90°C) except where good engineering practice dictates special consideration for loom installations exposed to higher temperatures. The overall covering of jacketed cables shall be moisture resistant and have a minimum continuous temperature rating of 194°F (90°C), except where good engineering practice dictates special consideration for cable installations exposed to higher temperatures.

All wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection. The wiring connections and terminations shall be installed in accordance with the device manufacturer's instructions. All ungrounded electrical terminals shall have protective covers or be in enclosures. Wire nut, insulation displacement, and insulation piercing connections shall not be used.

Wiring shall be restrained to prevent damage caused by chafing or ice buildup and protected against heat, liquid contaminants, or other environmental factors.

Wiring shall be uniquely identified at least every 2 ft. (0.6 m) by color coding or permanent marking with a circuit function code. The identification shall reference a wiring diagram.

Circuits shall be provided with properly rated low voltage overcurrent protective devices. Such devices shall be readily accessible and protected against heat in excess of the overcurrent

device's design range, mechanical damage, and water spray. Circuit protection shall be accomplished by utilizing fuses, circuit breakers, fusible links, or solid state equivalent devices.

If a mechanical-type device is used, it shall conform to one of the following SAE standards:

- 1) SAE J156, *Fusible Links*
- 2) SAE J553, *Circuit Breakers*
- 3) SAE J554, *Electric Fuses (Cartridge Type)*
- 4) SAE J1888, *High Current Time Lag Electric Fuses*
- 5) SAE J2077, *Miniature Blade Type Electrical Fuses*

Switches, relays, terminals, and connectors shall have a direct current (dc) rating of 125 % of maximum current for which the circuit is protected.

#### Power Supply

A 12 V or greater electrical alternator shall be provided. The alternator shall have a minimum output at idle to meet the minimum continuous electrical load of the vehicle, at 200°F (93°C) ambient temperature within the engine compartment, and shall be provided with full automatic regulation.

#### Minimum Continuous Electrical Load

The minimum continuous electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode during emergency operations:

- 1) The propulsion engine and transmission
- 2) All legally required clearance and marker lights, headlights, and other electrical devices except windshield wipers and four-way hazard flashers
- 3) The radio(s) at a duty cycle of 10 percent transmit and 90 % receive (for calculation and testing purposes, a default value of 5 A continuous)
- 4) The lighting necessary to produce 2 fc (20 lx) of illumination on all walking surfaces on the apparatus and on the ground at all egress points onto and off the apparatus, 5 fc (50 lx) of illumination on all control and instrument panels, and 50 percent of the total compartment lighting loads
- 5) The minimum optical warning system, where the apparatus is blocking the right-of way
- 6) The continuous electrical current required to simultaneously operate any PTO devices, generators and pumps

The condition of the low voltage electrical system shall be monitored by a warning system that provides both an audible and a visual signal to persons on, in, or near the apparatus of an impending electrical system failure caused by the excessive discharge of the battery set.

The charge status of the battery shall be determined either by direct measurement of the battery charge or indirectly by monitoring the electrical system voltage.

If electrical system voltage is monitored, the alarm shall sound if the system voltage at the battery or at the master load disconnect switch drops below 11.8 V for 12 V nominal systems, 23.6 V for 24 V nominal systems, or 35.4 V for 42 V nominal systems for more than 120 seconds.

A voltmeter shall be mounted on the driver's instrument panel to allow direct observation of the system voltage.

#### Electromagnetic Interference

Electromagnetic interference suppression shall be provided, as required, to satisfy the radiation limits specified in SAE J551/1, *Performance Levels and Methods of Measurement of*



*Electromagnetic Compatibility of Vehicles, Boats (up to 15 m), and Machines (16.6 Hz to 18 GHz).*

#### Wiring Diagram

A complete electrical wiring schematic of actual system shall be provided with finished apparatus. Similar or generic type electrical schematics shall NOT BE ACCEPTABLE.

#### Low Voltage Electrical System Performance Test

A low voltage electrical system test certification shall be provided with delivered apparatus.

### **128. 12 VOLT MULTIPLEX CONTROL CENTER**

The apparatus shall be equipped with a Weldon V-MUX multiplexed 12 volt electrical system that will provide complete diagnostic capability, No Exception. The system shall have the capability of delivering multiple signals via a CAN bus, utilizing specifications set forth by SAE J1939. The system shall be node based to maximize stability so that failure of one node does not affect the operation of the other nodes. The system shall use shielded twisted-pair wire for transmission of system function signals. The shielded wire shall provide protection against EMI and RFI noise interruptions.

The multiplex system shall be responsible for providing power management functions as well as load shedding. The warning light system shall be controlled by the multiplex system. The system shall be capable of displaying text and/or graphic messages on a display module. The system shall be based on solid-state technology and shall include self-contained diagnostic indicators.

#### **Outputs:**

The outputs shall perform all the following items without added modules to perform any of the tasks;

1. Load Shedding: The system shall have the capability to load shed with 8 levels any output. This means you can specify which outputs (barring NFPA restrictions) you would like load shed. Level 1 12.9v, Level 2 12.5V, Level 3 - 12.1V, Level 4 - 11.7V, Level 5 11.3V, Level 6 10.9V, Level 7 10.5, Level 8 10.1. Unlike conventional load shedding devices you can assign a level to any or all outputs.
2. Load Sequencing: The system shall be able to sequence from 0 8 levels any output. With 0 being no delay and 1 being a 1 second delay, 2 being a 2 second delay and so on. Sequencing reduces the amount of voltage spikes and drops on your vehicle, and can help limit damage to your charging system.
3. Output Device: The system shall have solid-state output devices. Each solid-state output shall be a MOS-FET (Metal Oxide Semiconductor - Field Effect Transistors); MOS-FETs are solid-state devices with no moving parts to wear out. A typical relay when loaded to spec has a life of 100,000 cycles. The life of a FET is more than *100 times* that of a relay.
4. Flashing Outputs: The system shall be able to flash any output in either A or B phase, and logic is used to shut down needed outputs in park, or any one of several combined interlocks. The flash rate can be selected at either 80, 160 or 200 FPM. This means any light can be specified with a multiplex truck with no need to add flashers. Flashing outputs can also be used to warn of problems or other unique idea you may come up with.
5. PWM: The modules shall have the ability to PWM at some outputs so that a headlight PWM module is not needed.



6. Diagnostics: An output should be able to detect either a short or open circuit. The system should be able report in "real time" a text based message that points the maintenance person to a specific output.

**Inputs:**

1. The inputs shall have the ability to switch by a ground or vbatt signal.
2. The inputs shall be filtered for noise suppression via hardware and software so that RF or dirty power will not trick an input into changing its status.

**Auto-Throttle:**

The multiplex system shall be able to perform automatic high idle via a network gateway or by using an existing output on a module to provide the proper signals to an OEM Engine ECU. This task should be handled with existing inputs and outputs.

**Displays:**

Displays shall be able to provide real time information regarding load shedding and system status, such as network traffic/errors or shorts and open circuits.

**System Network:**

The multiplex system shall contain a Peer-to-Peer network. A Master Slave Type network is not suitable for this type of unit. A Peer-to-Peer network means that all the modules are equal on the network; a Master is not needed to tell other nodes when to talk, **No Exceptions.**

**System Reliability:**

The multiplex system shall be able to perform in extreme temperature conditions, from 40° to +85° C (-40° to +185° F.) The system shall be sealed against the environment, moisture, humidity, salt or fluids such as diesel fuel, motor oil or brake fluid. The enclosures shall be rugged to withstand being mounted in various locations or compartments around the vehicle. The modules shall be protected from over voltage and reverse polarity.

**129. WELDON CERTIFICATION**

A letter shall be provided with bid submittal that the Contractor has successfully completed the Weldon training requirements for Level 1 of the V-MUX Certified Supplier Program and is authorized to design, build, and service V-MUX electrical systems.

**130. MULTIPLEX SYSTEM VISTA IV V-MUX COLOR DISPLAY**

One (1) Weldon V-MUX Vista IV shall be provided. The Vista IV shall have seven switches with custom legends and a wide temperature operating range. The four wires shall control all lighting and HVAC. The Vista IV shall have color changes for button status. The display shall be pre-programmable (OEM Level) and be colored. The auto climate control shall display temperature set point and outside temperatures. The Vista IV shall be ready for back-up camera, thermal cameras and DVDs. Virtual switches, GPS, on-board diagnostics, 6" and 9" Pana Vise options and large font size shall also be included.

The Vista IV allows for peer to peer networking. The Vista IV shall have the ability to automatically change screens based on a predetermined state or condition for warning message or status.

The V-Mux display shall be located in the cab center console for control of all master and emergency lights.

**131. BATTERY SYSTEM**

The battery connectors shall be heavy duty type with cables terminating in heat shrink loom. Heavy duty battery cables shall provide maximum power to the electrical system. Where required, the cables shall be shielded from exhaust tubing and the muffler. Large rubber grommets shall be provided where cables enter the battery compartment.

Batteries shall be of the high-cycle type. With the engine off, the battery system shall be able to provide the minimum continuous electrical load for 10 minutes without discharging more than 50 percent of the reserve capacity and then to restart the engine. The battery system cold cranking amps (CCA) rating shall meet or exceed the minimum CCA recommendations of the engine manufacturer. The batteries shall be mounted to prevent movement during fire apparatus operation and shall be protected against accumulations of road spray, snow, and road debris. The batteries shall be readily accessible for examination, testing, and maintenance.

A means shall be provided for jump-starting the engine if the batteries are not accessible without lifting the cab of a tilt-cab apparatus.

Where an enclosed battery compartment is provided, it shall be ventilated to the exterior to prevent the buildup of heat and explosive fumes. The batteries shall be protected against vibration and temperatures that exceed the battery manufacturer's recommendation.

A master load disconnect switch shall be provided between the starter solenoid(s) and the remainder of the electrical loads on the apparatus. The starter solenoids shall be connected directly to the batteries.

Electronic control systems and similar devices shall be permitted to be otherwise connected if so specified by their manufacturer.

The alternator shall be wired directly to the batteries through the ammeter shunt(s), if one is provided, and not through the master load disconnect switch.

A green "battery on" pilot light that is visible from the driver's position shall be provided.

A sequential switching device shall be permitted to energize the optical warning devices and other high current devices required in minimum continuous electrical load, provided the switching device shall first energize the electrical devices required in minimum continuous electrical load within 5 seconds.

**132. BATTERY SWITCH**

One (1) battery "On/Off" switch in cab located within easy reach of Driver with green "BATTERY ON" pilot light that is visible from the driver's position shall be provided.

**133. BATTERY SOLENOID**

Battery switch shall consist of a minimum 200 ampere, constant duty solenoid to feed from positive side of battery.

**134. ENGINE COMPARTMENT LIGHT**

There shall be one (1) light(s) mounted in the engine compartment with integral switch with a light output of at least 20 candlepower (250 lumens). The engine compartment light(s) shall operate only when the master battery switch is turned "On".

**135. CAB HAZARD WARNING LIGHT**

A red flashing light, located in the driving compartment, shall be illuminated automatically whenever the vehicles parking brake is not fully engaged and any of the following conditions exist:

- Any passenger or equipment compartment door is not closed.

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

The hazard light shall be labeled "DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

An audible alarm shall be provided for the door ajar light.

**136. BACK-UP ALARM**

The body manufacturer shall furnish and install one (1) 107 dB(A) electronic back-up alarm. Back-up alarm to actuate automatically when the transmission gear selector is placed in reverse.

**137. INTERIOR LED LIGHTS**

Five (5) OnScene Solution model #70156, 10" x 10" x 7/8", 10-30 VDC, surface mount dual red and white LED light(s) with clear lens shall be provided throughout the vehicle. Each light shall be individually switched with a high/low intensity setting switchable at the entry door(s). In addition light(s) will be capable of a five (5) second delay after switching off.

**138. TAIL LIGHTS**

Rear body tail lights shall be vertically mounted and located per Federal Motor Vehicle Safety Standards, FMVSS and Canadian Motor Vehicle Safety Standards CMVSS. The following lights shall be furnished;

- Two (2) Federal amber LED QL97XF-A turn signal lights
- Two (2) Federal red LED QL97XF-R stop/tail lights
- Two (2) Federal white LED QL97XF-C back-up lights

Each of the lights above shall be mounted in a QL97MC, chrome finish bezel.

**139. MIDSHIP MARKER/TURN SIGNAL**

Two (2) Whelen model T0A00MAR 2" round amber LED midship body clearance marker/turn signal lights shall be provided and installed, one (1) light on each side of the body, in forward wheel well of rear axle. Midship marker/turn lights shall be wired to the headlight circuit of the chassis.

**140. MARKER LIGHTS**

The body shall be equipped with all necessary clearance lights and reflectors in accordance with Federal Motor Vehicle Safety Standards (FMVSS) and Canadian Motor Vehicle Safety Standards (CMVSS) regulations. All body clearance lights shall be Truck-Lite Model 18 LED to reduce the need for maintenance and lower the amp draw. Clearance lights shall be wired to the headlight circuit of the chassis.

**141. CAB STEP LIGHTS / GROUND LIGHTS**

There shall be two (2) OnScene 9" Night Axe LED light(s) installed on the vehicle capable of providing illumination at a minimum level of 2 fc (20 lx) on ground areas within 30 in. (800 mm) of the edge of the vehicle in areas designed for personnel to climb onto or descend from the vehicle to the ground level.

Lighting designed to provide illumination on areas under the driver and crew riding area exits shall be switchable but activated automatically when the exit doors are opened.

**142. LICENSE PLATE LIGHT**

One (1) Arrow #437 chrome plated LED license plate light shall be installed on the rear of the body. License plate light shall be wired to the headlight circuit of chassis. A fastener system shall be provided for license plate installation.

**143. ELECTRONIC SIREN**

One (1) Federal PA300-012MSC, 200 watt electronic siren with standard microphone shall be provided in cab. The siren shall be installed as close to the 12 volt control panel as possible.

**144. FRONT SCENE LIGHTS**

The front of the cab shall include one (1) Whelen model Pioneer PFP1 contour roof mount scene light installed on the brow of the cab. The lamp head shall a single 12 volt high intensity LED panel. The lamp head shall draw 6.0 amps and generate 7,000 lumens total. The lamp head shall be 4.25 inches in height X 6.18 inches in width and shall be adjustable to a 20-degree downward angle within the brow mount brackets. The lamp head and brackets shall be powder coated white.

**145. FRONT SCENE LIGHT LOCATION**

There shall be one (1) scene light mounted center on the front brow of the cab.

**146. FRONT SCENE LIGHTS ACTIVATION**

The front scene lighting shall be activated by a virtual button on the Vista display and control screen.

**147. SIDE SCENE LIGHTS**

There shall be four (4) Federal QL97LEDSCENE, 9" x 7" recess mounted LED scene lights provided on the upper body. Light quantity shall be divided equally per side. Each light will have a clear lens and chrome bezel.

Two (2) switches shall be provided, one (1) for the streetside scene lights, and one (1) for the curbside scene lights.

The lights shall be switched at the Vista display in the cab.

**148. REAR SCENE LIGHTS**

There shall be two (2) Federal QL97LEDSCENE, 9" x 7" recess mounted LED scene lights provided on the upper rear body. Each light will have a clear lens and chrome bezel.

The lights shall be switched at the Vista display in the cab.

The rear scene lights shall also be activated when the apparatus is in reverse.

**149. WARNING LIGHT PACKAGE**

Each apparatus shall have a system of optical warning devices that meets or exceeds the requirements of this section.

The optical warning system shall consist of an upper and a lower warning level. The requirements for each level shall be met by the warning devices in that particular level without consideration of the warning devices in the other level.

For the purposes of defining and measuring the required optical performance, the upper and lower warning levels shall be divided into four (4) warning zones. The four zones shall be determined by lines drawn through the geometric center of the apparatus at 45 degrees to a line drawn lengthwise through the geometric center of the apparatus. The four (4) zones shall be designated A, B, C, and D in a clockwise direction, with zone A to the front of the apparatus.

Each optical warning device shall be installed on the apparatus and connected to the apparatus's electrical system in accordance with the requirements of this standard and the requirements of the manufacturer of the device.

A master optical warning system switch that energizes all the optical warning devices shall be provided.

The optical warning system on the fire apparatus shall be capable of two (2) separate signaling modes during emergency operations. One (1) mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way. One (1) mode shall signal that the apparatus is stopped and is blocking the right-of-way. The use of some or all of the same warning lights shall be permitted for both modes provided the other requirements of this chapter are met.

A switching system shall be provided that senses the position of the parking brake or the park position of an automatic transmission. When the master optical warning system switch is closed and the parking brake is released or the automatic transmission is not in park, the warning devices signaling the call for the right-of-way shall be energized. When the master optical warning system switch is closed and the parking brake is on or the automatic transmission is in park, the warning devices signaling the blockage of the right-of-way shall be energized. The system shall be permitted to have a method of modifying the two (2) signaling modes.

The optical warning devices shall be constructed or arranged so as to avoid the projection of light, either directly or through mirrors, into any driving or crew compartment(s). The front optical warning devices shall be placed so as to maintain the maximum possible separation from the headlights.

**150. UPPER LEVEL OPTICAL WARNING DEVICES**

The upper-level optical warning devices shall be mounted as high and as close to the corner points of the apparatus as is practical to define the clearance lines of the apparatus. The upper-level optical warning devices shall not be mounted above the maximum height, specified by the device manufacturer.

**ZONE A - FRONT WARNING LIGHTS**

There shall be one (1) Federal Signal Corporation JetSolaris 54" model JLX5401-NFPA Solaris LED lightbar permanently mounted to the cab roof. The lightbar shall include eight (8) forward facing large Solaris reflectors, three (3) side facing small Solaris reflectors, and no rear facing lights.

All clear lights shall shut down when the parking brake is set to comply with "Blocking" mode requirements as outlined in NFPA 1901.

The lightbar shall be separately switched at the vista display in the cab.

**151. GTT OPTICOM**

A GTT 795H Opticom emitter light shall be provided on cab roof. The Opticom shall be activated with light bar and de-activated when the park brake is set and the vehicle is in blocking mode.

**ZONE B & D - SIDE WARNING LIGHTS**

There shall be four (4) Federal Signal QuadraFlare model QL97SFRR, 9" x 7" split LED red/red lights provided, two (2) on each side of the apparatus in the upper corners. Each light shall have a clear lens and chrome flange.

The lights shall be switched at the Vista display in the cab.

### ZONE C - REAR WARNING LIGHTS

There shall be two (2) Federal Signal QuadraFlare model QL97SFRR, 9" x 7" split LED red/red lights provided, one (1) on each side of the apparatus in the upper corners. Each light shall have a clear lens and chrome flange.

The lights shall be switched at the Vista display in the cab.

### **152. LOWER LEVEL OPTICAL WARNING DEVICES**

To define the clearance lines of the apparatus, the optical center of the lower-level optical warning devices in the front of the vehicle shall be mounted on or forward of the front axle centerline and as close to the front corner points of the apparatus as is practical.

The optical center of the lower-level optical warning devices at the rear of the vehicle shall be mounted on or behind the rear axle centerline and as close to the rear corners of the apparatus as is practical. The optical center of any lower-level device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground for large apparatus, and 18 in. and 48 in. (460 mm and 1220 mm) above level ground for small apparatus.

A midship optical warning device shall be mounted right and the left sides of the apparatus if the distance between the front and rear lower-level optical devices exceeds 25 ft. (7.6 m) at the optical center. Additional midship optical warning devices shall be required, where necessary, to maintain a horizontal distance between the centers of adjacent lower-level optical warning devices of 25 ft (7.6 m) or less. The optical center of any midship mounted optical warning device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground.

### ZONE A - FRONT WARNING LIGHTS

There shall be two (2) Federal Signal QuadraFlare model QL64XFR, 6" x 4" red LED lights provided, one (1) on each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the Vista display in the cab.

### **153. GRILLE LIGHT LED**

There will be one (1) Federal Signal, QL73XFC-C LED light installed on the front of the cab. The LED light will be wired in such a manner as to be disabled when the parking brake is set.

Locate either on or above the front grille.

### ZONES B AND D - CAB INTERSECTOR LIGHT (CAB FRONT CORNERS)

There shall be two (2) Federal Vipor VPX802-4 LED lights provided, one (1) on each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the Vista display in the cab.

### ZONES B AND D - BODY INTERSECTOR LIGHT (BODY WHEELWELL AREA)

There shall be two (2) Federal Signal QuadraFlare model QL64XFR, 6" x 4" red LED lights provided, one (1) on each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the Vista display in the cab.

#### ZONES B AND D - BODY INTERSECTOR LIGHT (BODY REAR CORNERS)

There shall be two (2) Federal Signal QuadraFlare model QL64XFR, 6" x 4" red LED lights provided, one (1) on each side. Each light shall have a red lens and chrome flange.

The lights shall be switched at the Vista display in the cab.

#### ZONE C - REAR WARNING LIGHTS (LOWER REAR CORNERS)

There shall be two (2) Federal Signal QuadraFlare model QL97SF-RR, 9" x 7" split LED red/red lights provided, one (1) on each side. Each light shall have a clear lens and chrome flange.

The lights shall be switched at the Vista display in the cab.

#### **154. LINE VOLTAGE ELECTRICAL SYSTEM**

#### **155. LIMA PTO GENERATOR**

The vehicle shall be equipped with a Lima MAC 360 series, single bearing generator system with a capacity of 40,000 watts at 120/208 volt, 3-phase. Current frequency shall be stable at 60 hertz.

The transmission's PTO port and PTO, or the split shaft PTO, and all associated drive shaft components shall be rated to support the continuous duty torque requirements of the generator's continuous duty rating as stated on the power source nameplate.

Where the generator is driven by the chassis engine and transmission through a split shaft PTO, the driving compartment speedometer shall register when the generator drive system is engaged.

Where the generator is driven by the chassis engine and transmission through a split shaft PTO and a chassis transmission retarder is furnished, it shall be automatically disengaged for generator operations.

The direct drive generator shall be mounted so that it does not change the ramp breakover angle, angle of departure, or angle of approach as defined by other components, and it shall not extend into the ground clearance area.

The direct drive generator shall be mounted away from exhaust and muffler areas or provided with a heat shield to reduce operating temperatures in the generator area.

#### **156. GENERATOR BONDING**

A minimum of four (4) 16" x 2 gauge copper ground straps shall be bolted to body sub-frame and chassis sub-frame for proper bonding of high voltage system. The conductor shall have a minimum amperage rating, as defined in 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of *NFPA 70*, of 115 percent of the rated amperage on the power source specification label.

#### **157. GENERATOR MOUNTING**

The generator shall be mounted between the chassis frame rails. The generator mounting brackets shall be fabricated using heavy duty steel tubing, or structural channel. The generator mounting shall be bolted and removable so that the generator can be lowered from under apparatus for service, if necessary. The generator case shall not extend below the bottom edge of the apparatus body.

#### **158. POWER-TAKE-OFF GENERATOR DRIVE**

There shall be a "Hot Shift" power-take-off (PTO) installed on the transmission PTO opening of the chassis. The "Hot Shift" PTO is provided to allow the engagement of the PTO at higher engine RPM speeds. The PTO output shall be connected to the generator through hollow tube type driveline with heavy duty universals.



The engagement of the PTO shall be in the chassis cab with a rocker switch and red pilot light to note engagement of the PTO or via the V-Mux screen if so equipped.

The power supply to the PTO engagement control shall be wired to the parking brake and a neutral position transmission switch to prevent engagement unless the vehicle is stopped and transmission has been placed in neutral.

The installation of the engine, transmission, driven accessories (power takeoffs (PTO), etc.) shall meet the engine and transmission manufacturers' installation recommendations for the service intended.

Model part number shall be Chelsea 277SGFJP-B5XV, 126% Ratio.

**159. ENGINE SPEED CONTROL**

An engine speed auxiliary control device (high idle switch or throttle) shall be installed to maintain a stable cycle output from generator when the apparatus is parked.

An interlock shall prevent the operation of the engine speed auxiliary control device unless the parking brake is engaged and the transmission is in neutral or park, or the parking brake is engaged and the engine is disengaged from the drive wheels.

The engine shall be prevented from regulating its own engine speed during times when engine rpm control is critical for consistent apparatus functions such as generator, water pump, or aerial operation.

**160. LOADCENTER**

The loadcenter shall be a Cutler Hammer, BR Series, specifically designed for protection and distribution of 120/208 volt AC, such as lighting and small motor branch circuits. The loadcenter enclosure shall be made of 16 gauge galvanized sheet steel. The galvanized coating provides corrosion protection and as such does not require paint. All trims used on the BR Loadcenter shall be chromate sealed and finished with electro disposition epoxy paint (ASA61) which exceeds requirements for outdoor and indoor applications. A combination surface/flush cover with integral door shall be supplied.

The loadcenter shall be UL / CSA listed, **NO EXCEPTIONS** will be allowed.

**161. GENERATOR MONITORING PANEL**

To properly monitor the generator performance and load demand during operation, the generator installation shall be equipped with a full instrument monitor panel.

- Generator frequency in hertz
- Line voltage, phase to neutral or phase to phase, in volts
- Line current in amperes

Individual line current and voltage shall be displayed at the push of a button.

The program shall support the accumulation of elapsed generator hours. Generator hours shall be displayed.

**162. SHORE POWER INLET - BATTERY CHARGER**

The above mentioned shore power inlet, and battery conditioner shall be specified in the 12 volt section.

**163. OUTLETS AND CIRCUITS**

The generator and or shore power shall supply the 120/240 volt electrical equipment and outlets outlined below. Proper circuit protection shall be installed as noted:



Two (2) 120 volt exterior outlets, one (1) each side near rear wheel well area.

- The outlet receptacle(s) shall be 15 amp, straight-blade (NEMA 5-15R).

Two (2) 120 volt exterior outlets, one (1) each side rear of body.

- The outlet receptacle(s) shall be 15 amp, straight-blade (NEMA 5-15R).

**164. LINE VOLTAGE ELECTRICAL SYSTEM**

**165. GENERAL REQUIREMENTS**

Stability

Any fixed line voltage power source producing alternating current (ac) shall produce electric power at 60 Hz,  $\pm 3$  Hz when producing power at all levels between no load and full rated power. Any fixed line voltage power source shall produce electric power at the rated voltage  $\pm 10$  percent when producing power at all levels between no load and full rated power.

The maximum voltage supplied to portable equipment shall not exceed 275 volts to ground. Higher voltage shall be permitted only when used to operate fixed wired, permanently mounted equipment on the apparatus.

Conformance with National Electrical Code

All components, equipment, and installation procedures shall conform to *NFPA 70, National Electrical Code*, except where superseded by the requirements of this chapter. Where the requirements of this chapter differ from those in *NFPA 70*, the requirements in this chapter shall apply.

Where available, line voltage electrical system equipment and materials included on the apparatus shall be listed and used only in the manner for which they have been listed. All equipment and materials shall be installed in accordance with the manufacturer's instructions.

Location Ratings

Any equipment used in a dry location shall be listed for dry locations. Any equipment used in a wet location shall be listed for wet locations.

Any equipment, except a PTO-driven generator, used in an underbody or under chassis location that is subject to road spray shall be either listed as Type 4 or mounted in an enclosure that is listed as Type 4.

If a PTO-driven generator is located in an underbody or under chassis location, the installation shall include a shield to prevent road spray from splashing directly on the generator.

Grounding

Grounding shall be in accordance with 250.34(A) and 250.34(B) of *NFPA 70*. Ungrounded systems shall not be used.

Only stranded or braided copper conductors shall be used for grounding and bonding.

The grounded current-carrying conductor (neutral) shall be insulated from the equipment-grounding conductors and from the equipment enclosures and other grounded parts.

The neutral conductor shall be colored white or gray in accordance with 200.6, "Means of Identifying Grounded Conductors," of *NFPA 70*.

Any bonding screws, straps, or buses in the distribution panel board or in other system components between the neutral and equipment-grounding conductor shall be removed and discarded.

#### Bonding

The neutral conductor of the power source shall be bonded to the vehicle frame. The neutral bonding connection shall occur only at the power source. In addition to the bonding required for the low voltage return current, each body and each driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor.

The conductor shall have a minimum ampere rating, as defined in 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of *NFPA 70*, of 115 percent of the rated ampere on the power source specification label.

A single conductor that is sized to meet the low voltage and line voltage requirements shall be permitted to be used.

#### Ground Fault Circuit Interrupters

In special service vehicles incorporating a lavatory, sink, toilet, shower, or tub, 120 V, 15 or 20 A receptacles within 6 ft (1.8 m) of these fixtures shall have ground fault circuit interrupter (GFCI) protection. GFCIs integrated into outlets or circuit breakers or as stand-alone devices shall be permitted to be used in situations.

#### Power Source General Requirements

All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.

The power source shall be shielded from contamination that would prevent the power source from operating within its design specifications.

#### Power Source Rating

For power sources of 8 kW or larger, the power source manufacturer shall declare the continuous duty rating that the power source can provide when installed on fire apparatus according to the manufacturer's instructions and run at 120°F (49°C) air intake temperature at 2000 ft (600 m) above sea level.

The rating on the power source specification label shall not exceed the declared rating from the power source manufacturer.

Access shall be provided to permit both routine maintenance and removal of the power source for major servicing. The power source shall be located such that neither it nor its mounting brackets interfere with the routine maintenance of the fire apparatus.

#### Instrumentation

If the power source is rated at less than 3 kW, a "Power On" indicator shall be provided. If the power source is rated at 3 kW or more but less than 8 kW, a voltmeter shall be provided.

If the power source is rated at 8 kW or more, the following instrumentation shall be provided at an operator's panel:

- 1) Voltmeter
- 2) Current meters for each ungrounded leg
- 3) Frequency (Hz) meter
- 4) Power source hour meter

The instrumentation shall be permanently mounted at an operator's panel. The instruments shall be located in a plane facing the operator. Gauges, switches, or other instruments on this panel shall each have a label to indicate their function.

The instruments and other line voltage equipment and controls shall be protected from mechanical damage and not obstructed by tool mounting or equipment storage.

An instruction plate(s) that provides the operator with the essential power source operating instructions, including the power-up and power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.

### Operation

Provisions shall be made for placing the generator drive system in operation using controls and switches that are identified and within convenient reach of the operator.

Where the generator is driven by the chassis engine and engine compression brakes or engine exhaust brakes are furnished, they shall be automatically disengaged for generator operations.

Any control device used in the generator system power train between the engine and the generator shall be equipped with a means to prevent unintentional movement of the control device from its set position in the power generation mode.

If there is permanent wiring on the apparatus that is designed to be connected to the power source, a power source specification label that is permanently attached to the apparatus at the operator's control station shall provide the operator with the information required.

The power source, at any load, shall not produce a noise level that exceeds 90 dBA in any driving compartment, crew compartment, or onboard command area with windows and doors closed or at any operator's station on the apparatus.

### Power Supply Assembly

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 12 ft (4 m) in length.

All power supply assembly conductors, including neutral and grounding conductors, shall have an equivalent amperage rating and shall be sized to carry not less than 115 percent of the amperage of the nameplate current rating of the power source.

If the power supply assembly connects to the vibrating part of a generator (not a connection on the base), the conductors shall be flexible cord or other fine-stranded conductors enclosed in metallic or nonmetallic liquid tight flexible conduit rated for wet locations and temperatures not less than 194°F (90°C).

### Overcurrent Protection

Manually resettable over current devices shall be installed to protect the line voltage electrical system components.

### Power Source Protection

A main over current protection device shall be provided that is either incorporated in the power source or connected to the power source by a power supply assembly.

The size of the main over current protection device shall not exceed 100 percent of the rated amperage stated on the power source specification label or the rating of the next larger available size over current protection device, where so recommended by the power source manufacturer.

If the main over current protection device is subject to road spray, the unit shall be housed in a Type 4-rated enclosure.

### Branch Circuit Overcurrent Protection

Over current protection devices shall be provided for each individual circuit and shall be sized at not less than 15 amps in accordance with 240.4, "Protection of Conductors," of *NFPA 70*.

Any panel board shall have a main breaker where the panel has six or more individual branch circuits or the power source is rated 8 kW or larger.

Each over current protection device shall be marked with a label to identify the function of the circuit it protects.

Dedicated circuits shall be provided for any large appliance or device (air conditioning units, large motors, etc.) that requires 60 percent or more of the rated capacity of the circuit to which it is connected, and that circuit shall serve no other purpose.

### Panelboards

All fixed power sources shall be hardwired to a permanently mounted panel board unless one of the following conditions exists:

- 1) All line voltage power connections are made through receptacles on the power source and the receptacles are protected by integrated over current devices.
- 2) Only one circuit is hardwired to the power source, which is protected by an integrated over current device.

The panel shall be visible and located so that there is unimpeded access to the panel board controls. All panel boards shall be designed for use in their intended location. The panel(s) shall be protected from mechanical damage, tool mounting, and equipment storage.

Where the power source is 120/240 V and 120 V loads are connected, the apparatus manufacturer or line voltage system installer shall consider load balancing to the extent that it is possible.

### Wiring Methods

Fixed wiring systems shall be limited to the following:

- 1) Metallic or nonmetallic liquid tight flexible conduit rated at temperatures not less than 194°F (90°C) with stranded copper wire rated for wet locations and temperatures not less than 194°F (90°C)
- 2) Type SOW, SOOW, SEOW, or SEOOW flexible cord rated at 600 V and at temperatures not less than 194°F (90°C)

Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring and shall be arranged as follows:

- 1) Separated by a minimum distance of 12 in. (300 mm) from exhaust piping or shielded from such piping
- 2) Separated from fuel lines by a minimum distance of 6 in. (150 mm)

A means shall be provided to allow "flexing" between the driving and crew compartment, the body, and other areas or equipment whose movement would stress the wiring.

Electrical cord or conduit shall be supported within 6 in. (150 mm) of any junction box and at a minimum of every 24 in. (600 mm) of run.

Supports shall be made of nonmetallic materials or of corrosion-resistant or corrosion-protected metal. All supports shall be of a design that does not cut or abrade the conduit or cord and shall be mechanically fastened to the apparatus.

Only fittings and components listed for the type of cord or conduit being installed shall be used.

Splices shall be made only in a listed junction box.

#### Additional Requirements for Flexible Cord Installations

Where flexible cord is used in any location where it could be damaged, it shall be protected by installation in conduit, enclosures, or guards.

Where flexible cord penetrates a metal surface, rubber or plastic grommets or bushings shall be installed.

#### Wiring Identification

Each line voltage circuit originating from the main panel board shall be identified.

The wire or circuit identification either shall reference a wiring diagram or wire list or shall indicate the final termination point of the circuit.

Where prewiring for future power sources or devices exists, the un-terminated ends shall be marked with a label showing their wire size and intended function.

#### Wiring System Components

Only stranded copper conductors with an insulation rated for temperatures of at least 194°F (90°C) and wet locations shall be used. Conductors in flexible cord shall be sized in accordance with Table 400.5(A) of *NFPA 70*. Conductors used in conduit shall be sized in accordance with 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of *NFPA 70*. Aluminum or copper-clad aluminum conductors shall not be used.

All boxes shall conform to and be mounted in accordance with Article 314, "Outlet, Device, Pull, and Junction Boxes; Conduit Bodies; Fittings; and Manholes," of *NFPA 70*. All boxes shall be accessible using ordinary hand tools. Boxes shall not be permitted behind welded or pop-riveted panels.

The maximum number of conductors permitted in any box shall be in accordance with 314.16, "Number of Conductors in Outlet, Device, and Junction Boxes, and Conduit Bodies," of *NFPA 70*.

All wiring connections and terminations shall provide a positive mechanical and electrical connection. Connectors shall be installed in accordance with the manufacturer's instructions. Wire nuts or insulation displacement and insulation piercing connectors shall not be used.

Each switch shall indicate the position of its contact points (i.e., open or closed) and shall be rated for the continuous operation of the load being controlled. All switches shall be marked with a label indicating the function of the switch. Circuit breakers used as switches shall be "switch rated" (SWD) or better. Switches shall simultaneously open all associated line voltage conductors. Switching of the neutral conductor alone shall not be permitted.

Line voltage circuits controlled by low voltage circuits shall be wired through properly rated relays in listed enclosures that control all non-grounded current-carrying conductors.

### Receptacles and Inlet Devices

#### Wet and Dry Locations

All wet location receptacle outlets and inlet devices, including those on hardwired, remote power distribution boxes, shall be of the grounding type, provided with a wet location cover, and installed in accordance with Section 406.8, "Receptacles in Damp or Wet Locations," of *NFPA 70*.

All receptacles located in a wet location shall be not less than 24 in. (600 mm) from the ground. Receptacles on off road fire apparatus shall be a minimum of 30 in. (750 mm) from the ground. All receptacles located in a dry location shall be of the grounding type and shall be at least 12 in. (300 mm) above the interior floor height. No receptacle shall be installed in a face-up position.

The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical.

#### Receptacle Label

Each receptacle shall be marked with a label indicating the nominal line voltage (120 volts or 240 volts) and the current rating in amps of the circuit. If the receptacle is DC or other than single phase, that information shall also be marked on the label.

All receptacles and electrical inlet devices shall be listed to UL 498, *Standard for Safety Attachment Plugs and Receptacles*, or other recognized performance standards.

Receptacles used for DC voltages shall be rated for DC service.

#### Wiring Schematics

An "As-Built" Wiring diagrams for line voltage systems shall be provided to include the following information;

- (a) Pictorial representations of circuit logic for all electrical components and wiring
- (b) Circuit identification
- (c) Connector pin identification
- (d) Zone location of electrical components
- (e) Safety interlocks
- (f) Alternator–battery power distribution circuits
- (g) Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems

**166. 120 VAC SCENE LIGHTING**  
**TRIPOD SCENE LIGHTS**

Two (2) Fire Research Focus; model FCA656-S50, tripod telescopic light shall be provided. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall extend 28" and rotate 360 degrees. An internal brake shall slow the extension pole during lowering. The outer pole shall be a grooved aluminum extrusion. The folding legs shall be anodized aluminum tubing with plastic endcaps. The fully extended tripod system shall exceed a height of 8' and be less than 5' when collapsed. Wiring shall extend from the pole bottom with a 4' retractile cord.

The lamphead shall have one (1) quartz halogen 500 watt 120 volt bulb. The bulb shall draw 4.2 amps and generate 10,500 lumens. The bulb shall be accessible through the front. The lamphead shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area. The lamphead angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamphead shall incorporate heat-dissipating fins and be no more than 5" deep by 3 3/8" high by 10" wide. Scene lights shall be provided with a lens or a means for preventing damage from water spray and shall be listed for wet location usage.

A weatherproof on-off toggle switch shall be mounted in a switchbox below the lamphead. A wire guard shall be furnished to protect the lamphead glass.

A tripod truck mount bracket set shall be provided for each light. Each set shall include a lower base plate, an upper lock with a quick release spring loaded locking pin, and a shim set.

Lights to be mounted in Compt. R1 slide-out tray.

**167. LIGHT TOWER**

One (1) Command Light, KL Series light tower shall be provided and installed on the completed unit. A flashing warning light shall be provided in cab, indicating when a light tower is not in nested position as required by NFPA 1901.

**Light Tower Construction and Design**

The Command Light assembly shall be of aluminum construction, with stainless steel shafts and bronze bushings for long life and low maintenance.

The electrically controlled unit shall not require usage of the vehicle's air supply for operation, thereby eliminating the chance for air leaks in the vehicle braking system. Hydraulic or pneumatic type floodlights are not acceptable alternatives to the specified all electric light tower.

The light tower shall be tested to in wind conditions of 90 mph (150 kph) minimum. Light towers that have not been tested to these conditions are not acceptable.

The light tower shall be capable of overhanging the side or back of the vehicle to provide maximum illumination to the vicinity adjacent to the vehicle for the safety of emergency personnel in high traffic conditions. Light towers that are only capable of rotation at the top of a pole are not acceptable to the specified light tower.

**Light Tower Electrical System**

The light tower shall be a two-stage articulating device with a lighting bank on top of the second stage capable of continuous 360 degree rotation. The light shall be elevated by electric linear actuators, one (1) actuator shall elevate the light bank and one (1) actuator shall adjust the light bank angle from 0 to 110 degrees. Power for the light bank shall be supplied through power collecting rings thus allowing continuous 360 degree rotation in either direction.



The tower base shall have a light that illuminates the envelope of motion during any movement of the light tower mast as required by NFPA 1901.

#### Light Tower Floodlights

The Command Light model KL-450 shall be equipped with the following bank of floodlights:

Floodlight manufacturer:	LumenForm – 500 watt
Number of lamp heads:	Six (6) 500 watt Quartz Halogen
Voltage:	120 volts
Total watts of light tower:	3,000 watts
Total lumens of light tower:	11,100 lumens
Configuration:	The light heads shall be mounted with three (3) on each side of the light tower, giving two (2) vertical lines of three (3) when the lights are in the upright position.

#### Light Tower Backlight Option

A backlight option shall be provided on the light tower. The lower pair of light heads shall be capable of being rotated about a horizontal axis 180 degree, providing light down on the vehicle or to the opposite side of the vehicle while allowing the fixed lights to remain pointed at the scene.

The hand-held remote control shall have an additional switch supplied for the backlight rotation option.

#### Light Tower Paint

The light tower shall be electrostatically powder coated with a hammer tone gray color.

#### Light Tower Controls: Wired Hand-held and Multiplex

The light tower(s) shall be controlled by both the specified Weldon multiplex Vista display in cab and with a hand-held 15-foot umbilical line remote control. The Vista display shall have a button programmed to take control from the wired controller. The program shall have four (4) different programmed quadrants to raise and face light tower too. System shall require a Weldon Node to control light tower system. The wired hand-held storage station shall have a switch to take control from the Vista display in cab.

The storage station for the remote control unit shall be equipped with a button to activate the "Auto-Park" automatic nesting feature. The remote control shall be located per the itemized compartment list and include;

Three (3) switches; one (1) for each pair of lights.

One (1) switch for light bank rotation.

One (1) switch for elevating lower stage.

One (1) switch for elevating upper stage.

One (1) switch for optional light bank rotation.

One (1) indicator light to indicate when light bank is out of the roof nesting position.

One (1) indicator light to indicate when light bank is rotated to proper nesting position.



### Light Tower Mounting

The specified light tower(s) shall be mounted on the roof of the apparatus body.

**168. EQUIPMENT PAYLOAD WEIGHT ALLOWANCE**

In compliance with NFPA 1901 standards, the special service vehicle shall be designed for an equipment loading allowance of 4,000 lbs. of Surrey Fire Department provided equipment based on a 30,001 - 40,000 pound gross vehicle weight rating.

**169. EQUIPMENT**

The following equipment shall be furnished with the completed special service vehicle;

- One (1) container of assorted stainless steel nuts, bolts, screws and washers used in the construction of the apparatus shall be provided with the completed apparatus.

**170. REMAINING NFPA MINOR EQUIPMENT BY PURCHASER**

All other minor equipment not specified above, but required by NFPA 1901, section 10.5.1 shall be supplied and mounted by Surrey Fire Department before the unit is placed in emergency service.

**171. SIGTRONIC US-67S INTERCOM**

There will be a Sigtronics US-45S intercom system supplied and installed on the apparatus. The system will have the following capabilities:

Drivers Position	Intercom / PTT
Officers Position	Intercom / PTT
2 Rear Work Area Positions	Intercom

The following accessories shall be provided: One (1) radio adapter interfaces, four (4) SE-8 headsets.

Radio Interface to be for a M/A COM model #D28LTX

### INTERCOM SYSTEM INSTALLATION

The above listed intercom system shall be installed in the cab locations as follows;

#### **Front of Cab**

- Driver's – Mounted above the right shoulder position on ceiling.
- Officer's – Mounted above the left shoulder position on ceiling.

#### **Rear Crew Area**

- Driver's side forward facing – Above the right shoulder on the rear wall or ceiling.
- Officer's side forward facing – Above the left shoulder on the rear wall or ceiling.

**172. CUSTOMER SUPPLIED ANTENNAS**

There will be two (2) customer supplied antennas shipped to the manufacturer for installation. One (1) GPS antenna mounted on the cab roof right side. One (1) radio antenna mounted on the cab roof left side.

**173. CUSTOMER SUPPLIED 2-WAY RADIO**

Customer supplied 2-way radio will be flush mounted in the center console on the officer's side of center above the electronic siren. Exact location to be determined at pre-construction meeting.

**BODY PAINT SPECIFICATIONS**

**BODY PAINT PREPARATION**

After the body and components have been fabricated they shall be disassembled prior to painting so when the vehicle is complete there shall be finish paint beneath the removable components. The body shall be totally removed from chassis during the paint process to insure the entire unit is covered. The body and components shall be metal finished as follows to provide a superior substrate for painting.

The exterior body shall undergo a thorough cleaning process starting with a biodegradable phosphoric acid solution to begin the etching process followed by a complete clear water rinse. The next step shall consist of a chemical conversion coating applied to seal the metal substrate and become part of the metal surface for greater film adhesion. If the compartment interior is to be painted the interior shall be acid etched as described above then primed with an epoxy primer and all seams caulked.

All bright metal fittings, if unavailable in stainless steel or polished aluminum, shall be chrome plated. Iron fittings shall be copper under plated prior to chrome plating.

**PAINT PROCESS**

The paint process shall follow the strict standards set forth by PPG Industries guidelines. Painters applying PPG products will be PPG Certified Commercial Technicians, and re-certified every two (2) years.

The body shall go through an eight-stage paint process;

- 1) Clean bare metal using a solvent base wax & grease remover.
- 2) Finish all exterior body seams as necessary, followed by a thorough sanding of all bare metal to be painted.
- 3) Re-clean bare metal using a solvent base wax & grease remover.
- 4) Bare Metal Epoxy Primer Coat - PPG Delfleet® Evolution corrosion resistance epoxy primer to be applied at 1.0-2.0 mills DFT over clean abraded bare metal.
- 5) Primer Filler Coat - PPG Delfleet® Evolution urethane build primer to achieve total thickness of 3.0-6.0 mils DFT after sanding.
- 6) Base coat (Color) - PPG Delfleet® Evolution High Solids Polyurethane Base coat. Apply 1.0-3.0 mils DFT of base coat color to achieve full hiding.
- 7) Clear coat PPG Delfleet® Evolution polyurethane premium quality clear coat with improved mar resistant finish. The clear coat shall be applied to achieve a total dry film thickness of 2.0-3.0 mils.
- 8) Curing process of the painted body shall go through a force dry/bake cycle process. The painted components shall be baked 180 degrees for 2 hours to achieve a complete coating cure on the finished product.

**MACHINE POLISHED**

After the force dry/bake cycle and ample cool down time, the coated surface shall be sanded using 1,000, 1,500, and or 3,000 grit sandpaper to remove surface defects. In the final step, the surface shall be buffed then polished to an extra high gloss smooth finish. Total dry film thickness of paint will average between 8.0-12.0 mils.

## PAINT - ENVIRONMENTAL IMPACT

The contractor shall meet or exceed all current State (his) regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. PPG Delfleet® Evolution paint shall be free of all heavy metal (lead & chromate) components. Paint emissions from sanding and painting shall be filtered and collected. All paint wastes shall be disposed of in an environmentally safe manner. Solvents used in cleanup operations shall be collected, sent off-site for distillation and returned for reuse.

### **174. ELECTROLYSIS CORROSION CONTROL**

The apparatus shall be assembled using ECK or similar corrosion control on all high corrosion potential areas.

ECK protects aluminum and stainless steel against electrolytic reaction, isolates dissimilar metals and gives bedding protection for hardware and fasteners. ECK contains anti-seizing lubricant for threads. ECK is dielectric and perfect for use with electrical connectors.

### **175. PAINT FINISH - SINGLE COLOR**

The body shall be painted with a single color of PPG Delfleet® Evolution paint per approved customer sprayout.

Touch-up paint shall be provided with completed vehicle.

- Paint Color: Match cab/chassis supplied paint color.

## REFLECTIVE STRIPE REQUIREMENTS

### Material

All retroreflective materials shall conform to the requirements of ASTM D 4956, *Standard Specification for Retroreflective Sheeting for Traffic Control*, Section 6.1.1 for Type I Sheeting.

All retroreflective materials used that are colors not listed in ASTM D 4956, Section 6.1.1, shall have a minimum coefficient of retroreflection of 10 with observation angle of 0.2 degrees and entrance angle of -4 degrees.

Any printed or processed retroreflective film construction used shall conform to the standards required of an integral colored film as specified in ASTM D 4956, Section 6.1.1.

### Minimum Requirements

A retroreflective stripe(s) shall be affixed to at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of the apparatus.

The stripe or combination of stripes shall be a minimum of 4 in. (100 mm) in total width.

The 4 in. (100 mm) wide stripe or combination of stripes shall be permitted to be interrupted by objects (i.e., receptacles, cracks between slats in roll up doors) provided the full stripe is seen as conspicuous when approaching the apparatus.

### **176. GRAPHICS PROOF**

A color graphics proof of the reflective striping layout shall be provided for approval by Surrey Fire Department prior to installation. The graphics proof shall be submitted to Surrey Fire Department

on 8.5" x 11" sheets with front, sides, rear and plan views, each on one (1) sheet. In addition if there is any special art work an additional sheet shall be provided showing all details.

#### REFLECTIVE STRIPE - CAB SIDE

The reflective stripe material shall be 4" wide, 3M Scotchcal 680 series.

- This reflective stripe shall be white in color.
- There shall be a 1" Scotchcal reflective stripe located 1" above and a second 1" Scotchcal reflective stripe located 1" below the main stripe.
- This reflective stripe shall be red in color.

#### REFLECTIVE STRIPE - CAB FRONT

The reflective stripe material shall be 4" wide, 3M Scotchcal 680 series.

- This reflective stripe shall be white in color.
- There shall be a 1" Scotchcal reflective stripe located 1" above and a second 1" Scotchcal reflective stripe located 1" below the main stripe.
- This reflective stripe shall be red in color.

#### REFLECTIVE STRIPE - CAB DOOR INTERIOR

Any door of the apparatus designed to allow persons to enter or exit the apparatus shall have at least 96 in.2 (62,000 mm2) of retroreflective material affixed to the inside of the door.

The stripe material shall be 3M Scotchlite 680.

- This reflective stripe shall be white in color.

#### REFLECTIVE STRIPE - BODY SIDES

The reflective stripe material shall be 4" wide, 3M Scotchcal 680 series.

- This reflective stripe shall be white in color.

There shall be a 1" Scotchcal reflective stripe located 1" above and a second 1" Scotchcal reflective stripe located 1" below the main stripe.

- This reflective stripe shall be red in color.

The stripe shall extend from the front of cab in a straight line, then just ahead of the rear wheels the stripe shall angle up and extend straight back to the rear of the body.

#### CHEVRON REFLECTIVE STRIPE - REAR SIDES PANELS

At least 50 percent of the rear-facing vertical surfaces, visible from the rear of the apparatus, excluding any pump panel areas not covered by a door, shall be equipped with retroreflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees. Each stripe shall be 6" width.

The rear side panels only of the body shall have a Chevron style reflective stripe layout, and cover as much of the rear side panels as possible. Each chevron panel shall be a full sheet and shall have a 3M UV over laminate to protect from UV rays, scene damage, and everyday use. Chevron panel shall have a minimum 10 year warranty for material failure, and colorfastness.

The stripe material shall be 3M Diamond Grade.

This reflective chevron stripe shall alternate red and fluorescent yellow-green in color.

#### LETTERING

#### **177. GRAPHICS PROOF**

A color graphics proof of the lettering layout shall be provided for approval by Surrey Fire Department prior to installation. The graphics proof shall be submitted to Surrey Fire Department on 8.5" x 11" sheets with front, sides, rear and plan views, each on one (1) sheet. In addition if there is any special art work an additional sheet shall be provided showing all details.

The following lettering shall be provided and installed on the completed unit as follows;

#### UPPER BODY SIDE LETTERING

There shall be twenty (20) 10" high reflective letters furnished and installed on the vehicle.

"AIR SUPPORT UNIT"

- This reflective lettering shall be white in color.

#### SUPPLIED DECALS

The bidder shall install two (2) Surrey Fire Department supplied decal(s) on the vehicle, located on the.

#### **178. REFLECTIVE 6" FLAG - STRAIGHT**

There shall be two (2) 6" reflective Canadian Flags installed on the apparatus. Location to be determined at pre-construction meeting

#### **179. OEM PAINTED CHASSIS RIMS**

The chassis rims will be as painted from the chassis manufacturer. White.

#### **180. WHEEL COVERS**

No wheel or nut covers

#### **181. MANUFACTURING LABELS**

A permanent label in the driving compartment shall specify the quantity and type of the following fluids used in the vehicle and tire information:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid. (if applicable)
- Pump priming system fluid, if applicable. (if applicable)
- Drive axle(s) lubrication fluid
- Air conditioning refrigerant. (if applicable)
- Air conditioning lubrication oil. (if applicable)
- Power steering fluid

- Cab tilt mechanism fluid. (if applicable)
- Transfer case fluid. (if applicable)
- Equipment rack fluid. (if applicable)
- CAFS air compressor system lubricant. (if applicable)
- Generator system lubricant. (if applicable)
- Front tire cold pressure
- Rear tire cold pressure
- Maximum tire speed ratings

**182. VEHICLE DATA PLATE**

A permanent label in the driving compartment which indicates the following:

- Filter part numbers for the;
  - Engine
  - Transmission
  - Air
  - Fuel
- Serial numbers for the;
  - Engine
  - Transmission
- Delivered Weights of the Front and Rear Axles
- Paint Brand and Code(s)
- Sales Order Number

**183. OVERALL HEIGHT, LENGTH DATA PLATE US AND METRIC**

The fire apparatus manufacturer shall permanently affix a high-visibility label in a location visible to the driver while seated.

The label shall show the height of the completed fire apparatus in feet and meters (to nearest 1/10th), the length of the completed fire apparatus in feet and meters (to nearest 1/10th), and the GVWR in kilograms.

Wording on the label shall indicate that the information shown was current when the apparatus was manufactured and that, if the overall height changes while the vehicle is in service, the fire department must revise that dimension on the plate.

**184. CHASSIS FAMILIARIZATION CLASS**

On initial delivery of the apparatus, the Manufacturer shall supply a qualified representative to demonstrate the apparatus and provide initial instruction to representatives of the Surrey Fire Service regarding the operation, care, and maintenance of the apparatus and equipment supplied at the Surrey Fire Service location. The class concludes with the sharing of technical information on CD and time for questions and answers.

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**SCHEDULE B  
FORM OF QUOTATION**

RFQ Title: SUPPLY AND DELIVERY OF MOBILE AIR SUPPORT VEHICLE

RFQ No: 1220-040-2014-038

**CONTRACTOR**

Legal Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Email: \_\_\_\_\_

**CITY OF SURREY**

City's Representative: Richard Oppelt  
*Purchasing Manager*

Address: 13450-104 Ave., Surrey, BC V3T 1V8

Email for PDF Files: [purchasing@surrey.ca](mailto:purchasing@surrey.ca)

Phone: 604 590-7274

**1. PRICING**

The Contractor offers to supply to the City of Surrey the Goods for the prices plus applicable taxes as follows:

State Year, Make & Model: \_\_\_\_\_

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

UNIT PRICE: \$ \_\_\_\_\_ X 1 \$ \_\_\_\_\_

ENVIRONMENTAL LEVY [BATTERY]: \$ \_\_\_\_\_ X 1 \$ \_\_\_\_\_

TIRE STEWARDSHIP B.C. (TSBC) LEVY: \$ \_\_\_\_\_ X 1 \$ \_\_\_\_\_

SUB-TOTAL: \$ \_\_\_\_\_

GST: 5% on \$ \_\_\_\_\_ = \$ \_\_\_\_\_

PST: 7% on \$ \_\_\_\_\_ = \$ \_\_\_\_\_

**TOTAL QUOTED PRICE:** \$ \_\_\_\_\_

The completed unit shall be delivered within \_\_\_\_\_ days after receipt of purchase order.

**Unit price if purchasing 2 Trucks**

Unit Price \$ \_\_\_\_\_ X2 = \$ \_\_\_\_\_

**Unit price if purchasing 3 Trucks**

Unit Price \$ \_\_\_\_\_ X3 = \$ \_\_\_\_\_

**3. WARRANTY INFORMATION**

Warranty repairs shall be performed at \_\_\_\_\_

Please complete if applicable: British Columbia Certified

Note: Contractor is to submit all detailed warranty information as an appendix to this Quotation.

**OPTIONAL EXTENDED WARRANTY**

The Contractor is to provide costing and details for any extended warranty offered (if any).

The City reserves the rights to exercise any of the prices listed below.

**Description and Pricing for Extended Warranty**

**Price**

Extended Warranty of \_\_\_\_\_ years. \$ [       ]

Description: \_\_\_\_\_  
\_\_\_\_\_

**2. PAYMENT TERMS**

A cash discount of \_\_\_\_\_ % will be allowed if the invoice is paid within \_\_\_\_\_ days, or the \_\_\_\_\_ day of the month following, or net 30 days, on a best effort basis.

Note: Contractors are directed to list complete manufacturers' details of model proposed in the right-side column under manufacturers' specifications

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## SCHEDULE B – APPENDIX A TECHNICAL SPECIFICATIONS WORKSHEET

### TECHNICAL SPECIFICATIONS

The specification herein states the minimum requirements of the City of Surrey. All Quotations must be regular in every respect. Unauthorized conditions, limitations, or provisions shall be cause for rejection. The City of Surrey will consider as "irregular" or "non-responsive" any Quotation not prepared and submitted in accordance with the RFQ document and specification, or any Quotation lacking sufficient technical literature to enable the City to make a reasonable determination of compliance to the specification.

It shall be the Contractor's responsibility to carefully examine each item of the specification. Failure to offer a completed Quotation or failure to respond to each section of the technical specification will cause the Quotation to be rejected without review as "non-responsive". All variances, exceptions and/or deviations shall be fully described in the appropriate section.

Note: Contractors are directed to list complete manufacturers' details of model proposed in the right-side column under manufacturers' specifications

**For greater detail, please refer to the corresponding numbered specification in Schedule A-1 – Technical Specifications.**

	Minimum Specifications	√	√	<b>Manufacturers' Specifications of Equipment Offered. Contractor shall complete all spaces in this column.</b>
		(Yes)	(No)	
<b>1</b>	<b>STATE WARRANTIES</b>	<input type="checkbox"/>	<input type="checkbox"/>	Cab Basic: _____ Cab Paint: _____ Frame Rails: _____ Body Basic: _____ Body & Structural Integrity: _____ Body Paint Warranty: _____ Body Corrosion Warranty: _____
<b>2</b>	<b>OVERALL HEIGHT</b>	<input type="checkbox"/>	<input type="checkbox"/>	STATE: _____
<b>3</b>	<b>OVERALL LENGTH</b>	<input type="checkbox"/>	<input type="checkbox"/>	STATE: _____
<b>4</b>	<b>CHASSIS WHEELBASE</b>	<input type="checkbox"/>	<input type="checkbox"/>	STATE: _____
<b>5</b>	<b>TURNING RADIUS</b>	<input type="checkbox"/>	<input type="checkbox"/>	STATE: _____
<b>6</b>	<b>CAB AND CHASSIS</b>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>7</b>	<b>FRAME</b>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>8</b>	<b>PAINT FRAME AND CHASSIS UNDER CARRIAGE</b>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>9</b>	<b>FUEL TANK</b>	<input type="checkbox"/>	<input type="checkbox"/>	

10	FRONT BUMPER	<input type="checkbox"/>	<input type="checkbox"/>	
11	TOW HOOKS	<input type="checkbox"/>	<input type="checkbox"/>	
12	AIR HORN ACTUATION	<input type="checkbox"/>	<input type="checkbox"/>	
13	SIREN 10" ELECTRIC	<input type="checkbox"/>	<input type="checkbox"/>	
14	ELECTRONIC SIREN SPEAKER	<input type="checkbox"/>	<input type="checkbox"/>	
15	GROSS AXLE WEIGHT RATINGS FRONT	<input type="checkbox"/>	<input type="checkbox"/>	
16	FRONT AXLE	<input type="checkbox"/>	<input type="checkbox"/>	
17	FRONT SUSPENSION	<input type="checkbox"/>	<input type="checkbox"/>	
18	POWER STEERING GEAR	<input type="checkbox"/>	<input type="checkbox"/>	
19	CHASSIS ALIGNMENT	<input type="checkbox"/>	<input type="checkbox"/>	
20	FRONT TIRES	<input type="checkbox"/>	<input type="checkbox"/>	
21	FRONT WHEELS STEEL	<input type="checkbox"/>	<input type="checkbox"/>	
22	FRONT HUBS & WHEEL BEARINGS OIL LUBRICATED	<input type="checkbox"/>	<input type="checkbox"/>	
23	FRONT BRAKES	<input type="checkbox"/>	<input type="checkbox"/>	
24	GROSS AXLE WEIGHT RATINGS REAR	<input type="checkbox"/>	<input type="checkbox"/>	
25	REAR AXLE	<input type="checkbox"/>	<input type="checkbox"/>	
26	REAR SUSPENSION	<input type="checkbox"/>	<input type="checkbox"/>	
27	TOP SPEED	<input type="checkbox"/>	<input type="checkbox"/>	
28	REAR BRAKES	<input type="checkbox"/>	<input type="checkbox"/>	
29	REAR TIRES	<input type="checkbox"/>	<input type="checkbox"/>	
30	REAR WHEELS	<input type="checkbox"/>	<input type="checkbox"/>	
31	PAINTED WHEELS	<input type="checkbox"/>	<input type="checkbox"/>	
32	VISUAL TIRE PRESSURE INDICATOR	<input type="checkbox"/>	<input type="checkbox"/>	
33	HUBDOMETER	<input type="checkbox"/>	<input type="checkbox"/>	
34	ABS & ATC SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	
35	AIR DRYER	<input type="checkbox"/>	<input type="checkbox"/>	
36	ADDITIONAL AIR RESERVOIR	<input type="checkbox"/>	<input type="checkbox"/>	
37	REMOTE MANUAL AIR DRAINS	<input type="checkbox"/>	<input type="checkbox"/>	
38	OUTSIDE AIR INTAKE CONNECTION	<input type="checkbox"/>	<input type="checkbox"/>	
39	TIRE CHAINS	<input type="checkbox"/>	<input type="checkbox"/>	
40	TIRE CHAINS ACTIVATION	<input type="checkbox"/>	<input type="checkbox"/>	
41	ENGINE	<input type="checkbox"/>	<input type="checkbox"/>	
42	ENGINE EQUIPMENT	<input type="checkbox"/>	<input type="checkbox"/>	
43	EXHAUST SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	
44	EXHAUST DIVERTER	<input type="checkbox"/>	<input type="checkbox"/>	
45	RAIN CAP ON EXHAUST	<input type="checkbox"/>	<input type="checkbox"/>	
46	TRANSMISSION	<input type="checkbox"/>	<input type="checkbox"/>	
47	TRANSMISSION MODE	<input type="checkbox"/>	<input type="checkbox"/>	
48	TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE	<input type="checkbox"/>	<input type="checkbox"/>	
49	DRIVELINES	<input type="checkbox"/>	<input type="checkbox"/>	

50	ELECTRICAL CONNECTIONS	<input type="checkbox"/>	<input type="checkbox"/>	
51	CAB INTERIOR	<input type="checkbox"/>	<input type="checkbox"/>	
52	INTERIOR GRAB HANDLE "A" PILLAR	<input type="checkbox"/>	<input type="checkbox"/>	
53	CAB CONSOLE	<input type="checkbox"/>	<input type="checkbox"/>	
54	VEHICLE DATA RECORDER (VDR)	<input type="checkbox"/>	<input type="checkbox"/>	
55	OCCUPANT RESTRAINT INDICATOR	<input type="checkbox"/>	<input type="checkbox"/>	
56	INSTRUMENTATION AND CONTROLS	<input type="checkbox"/>	<input type="checkbox"/>	
57	IGNITION KEY	<input type="checkbox"/>	<input type="checkbox"/>	
58	ATO/ATC TYPE FUSE BLOCKS	<input type="checkbox"/>	<input type="checkbox"/>	
59	KUSSMAUL 20 AMP INLET	<input type="checkbox"/>	<input type="checkbox"/>	
60	BATTERY CONDITIONER 1200 KUSSMAUL	<input type="checkbox"/>	<input type="checkbox"/>	
61	BATTERY JUMPER STUDS	<input type="checkbox"/>	<input type="checkbox"/>	
62	LED GROUND LIGHTING BELOW EACH DOOR	<input type="checkbox"/>	<input type="checkbox"/>	
63	MAP LIGHT	<input type="checkbox"/>	<input type="checkbox"/>	
64	HAND HELD SPOTLIGHT	<input type="checkbox"/>	<input type="checkbox"/>	
65	EXTERIOR CAB ASSIST HANDLES	<input type="checkbox"/>	<input type="checkbox"/>	
66	TWO TONE CAB PAINT	<input type="checkbox"/>	<input type="checkbox"/>	
67	TOUCH UP PAINT	<input type="checkbox"/>	<input type="checkbox"/>	
68	OPERATORS MANUAL AND PARTS LIST	<input type="checkbox"/>	<input type="checkbox"/>	
69	ENGINE AND TRANSMISSION OPERATION MANUAL	<input type="checkbox"/>	<input type="checkbox"/>	
70	AS BUILT DIAGRAMS	<input type="checkbox"/>	<input type="checkbox"/>	
71	BODY DESIGN	<input type="checkbox"/>	<input type="checkbox"/>	
72	EXTERIOR ALUMINUM BODY	<input type="checkbox"/>	<input type="checkbox"/>	
73	DRIP RAILS	<input type="checkbox"/>	<input type="checkbox"/>	
74	ROOF CONSTRUCTION	<input type="checkbox"/>	<input type="checkbox"/>	
75	BODY SUBFRAME	<input type="checkbox"/>	<input type="checkbox"/>	
76	BODY MOUNTING	<input type="checkbox"/>	<input type="checkbox"/>	
77	EXTERIOR COMPARTMENT DOORS	<input type="checkbox"/>	<input type="checkbox"/>	
78	ROLL-UP DOOR CONSTRUCTION - ROBINSON (ROM)	<input type="checkbox"/>	<input type="checkbox"/>	
79	HINGED DOOR CONSTRUCTION	<input type="checkbox"/>	<input type="checkbox"/>	
80	BODY HEIGHT MEASUREMENTS	<input type="checkbox"/>	<input type="checkbox"/>	
81	BODY WIDTH DIMENSIONS	<input type="checkbox"/>	<input type="checkbox"/>	
82	LEFT SIDE COMPARTMENTS	<input type="checkbox"/>	<input type="checkbox"/>	
83	COMPARTMENT L1	<input type="checkbox"/>	<input type="checkbox"/>	
84	COMPARTMENT L2	<input type="checkbox"/>	<input type="checkbox"/>	
85	COMPARTMENT L3	<input type="checkbox"/>	<input type="checkbox"/>	
86	STREETSIDE COMPARTMENT - REAR (S4)	<input type="checkbox"/>	<input type="checkbox"/>	
87	RIGHT SIDE COMPARTMENTS	<input type="checkbox"/>	<input type="checkbox"/>	
88	COMPARTMENT R1	<input type="checkbox"/>	<input type="checkbox"/>	

89	COMPARTMENT R2	<input type="checkbox"/>	<input type="checkbox"/>	
90	SIDE ENTRY DOOR	<input type="checkbox"/>	<input type="checkbox"/>	
91	ENTRY HANDRAILS	<input type="checkbox"/>	<input type="checkbox"/>	
92	WINDOW(S)	<input type="checkbox"/>	<input type="checkbox"/>	
93	COMPARTMENT R3	<input type="checkbox"/>	<input type="checkbox"/>	
94	CURBSIDE COMPARTMENT - REAR R4	<input type="checkbox"/>	<input type="checkbox"/>	
95	REAR COMPARTMENT T1	<input type="checkbox"/>	<input type="checkbox"/>	
96	COMPARTMENT INTERIOR FINISH	<input type="checkbox"/>	<input type="checkbox"/>	
97	SWEEP-OUT CONSTRUCTION	<input type="checkbox"/>	<input type="checkbox"/>	
98	PLASTIC FLOOR AND SHELF TILE	<input type="checkbox"/>	<input type="checkbox"/>	
99	10" REAR STEP BUMPER	<input type="checkbox"/>	<input type="checkbox"/>	
100	FASTENERS	<input type="checkbox"/>	<input type="checkbox"/>	
101	WHEEL WELL LINERS	<input type="checkbox"/>	<input type="checkbox"/>	
102	STAINLESS STEEL BODY FENDERS	<input type="checkbox"/>	<input type="checkbox"/>	
103	BODY RUB RAILS	<input type="checkbox"/>	<input type="checkbox"/>	
104	FRONT GRAVEL GUARDS	<input type="checkbox"/>	<input type="checkbox"/>	
105	REAR BODY HANDRAILS	<input type="checkbox"/>	<input type="checkbox"/>	
106	REAR TOW EYES	<input type="checkbox"/>	<input type="checkbox"/>	
107	ELECTRIC STEP	<input type="checkbox"/>	<input type="checkbox"/>	
108	ROLL-OUT AWNING CURBSIDE	<input type="checkbox"/>	<input type="checkbox"/>	
109	AWNING HOUSING COLOR	<input type="checkbox"/>	<input type="checkbox"/>	
110	ROOF ACCESS HATCH COVER	<input type="checkbox"/>	<input type="checkbox"/>	
111	WALK-IN INTERIOR FINISH DETAILS	<input type="checkbox"/>	<input type="checkbox"/>	
112	DESK, CABINET, CONSOLE FINISH	<input type="checkbox"/>	<input type="checkbox"/>	
113	CAB TO BODY TALK THROUGH	<input type="checkbox"/>	<input type="checkbox"/>	
114	INTERIOR SPECIFICATIONS	<input type="checkbox"/>	<input type="checkbox"/>	
115	INTERIOR INSULATION	<input type="checkbox"/>	<input type="checkbox"/>	
116	INTERIOR FINISH	<input type="checkbox"/>	<input type="checkbox"/>	
117	INTERIOR WALKWAY FLOOR	<input type="checkbox"/>	<input type="checkbox"/>	
118	INTERIOR SUB-FLOOR	<input type="checkbox"/>	<input type="checkbox"/>	
119	HEATER	<input type="checkbox"/>	<input type="checkbox"/>	
120	AIR CONDITIONER - HEATER	<input type="checkbox"/>	<input type="checkbox"/>	
121	STREETSIDE INTERIOR AREA (IS1)	<input type="checkbox"/>	<input type="checkbox"/>	
122	STREETSIDE INTERIOR AREA (IS2)	<input type="checkbox"/>	<input type="checkbox"/>	
123	CURBSIDE INTERIOR AREA (IC1)	<input type="checkbox"/>	<input type="checkbox"/>	
124	CURBSIDE INTERIOR AREA (IC2)	<input type="checkbox"/>	<input type="checkbox"/>	
125	REAR INTERIOR AREA (IR1)	<input type="checkbox"/>	<input type="checkbox"/>	
126	FLIP-UP SEAT	<input type="checkbox"/>	<input type="checkbox"/>	
127	LOW VOLTAGE ELECTRICAL SYSTEM- 12 VDC	<input type="checkbox"/>	<input type="checkbox"/>	
128	12 VOLT MULTIPLEX CONTROL CENTER	<input type="checkbox"/>	<input type="checkbox"/>	

129	WELDON CERTIFICATION	<input type="checkbox"/>	<input type="checkbox"/>	
130	MULTIPLEX SYSTEM VISTA IV V-MUX COLOR DISPLAY	<input type="checkbox"/>	<input type="checkbox"/>	
131	BATTERY SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	
132	BATTERY SWITCH	<input type="checkbox"/>	<input type="checkbox"/>	
133	BATTERY SOLENOID	<input type="checkbox"/>	<input type="checkbox"/>	
134	ENGINE COMPARTMENT LIGHT	<input type="checkbox"/>	<input type="checkbox"/>	
135	CAB HAZARD WARNING LIGHT	<input type="checkbox"/>	<input type="checkbox"/>	
136	BACK-UP ALARM	<input type="checkbox"/>	<input type="checkbox"/>	
137	INTERIOR LED LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>	
138	TAIL LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>	
139	MIDSHIP MARKER/TURN SIGNAL	<input type="checkbox"/>	<input type="checkbox"/>	
140	MARKER LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>	
141	CAB STEP LIGHTS / GROUND LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>	
142	LICENSE PLATE LIGHT	<input type="checkbox"/>	<input type="checkbox"/>	
143	ELECTRONIC SIREN	<input type="checkbox"/>	<input type="checkbox"/>	
144	FRONT SCENE LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>	
145	FRONT SCENE LIGHT LOCATION	<input type="checkbox"/>	<input type="checkbox"/>	
146	FRONT SCENE LIGHTS ACTIVATION	<input type="checkbox"/>	<input type="checkbox"/>	
147	SIDE SCENE LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>	
148	REAR SCENE LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>	
149	WARNING LIGHT PACKAGE	<input type="checkbox"/>	<input type="checkbox"/>	
150	UPPER LEVEL OPTICAL WARNING DEVICES	<input type="checkbox"/>	<input type="checkbox"/>	
151	GTT OPTICOM	<input type="checkbox"/>	<input type="checkbox"/>	
152	LOWER LEVEL OPTICAL WARNING DEVICES	<input type="checkbox"/>	<input type="checkbox"/>	
153	GRILLE LIGHT LED	<input type="checkbox"/>	<input type="checkbox"/>	
154	LINE VOLTAGE ELECTRICAL SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	
155	LIMA PTO GENERATOR	<input type="checkbox"/>	<input type="checkbox"/>	
156	GENERATOR BONDING	<input type="checkbox"/>	<input type="checkbox"/>	
157	GENERATOR MOUNTING	<input type="checkbox"/>	<input type="checkbox"/>	
158	POWER-TAKE-OFF GENERATOR DRIVE	<input type="checkbox"/>	<input type="checkbox"/>	
159	ENGINE SPEED CONTROL	<input type="checkbox"/>	<input type="checkbox"/>	
160	LOADCENTER	<input type="checkbox"/>	<input type="checkbox"/>	
161	GENERATOR MONITORING PANEL	<input type="checkbox"/>	<input type="checkbox"/>	
162	SHORE POWER INLET - BATTERY CHARGER	<input type="checkbox"/>	<input type="checkbox"/>	
163	OUTLETS AND CIRCUITS	<input type="checkbox"/>	<input type="checkbox"/>	
164	LINE VOLTAGE ELECTRICAL SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	
165	GENERAL REQUIREMENTS	<input type="checkbox"/>	<input type="checkbox"/>	
166	120 VAC SCENE LIGHTING	<input type="checkbox"/>	<input type="checkbox"/>	
167	LIGHT TOWER	<input type="checkbox"/>	<input type="checkbox"/>	

168	EQUIPMENT PAYLOAD WEIGHT ALLOWANCE	<input type="checkbox"/>	<input type="checkbox"/>	
169	EQUIPMENT	<input type="checkbox"/>	<input type="checkbox"/>	
170	REMAINING NFPA MINOR EQUIPMENT BY PURCHASER	<input type="checkbox"/>	<input type="checkbox"/>	
171	SIGTRONIC US-67S INTERCOM	<input type="checkbox"/>	<input type="checkbox"/>	
172	CUSTOMER SUPPLIED ANTENNAS	<input type="checkbox"/>	<input type="checkbox"/>	
173	CUSTOMER SUPPLIED 2-WAY RADIO	<input type="checkbox"/>	<input type="checkbox"/>	
174	ELECTROLYSIS CORROSION CONTROL	<input type="checkbox"/>	<input type="checkbox"/>	
175	PAINT FINISH - SINGLE COLOR	<input type="checkbox"/>	<input type="checkbox"/>	
176	GRAPHICS PROOF	<input type="checkbox"/>	<input type="checkbox"/>	
177	GRAPHICS PROOF	<input type="checkbox"/>	<input type="checkbox"/>	
178	REFLECTIVE 6" FLAG - STRAIGHT	<input type="checkbox"/>	<input type="checkbox"/>	
179	OEM PAINTED CHASSIS RIMS	<input type="checkbox"/>	<input type="checkbox"/>	
180	WHEEL COVERS	<input type="checkbox"/>	<input type="checkbox"/>	
181	MANUFACTURING LABELS	<input type="checkbox"/>	<input type="checkbox"/>	
182	VEHICLE DATA PLATE	<input type="checkbox"/>	<input type="checkbox"/>	
183	OVERALL HEIGHT, LENGTH DATA PLATE US AND METRIC	<input type="checkbox"/>	<input type="checkbox"/>	
184	CHASSIS FAMILIARIZATION CLASS	<input type="checkbox"/>	<input type="checkbox"/>	

2. If this offer is accepted by the City, such offer and acceptance will create a contract as described in:

- (a) the RFQ;
- (b) the specifications set out above and in Schedule A of the RFQ;
- (c) the General Terms and Conditions; and
- (d) this Quotation; and
- (e) other terms, if any, that are agreed to by the parties in writing.

3. Capitalized terms used and not defined in this Quotation will have the meanings given to them in the RFQ. Except as specifically modified by this Quotation, all terms, conditions, representations, warranties and covenants as set out in the RFQ will remain in full force and effect.

4. The location of the nearest factory authorized warranty repair facility / parts dealership:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. The number of business days upon the receipt of Purchase Order is received that the Contractor will guarantee delivery: \_\_\_\_\_

6. I/We the undersigned duly authorized representatives of the Contractor, having received and carefully reviewed the RFQ including without limitation the Specifications and the General Terms and Conditions, submit this Quotation in response to the RFQ.

**This Quotation** is offered by the Contractor this \_\_\_\_\_ day of \_\_\_\_\_, 2014.

**CONTRACTOR**

by its authorized signatory:

\_\_\_\_\_  
(Legal Name of Contractor)

\_\_\_\_\_  
(Signature of Authorized Signatory)

\_\_\_\_\_  
(Print Name and Position of Authorized Signatory)

**This Quotation** is accepted by the City this \_\_\_\_\_ day of \_\_\_\_\_, 2014.

**CITY OF SURREY**

by its authorized signatory:

\_\_\_\_\_  
(Signature of Authorized Signatory)

\_\_\_\_\_  
(Print Name and Position of Authorized Signatory)