



**CITY OF NIAGARA FALLS, NEW YORK
DIVISION OF PURCHASING
City Hall, Room 214
745 Main Street
Niagara Falls, NY 14301**

The City of Niagara Falls, New York (“the City”) is requesting sealed submissions from vendors for the purchase of 1500 GPM Pumper Truck (s) pursuant to the following instructions, General Conditions and Specific Terms, Conditions and Specifications.

Sealed submissions will be received, publicly opened and read aloud in the Purchasing Office at City Hall as follows:

Time

Date

11:00 A.M.

Thursday, November 17, 2022

FOR: Purchase of Fire Apparatus 1500 GPM Pumper Truck (2-3)

In accordance with the specifications on file at the above address. The City reserves the right to reject any and all submissions and waive any informality.

One (1) original submission and one (1) copy shall be submitted to:

CITY OF NIAGARA FALLS, NEW YORK
DIVISION OF PURCHASING
City Hall, Room 214
745 Main Street
Niagara Falls, NY 14301

The City will officially distribute submission package documents from the Division of Purchasing. Submission package documents are also available on the Purchasing Division’s website, www.niagarafallsusa.org/government/city-departments/purchasing. Copies from any other source are not considered official copies. Only those vendors who obtain documents from the sources listed are guaranteed to receive addendum information if such information is issued. If you have obtained this document from a source other than the sources listed, it is recommended that you obtain an official copy.

The envelope or packing container containing the submission must bear the vendor name and address, be sealed and must be clearly marked in the LOWER LEFT CORNER with the submission number. Submissions which are received in a packing envelope or container should also bear the submission number in a conspicuous place. Failure to do this may necessitate the premature opening of the submission which may compromise its confidentiality.

Any and all submissions and contracts/agreements made or awarded by the City or any department, agency or official thereof for work or services performed or to be performed, or goods purchased or sold or to be purchased or sold are made subject to the provisions of Chapter 861 of the Laws of New York, 1953, as amended by Chapter 751 of the Laws of New York, and as now contained or as may hereafter be amended. The provisions of the New York State General Municipal Law Section 103a and 103b are applicable to this offering.

This offering is open to all departments and subdivisions of the City. The total number of pages contained in this package should be **one hundred twenty seven (127)** including attachments.

1 **GENERAL CONDITIONS (Page 1 of 5)**

2 It is highly recommended that vendors completely read this entire document to become
3 acquainted with the terms and conditions of this document and its requirements. No relief will be
4 allowed from conditions herein unless a vendor takes written exception to that condition in its
5 submission.

6 The City reserves the right to accept any submission hereunder by items, or as a whole, or to
7 reject any or all items or to waive any informalities in a submission. In case of error in the
8 extension of prices in a submission, the unit price will govern.

9 No submission will be accepted unless it is accompanied by a bid bond or a certified check (the
10 “submission deposit”) IF REQUIRED. See the “Specific Terms, Conditions and Specifications”
11 section of this document.

12 If a certified check is submitted, said certified check shall be duly certified by an incorporated
13 bank or trust company. The amount thereof shall become the property of the City as liquidated
14 damages if the vendor whose submission is accepted shall fail to enter into a contract/agreement
15 with the City or shall fail to give the security for the performance of the contract/agreement as
16 required upon notice to it as set forth herein.

17 The aforementioned submission deposit from each vendor except the successful vendor(s) shall
18 be returned within sixty (60) calendar days of the opening of the submissions. The remaining
19 submission deposit(s) shall be returned after the City has awarded the contract/agreement.

20 Vendors must use this form, or a submission may be considered void. All submissions must be
21 printed in ink, typewritten or computer generated. Any additional information a vendor desires to
22 add to its submission shall be neatly handwritten, typed or computer generated on separate sheets
23 of paper, as necessary. **SUBMISSIONS MUST BE SIGNED IN BLUE OR BLACK INK.**

24 Submissions which are received after the time designated, whether mailed or otherwise
25 submitted, shall not be opened nor otherwise considered. Facsimile and/or electronically mailed
26 submissions are not acceptable and will be rejected.

27 No vendor may withdraw any submission within forty-five (45) days after the opening thereof.
28 All prices set forth therein shall be held firm during the above time period, and for any additional
29 time period specified in the Specific Conditions.

30 No submissions will be accepted from, nor any contract/agreement awarded to, any person or
31 entity who is in arrears in taxes or otherwise indebted to the City or who has defaulted as surety
32 or otherwise upon a contract or obligation to the City.

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GENERAL CONDITIONS (Page 2 of 5)

No interpretation of the meaning of the specifications or other documents will be made to any vendor orally. Every request for such interpretation should be in writing, addressed to the City of Niagara Falls, New York Purchasing Division, 745 Main Street, Room 214, Niagara Falls, New York 14301, and to be given any consideration, must be received seven (7) days prior to the date fixed for the opening on submissions. Any and all such interpretations and supplemental instructions will be in the form of written addenda to the specifications, which, if issued, will be mailed by certified mail, return receipt requested, to all prospective vendors (at the respective addresses furnished for such proposals), not later than three (3) days prior to the date fixed for the opening of submissions. Failure of any vendor to receive addendum or interpretation shall not relieve such vendor from any obligation under his submission as submitted. All addenda so issued shall become part of the specifications for this offering. No verbal statement made by a City employee, or anyone else, is binding, nor shall such statement(s) be considered a part of this offering.

Vendors must clearly state any contingency upon which a submission is made, if any.

Failure to supply any requested information, or to submit prices for all items may cause a submission to be considered informal or result in a vendor being declared non-responsible.

Failure to complete and sign the “Vendor’s Certification & Assignment of Claim” may result in the submission being rejected.

Failure to complete, sign and have notarized the “Affidavit of Non-Collusive Submission Certification” may result in the submission being rejected.

Failure to complete, sign and have notarized the “Certification of Compliance with the Iran Divestment Act” may result in the submission being rejected.

If a vendor is not making a submission, it is important that the vendor answer this offering by completing and mailing back the “Non-Submission Certificate” in this package. Failure to respond to two successive offerings may result in a vendor being removed from the mailing list.

The City may make such investigations as deemed necessary to determine the responsibility of any vendor to perform work and/or furnish goods and services, and any vendor shall furnish to the City all information, samples and data required by the City, including financial data, within the time, in the form, and in the manner required by the City. The City reserves the right to reject any submission if the evidence submitted by or investigation of any such vendor fails to satisfy the City that any such vendor is responsible or is able or qualified to carry out the obligations of the vendor as contemplated herein. Additionally, if a business entity, the vendor must be authorized to do business in the State of New York.

69 **GENERAL CONDITIONS (Page 3 of 5)**

70 Provision of any required performance bond is the responsibility of the vendor. The successful
71 vendor shall, within ten (10) business days after the date of notification of award, furnish the
72 City with a performance bond in a sum equal to the amount set forth herein. In the event a
73 vendor fails to furnish the performance bond within the specified time period, then the
74 submission deposit of the vendor shall be retained by the City as liquidated damages and not as a
75 penalty. IT IS BEING NOW AGREED that said sum is a fair estimate of the number of damages
76 that the City will sustain due to the vendor’s failure to furnish said bond. See the “Special
77 Conditions” section of this document.

78 Prices are to be submitted: NET, F.O.B. Destination to all Niagara Falls Departments/Agencies,
79 Political Sub- divisions and other Niagara Falls municipalities authorized by law, including
80 inside delivery. No unit price change will be permitted during the contract/agreement period.
81 Prices include all transportation charges delivered inside. “Tailgate Delivery” not accepted
82 except where specified. Cash discounts, if any, are to be clearly stated.

83 All submissions are subject to delivery as stated herein and must state when delivery can be
84 made.

85 All postage, freight, express, cartage or other transportation charges shall be prepaid by vendor.

86 The City will not pay any type of fuel surcharge on any item or contract/agreement unless
87 specifically indicated as such by the City in the general or specific conditions. Any fuel charges
88 added which were not authorized in writing by the City will be deleted from any payments made
89 to the vendor.

90 Submissions shall not include any Federal, State, or Local excise, sales, transportation, or other
91 tax unless the Federal or State Law specifically levies such tax on the purchases made by a
92 political subdivision. Exemption certificates will be furnished by the Purchasing Division when
93 required.

94 In case of default in delivery performance in furnishing items awarded to a vendor, the City may
95 procure the materials and/or services from other sources and hold the vendor responsible for any
96 excess cost occasioned thereby. However, the vendor shall not be charged for any excess cost
97 occasioned by the City by the purchase of materials and/or services in the open market or under
98 other contracts when the delay of the vendor is due to unforeseen causes beyond the control and
99 without the fault or negligence of the vendor.

101 **GENERAL CONDITIONS (Page 4 of 5)**

102 In the event any item or items in this offering are made available to the City on a New York State
103 Government contract or bid/quote from another municipality at a unit price lower than the price
104 upon which award is made hereunder, the City reserves the right to purchase at the lower price
105 under such contract or bid/quote, notwithstanding the award herein, after offering the awarded
106 vendor the opportunity to meet or better the item price therein.

107 The use of a manufacturer or of any particular name, trademark or brand, in describing an item
108 does not restrict vendors to that manufacturer or specific article; but the article on which
109 submissions are made must be of such character or quality that it would serve the purpose for
110 which it is to be used equally as well as that specified. Submissions will only be accepted in
111 accordance with specifications on file or approved equal. In the event a submission is made on
112 alternative or substitute article(s), the vendor must so state and give complete descriptions of the
113 article(s) so offered which explain the differences between the specification and the offering
114 (size, gauge, weight, etc.).

115 Where a brand name or catalog reference is included in the specifications, it shall be interpreted
116 to mean that proprietary product or equal approved. If item submitted is not the particular brand
117 name product, the vendor shall state in its submission what it is submitting as equal or as
118 alternate item(s). Catalog cuts and descriptive literature shall accompany the submission. In all
119 cases, final judgment as to whether or not an item meets the specifications rests with the City.
120 Alternative proposals for materials and/or equipment to serve the purpose intended will be
121 considered. All items are to be submitted on an "as equal" basis.

122 Quantities listed are on a more or less basis of what the City anticipates unless specified
123 otherwise herein.

124 Samples of items, when required by the City, must be furnished free of expense at the time
125 specified and will, upon request, be returned at the vendor's expense, if not destroyed by tests.

126 All materials furnished are to be guaranteed free from defects and anything found defective or
127 contrary to order no matter in what stage of completion may be rejected and shall be made good
128 by the vendor at its own expense.

129 Workmanship shall be first class in every respect without exception and shall be equal to the best
130 modern practices.

131 Certain labor tasks/services require the payment of prevailing wage in accordance with state law.
132 If this offering includes such labor tasks/services, the requirements of same shall be set forth in
133 the section entitled:

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135 **GENERAL CONDITIONS (Page 5 of 5)**

136 “PREVAILING RATE SCHEDULE” herein. Certified payroll reports will be required before
137 payments are made.

138 If installation is required, the vendor shall clean up and remove all debris and rubbish resulting
139 from the work and leave the premises broom clean.

140 The City reserves the right to terminate this contract/agreement at any time for any reason in
141 whole or in part upon thirty (30) days written notice to the successful vendor. The City also
142 reserves the right to cancel the contract/agreement upon ten (10) days written notice for non-
143 performance. The contract/agreement may also be cancelled or amended by the City if the City
144 encounters continuing or irresolvable problems with the selected vendor(s) concerning quality of
145 products, service levels, pricing discrepancies or delivery problems.

146 No contract/agreement shall be assigned or any part of the same sub-contracted without the
147 written consent of the City, but in no case shall such consent relieve the vendor of its obligations
148 or change the terms of the contract/ agreement.

149 The vendor shall not assign, transfer or convey the contract/agreement or any right, title or
150 interest therein without previous consent, in writing, from the City.

151 The vendor shall, at all times, observe and comply with all Federal, New York State, Niagara
152 County and City of Niagara Falls laws, ordinances and regulations, which may in any manner
153 affect the preparation of proposals or the performance of the contract/agreement.

154 Upon award of this offering, successful vendors shall forward a completed W-9 form to the
155 purchasing Division no later than ten (10) days following the notification of award. Vendors
156 already doing business with the City shall only be required to forward this form if it differs from
157 the one currently on file with the City.

158 As part of this offering and subsequent award, the City shall not complete any credit application
159 or related forms and shall not be required to agree to any payment terms aside from those set
160 forth herein. If a vendor requires additional payment terms and/or a completed credit application,
161 this must be clearly stated in writing at the time the vendor submits its bid/quotation/proposal.

162 If a vendor attempts to impose additional payment terms and/or attempts to require a completed
163 credit application from City following the opening of the bids/quotations/proposals, this shall be
164 grounds for either rejection of the vendor’s submission and/or rescission of an award to said
165 vendor.

166 If you have any questions about this document other than those which are required to be
167 submitted in writing, please contact Purchasing Agent Leeann Huey at (716) 286-4372.

168

169 **Specific Terms, Conditions and Specifications**

170 **1500 GPM PUMPER TRUCK**

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172 Bids will be received by the Purchasing Division of the City of Niagara Falls, New York (“the
173 City”) at City Hall, 745 Main Street, Niagara Falls, New York 14301, Room 214 for the
174 purchase of two (2) or three (3) 1500 GPM Pumper Truck(s).

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176 The term of this contract/agreement shall be for twenty-four (24) months following the date of
177 award. All pricing must remain firm for the entire term.

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179 Upon award of this offering, the successful vendor must submit certificate(s) of insurance to the
180 City which meets all the requirements set forth in the attached “Instructions for City of Niagara
181 Falls Standard Insurance Certificate.” Said certificate(s) of insurance must be received by the
182 Purchasing Division, no later than ten (10) business days following the date of notification of
183 award. Failure to do so may result in the award being negated.

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185 Following the opening of the valid submissions, the City will conduct its due diligence. Once the
186 due diligence investigation is completed, the City shall either reject all bids or the lowest
187 responsible bid(s) will be submitted to the City Council for possible award via majority vote.

188

189 Vendors shall quote a total price for all items set forth herein, including all costs, fees, etc. for
190 said items, shipping/freight, installation, and initial start-up testing.

191

192 The City seeks to procure a commercially produced apparatus, specifically 1500 GPM Pumper
193 Truck(s), up to three (3) quantity.

194 For questions regarding the specifications, please contact Rob Meidenbauer, Chief of Apparatus
195 at (716) 553-3662.

196 **INTENT OF SPECIFICATIONS**

197 It shall be the intent of these specifications to cover the furnishing and delivery of a complete fire
198 apparatus. These detailed specifications cover the requirements as to the type of construction,
199 finish, equipment and tests to which the fire apparatus shall conform. Minor details of
200 construction and materials, which are not otherwise specified, are left to the discretion of the
201 contractor.

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

206 **INSTRUCTIONS TO BIDDERS**

207 The purchaser's standards for bidding automotive fire apparatus must be strictly adhered to, and
208 all bid forms and questions must be complete and submitted with the bid. **Omissions and**
209 **variations shall result in immediate rejection of the bid.**

210 Bids shall only be considered from companies that have an established reputation in the field of
211 fire apparatus construction and have been in business for a minimum of 20 years. Furthermore,
212 in order to insure fair, ethical, and legal competition, neither the original equipment manufacturer
213 (O.E.M.) nor parent company of the O.E.M. shall have ever been fined or convicted of price
214 fixing, bid rigging, or collusion in any domestic or international fire apparatus market (no
215 exception).

216 If a bidder represents more than one fire Apparatus Company or brands of apparatus, they must
217 only bid the top of the line that meets specification.

218 Each bidder shall furnish satisfactory evidence of their ability to construct the apparatus
219 specified.

220 Any apparatus manufacturer or their parent company who has had a performance bond called in
221 the last 10 years, shall not be eligible to bid. Any bids from these manufactures shall be
222 immediately rejected (no exception).

223 Each bid shall be accompanied by a set of manufacturer's set of specifications consisting of a
224 detailed description of the apparatus, construction methods, and equipment proposed to which
225 the apparatus furnished under contract shall conform. These specifications shall indicate size,
226 type, model and make of all component's parts and equipment, providing proof of compliance
227 with each and every item in the departments advertised specifications. A letter only, even
228 though written on company letterhead, shall not be sufficient. **An exception to this**
229 **requirement shall not be acceptable.**

230 In accordance with the current edition of NFPA 1901 standards, the proposal shall specify
231 whether the fire department or apparatus dealership shall provide required loose equipment.

232 The purchaser will utilize this advertised specification to compare all submitted bid proposals.
233 To facilitate comparison, all bid proposal specifications shall be submitted in the same sequence
234 as the advertised specification. Any bidder who fails to submit a set of bid proposal
235 specifications, or who photocopies and submits these specifications as their own construction
236 details will be considered nonresponsive. This shall render such proposal ineligible for award.

237 The purchaser's specification shall, in all cases, govern the construction of the apparatus, unless a
238 properly documented exception or deviation was approved. Any bid indicating that the
239 manufacturer's proposal shall supersede the purchaser's specification will be considered a
240 complete substitute and immediately rejected.

241 **THE PURCHASER HAS THE RIGHT TO REJECT ANY BIDS WHICH DOES NOT**
242 **MEET THESE SPECIFICATIONS AND IS THE SOLE DECIDER TO DEEM WHICH**
243 **BID IS IN THE BEST INTEREST OF THE PURCHASER.**

244 **EXCEPTIONS**

245 These specifications are based upon design and performance criteria which have been developed
246 by the fire department as a result of extensive research and careful analysis. Subsequently these
247 specifications reflect the only type of fire apparatus that is acceptable at this time and all
248 specifications herein contained are considered as minimum. Therefore, exceptions to the
249 specifications may not be accepted.

250 Bidders shall indicate in the "yes/no" column if their bid complies on each item (paragraph)
251 specified.

252 If a product brand name is specified and is commercially available to all bidders, an exception to
253 such items is not acceptable and such bid may be rejected.

254 Exceptions shall be allowed if they are equal to or superior to that specified and provided, they
255 are listed and fully explained on a separate page. All deviations, no matter how slight, shall be
256 clearly explained on a separate sheet, in the bid sequence, citing the page and paragraph
257 number(s) of the specifications, how the proposal deviation is different, how the deviation meets
258 or exceeds the specifications and why it is necessary, and entitled "**EXCEPTIONS TO**
259 **SPECIFICATIONS**". The buyer reserves the right to require a bidder to provide proof in each
260 case that a substituted item is equal to that specified. The buyer shall be the sole judge in
261 determination of acceptable substitutes.

262 Proposals that are found to have deviations without listing them or bids taking total exceptions to
263 these advertised specifications will be rejected (no exception).

264 Bids not including all exceptions is a material breach and shall result in the bid being
265 immediately rejected (no exception).

266 **GENERAL DESIGN AND CONSTRUCTION**

267 The cab, chassis, pump module, and body are to be entirely designed, assembled, and painted by
268 the prime vehicle manufacturer, which minimizes third party involvement on engineering,
269 design, service and warranty issues.

270 All bidders shall provide a list of the company, manufacturing location, and engineering source
271 for each individual major component, including but not limited to the welded cab assembly, the
272 pump house module assembly, the chassis assembly, body, and electrical system. Apparatus
273 using any subcontracted cab, chassis, pump module, electrical system or body will not be
274 acceptable.

275 The apparatus shall be designed with due consideration to distribution of load between the front
276 and rear axles. Weight balance and distribution shall be in accordance with the
277 recommendations of the National Fire Protection Association.

278 The bidder shall make accurate statements as to the apparatus weight and dimensions.

279 **QUALITY AND WORKMANSHIP**

280 All steel welding shall follow American welding Society D1.1-2004 recommendations for
281 structural steel welding. All aluminum welding shall follow American welding Society and
282 ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding
283 shall follow American Welding Society B2.1-2000 requirements for structural welding of sheet
284 metal. Flux core arc welding to use alloy rods, type 7000, American welding Society standards
285 A5.20-E70T1. Employees classified as welders are tested and certified to meet the American
286 Welding Society codes upon hire and every three (3) years thereafter. The manufacturer shall be
287 required to have an American welding Society certified welding inspector in plant during
288 working hours to monitor weld quality.

289 The manufacturer shall also be certified to operate a Quality Management System under the
290 requirements of ISO 9001. These standards sponsored by the International Organization for
291 Standardization (ISO) specify the quality systems that shall be established by the manufacturer
292 for design, manufacture, installation and service. A copy of the certificate of compliance shall be
293 included with the bid.

294 To demonstrate the quality of the product and service, each bidder shall provide a list of at least
295 twenty-five (25) fire departments/municipalities in the region that have bought a second time
296 from the representing dealer. **An exception to this requirement shall not be acceptable.**

297 **DELIVERY**

298 Apparatus, to ensure proper break in of all components while still under warranty, **shall be**
299 **delivered under its own power** - rail or truck freight shall not be acceptable. A qualified
300 delivery representative shall deliver the apparatus and remain for a sufficient length of time to
301 instruct personnel in proper operation, care and maintenance of the equipment delivered.

302 **MANUALS AND SERVICE INFORMATION**

303 The manufacturer shall supply at time of delivery, complete operation and maintenance manuals
304 covering the complete apparatus as delivered. A permanent plate shall be mounted in the
305 driver's compartment which specifies the quantity and type of fluid required including engine
306 oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

307 **SAFETY VIDEO**

308 Since video is much more effective than written documentation and can be replayed for new
309 personnel and as a refresher for existing personnel, an apparatus safety video, in DVD format
310 shall be provided at time of delivery. This video shall address key safety considerations for

311 personnel to follow when they are driving, operating, and maintaining the apparatus. Safety
312 procedures for the following shall be included on the video: vehicle pre trip inspection, chassis
313 operation, pump operation and maintenance.

314 **PERFORMANCE TESTS AND REQUIREMENTS**

315 A road test shall be conducted with the apparatus fully loaded and a continuous run of ten (10)
316 miles or more shall be made under all driving conditions, during which time the apparatus shall
317 show no loss of power or overheating. The transmission drive shaft or shafts, and rear axle shall
318 run quietly and be free from abnormal vibration or noise throughout the operating range of the
319 apparatus. Vehicle shall adhere to the following parameters:

320 A) The apparatus, when fully equipped and loaded, shall have not less than 25 percent nor more
321 than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75
322 percent on the rear axle.

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

326 C) The service brakes shall be capable of stopping a fully loaded vehicle in 35 feet at 20 mph on
327 a level concrete highway. The air brake system shall conform to Federal Motor vehicle Safety
328 Standards (FMVSS) 121.

329 D) The apparatus, fully loaded, shall be capable of obtaining a speed of 50 mph on a level
330 concrete highway with the engine not exceeding the governed rpm (full load).

331 **FAILURE TO MEET TEST**

332 In the event the apparatus fails to meet the test requirements of these specifications on the first
333 trial, second trials may be made at the option of the bidder within 30 days of the date of the first
334 trial. Such trials shall be final and conclusive and failure to comply with these requirements
335 shall be cause for rejection. Failure to comply with changes to conform to any clause of the
336 specifications, within 30 days after notice is given to the bidder of such changes, shall also be
337 cause for rejection of the apparatus. Permission to keep or store the apparatus in any building
338 owned or occupied by the purchaser or its use by the purchaser during the above-specified period
339 with the permission of the bidder shall not constitute acceptance.

340 **SERVICE AND WARRANTY SUPPORT (DEALERSHIP)**

341 **TO ENSURE FULL SERVICE AFTER DELIVERY, THE SELLING**
342 **BIDDER/DEALERSHIP MUST BE CAPABLE OF PROVIDING SERVICE WHEN**
343 **REQUIRED.**

344 The bidder/dealership shall show that the company is in position to render prompt service and to
345 furnish replacement parts.

346 Each bidder/dealership must be able to display that they are actively in the fire apparatus service
347 business by operating a factory authorized service center and parts repository capable of
348 satisfying the warranty service requirements and parts requirements of the vehicle(s) being
349 purchased.

350 The bidder/dealership must state the location of this authorized service center. This service
351 center must have a staff of factory-trained mechanics, well versed in all aspects of service for all
352 major components of the apparatus. **The service center must be within fifteen (15) miles of**
353 **the City of Niagara Falls Public works facility, 1785 New Rd Niagara Falls NY.**

354 **SERVICE AND WARRANTY SUPPORT (MANUFACTURER)**

355 To provide an additional layer of service support, the successful manufacturer must also own a
356 least two separate service facilities, one located in the northern portion of the US to service both
357 Canada and the northern US states and one in the south to service the southern states.

358 The manufacturer shall stock 1 million parts equating to \$5,000,000 of inventory dedicated to
359 service and replacement parts to ensure quick response and minimize down time. Furthermore,
360 the manufacturer shall house the inventory in a dedicated facility, with a dedicated shipping area
361 that ensures service parts are given priority. The bidder shall provide detailed documentation of
362 service and replacement part resources.

363 Parts identification shall be provided to both the dealer and the Fire Department through an
364 online web-based application for the specific truck reflected in this specification. Access will be
365 granted using the specific VIN number of the vehicle. The online web application will provide
366 the ability to view complete bills of materials, digital photographs, parts drawings, assembly
367 drawings, and access to all current operation, maintenance, and service publications.

368 The manufacturer must also maintain a 24 hour/ 7 day a week, toll free emergency hot line.

369 The manufacturer shall employ a staff of adequate size (a minimum of 30 personnel) specifically
370 dedicated to providing customer support and parts for the fielded fleet of vehicles it has
371 produced.

372 The manufacturer must be capable of providing both in-house and on-site service for the
373 apparatus.

374 The manufacturer shall offer regional factory hands-on repair and maintenance training classes.

375 The manufacturer shall employ a minimum of four certified EVT technicians on staff, not only
376 providing technical expertise in the repair of fire apparatus, but also demonstrating the
377 commitment to service after the sale.

378 LIABILITY

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

382 INSURANCE PROVIDED BY BIDDER**383 COMMERCIAL GENERAL LIABILITY INSURANCE**

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

- 387 • See pages 125-127 for instruction
- 388 • Each Occurrence: See pages 125-127 for instruction
- 389 • Products/Completed Operations Aggregate: See pages 125-127 for instruction
- 390 • Personal and Advertising Injury: See pages 125-127 for instruction
- 391 • General Aggregate: See pages 125-127 for instruction

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

396 COMMERCIAL AUTOMOBILE LIABILITY INSURANCE

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

- 400 • Each Accident Combined Single Limit: See pages 125-127 for instruction.

401 UMBRELLA/EXCESS LIABILITY INSURANCE

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

- 405 • Aggregate: See pages 125-127 for instructions
- 406 • Each Occurrence: See pages 125-127 for instructions

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

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

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

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

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

418 **INSURANCE PROVIDED BY MANUFACTURER**

419 **PRODUCT LIABILITY INSURANCE**

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

- 423 • See pages 125-127 for instructions
- 424 • Each Occurrence: See pages 125-127 for instructions
- 425 • Products/Completed Operations Aggregate: See pages 125-127 for instructions

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

429 **UMBRELLA/EXCESS LIABILITY INSURANCE**

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

- 433 • Each Occurrence: See pages 125-127 for instructions
- 434 • Aggregate: See pages 125-127 for instructions

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

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

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

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

444 Manufacturer agrees to furnish owner with a current Certificate of Insurance with the coverage's
445 listed above along with the bid. The certificate shall show the purchaser as the certificate holder.

446 **SINGLE SOURCE MANUFACTURER**

447 Bids shall only be accepted from a single source apparatus manufacturer. The definition of
448 single source is a manufacturer that designs and manufactures their products using an integrated
449 approach, including the chassis, cab weldment, cab, pump house (including the sheet metal
450 enclosure, valve controls, piping, and operator's panel) and body being designed, fabricated, and
451 assembled on the bidder's premises. The electrical system (hardwire or multiplex) shall be both
452 designed and integrated by the same apparatus manufacturer. The warranties relative to these
453 major components (excluding component warranties such as engine, transmission, axles, pump,
454 etc.) must be from a single source manufacturer and not split between manufacturers (i.e., body,
455 pump house, cab weldment and chassis). The bidder shall provide evidence that they comply
456 with this requirement.

457 The bidder shall state the location of the factory where the apparatus is to be built.

458 **NFPA 2016 STANDARDS**

459 This unit shall comply with the NFPA standards effective January 1, 2016, except for fire
460 department specifications that differ from NFPA specifications. These exceptions shall be set
461 forth in the Statement of Exceptions.

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

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

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

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

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

NFPA COMPLIANCY

477 Apparatus proposed by the bidder shall meet the applicable requirements of the National Fire
478 Protection Association (NFPA) as stated in the current edition at time of contract execution. Fire
479 Department's specifications that differ from NFPA specifications shall be indicated in the
480 proposal as "non-NFPA."
481

PUMP TEST

482 The rated water pump shall be tested, approved, and certified by an ISO certified independent
483 third-party testing agency at the manufacturer's expense. The test results, along with the pump
484 manufacturer's certification of hydrostatic test, the engine manufacturer's certified brake
485 horsepower curve, and the manufacturer's record of pump construction details shall be forwarded
486 to the Fire Department.
487

GENERATOR TEST

488 If the unit has a generator, the generator shall be tested, approved, and certified by an ISO
489 certified independent third-party testing agency at the manufacturer's expense. The test results
490 shall be provided to the Fire Department at the time of delivery.
491

SERVICE CENTER

492 The bidder shall have no less than Four (4) Service Centers located within the dealer's sales
493 territory. The service centers shall offer 24 hour a day, 7 day a week 24-hour emergency service.
494 The service centers shall employ factory trained, EVT/ASE certified technicians, operate no less
495 than Seven (7) fully equipped mobile service units, both indoor and mobile pump test facilities, a
496 dedicated collision/refurb facility with 50' paint booth, metal fabrication equipment, locking
497 fenced lot and a fully stocked and staffed parts department. The service provider must be an
498 integral part of the dealer operations and not a third-party provider hired by the dealership. The
499 service center must also be an authorized repair and warranty facility for Waterous, Hale and
500 Darley pumps.
501

502 Documentation must be provided with the bid package to verify compliance with the above
503 requirements.

TAG-ON ORDERS-COOPERATIVE PURCHASING

504 Other fire departments, metropolitan regions, or municipalities may purchase apparatus and
505 equipment similar to the Apparatus and Equipment that is the subject of this Contract. The
506 following terms shall apply to any such tag-on orders:
507

508 (a) Changes - The manufacturers intention is to make available to others, tag-on orders utilizing
509 the same specification as the Apparatus and Equipment that is the subject of this Contract in
510 order to provide favorable pricing and lead-times to other buyers due to having such
511 specification fully engineered. We recognize however that each additional buyer may have

512 unique requirements that must be accommodated; and in this regard, limited changes will be
513 permitted. Such changes will be identified, and the price of any tag-on unit adjusted accordingly.

514 (b) Term - Tag-on orders may be placed under this Contract until 12/31/2022

515 (c) Escalation - The manufacturer reserves the right to adjust the price of any tag-on order if
516 material costs escalate during the term of this Contract, changes in regulations become effective
517 (for example EPA, NFPA or other), or the tag-on order would cross a model year.

518 (d) Acceptance - The manufacturer reserves the right to accept or reject any tag-on orders under
519 this Contract.

520 **PERFORMANCE BOND COST**

521 Bidder shall state the cost of the Performance Bond per instructions on page 126.

522 \$ _____

523 **PROPOSAL SEQUENCE**

524 All proposals must be in the same sequence as the specifications for ease of comparison. Any bid
525 proposal not in this sequence shall be disregarded and immediately rejected.

526

527 **LATE DELIVERY PENALTY**

528 If the bidder is unable to complete manufacture and delivery of the apparatus within the stated
529 time frame, the bidder will incur a penalty in the sum of \$100.00 per day until the apparatus is
530 delivered.

531 **WEEKLY PROGRESS REPORTS**

532 The successful bidder shall provide the following:

533 Weekly progress reports including photographs of the apparatus or the major components as they
534 are being constructed. The reports shall commence at the beginning of the manufacturing process
535 and shall continue until just prior to the final inspection. The reports shall show the progress of
536 the apparatus through the course of each week. Special attention shall be given to show the
537 unique features and aspects of the apparatus as construction progresses.

538 **DRAWINGS WITH BID**

539 Drawings of the apparatus as proposed must be supplied with the bid. These drawing shall be an
540 important tool in evaluating the bids. They shall also ensure that the purchaser understands the
541 apparatus being proposed by the bidder.

542 Drawings shall show depict the driver's side, passenger's side, top, front and rear views and
543 include compartment and other important dimensions.

544 Drawings shall be specific to the proposed apparatus and not a generic or similar type.

545 Bids submitted without drawings shall be considered non-compliant and shall not be accepted.

546 **REQUIREMENTS OF THE APPARATUS MANUFACTURER**

547 The manufacturer of the apparatus must be fully owned and managed by a Parent Company,
548 Corporation, Partnership, or that is a company 100 percent held in the United States of America.

549 Proposals from any manufacturer that is fully or partially owned and/or operated by a Foreign
550 Company, Corporation, Partnership, or that is a company under any type of ownership,
551 partnership, or any similar type of agreement shall be rejected immediately and their bid
552 disqualified (no exception).

553 **PRE-CONSTRUCTION TRIP**

554 Expenses for travel by air will be furnished for four (4) people for a pre-construction inspection
555 trip to the manufacturer's facility. The inspection trip(s) shall be scheduled at times mutually
556 agreed upon between the manufacturer's representative and the customer. Additionally, the
557 expense of all lodging and meals will be paid by the vendor. The vendor will not be responsible
558 for any wages or salary of personnel making the trip.

559 **FINAL INSPECTION TRIP**

560 Expenses for travel by air shall be furnished for four (4) people for a final inspection trip to the
561 manufacturer's facility. The inspection trip(s) shall be scheduled at times mutually agreed upon
562 between the manufacturer's representative and the customer. Additionally, the expense of all
563 lodging and meals shall be paid by the vendor. The vendor shall not be responsible for any
564 wages or salary of personnel making the trip.

565 **AFTERMARKET SUPPORT WEBSITE**

566 A Customer Service website shall provide authorized dealers access to comprehensive
567 information pertaining to the maintenance and service of their customer's apparatus. This tool
568 shall provide the authorized dealer the ability to service and support their customers to the best of
569 their ability with factory support at their fingertips.

570 This website shall also be accessible to the end user through the guest login. Limited access is
571 available and vehicle specific parts information accessible by entering a specific VIN number.
572 All end users should see their local authorized dealer for additional support and service.

573 The website shall provide the following to the designated individuals:

- 574 • Authorized dealer only - ability to access truck detail information on the major
575 components of the vehicle, warranty information, available vehicle photographs, vehicle
576 drawings, sales options, applicable vehicle software downloads, etc.
- 577 • Authorized dealer and customer - parts look-up capability, with the aid of digital
578 photographs, part drawings, and assembly drawings.
- 579 • Authorized dealer only - ability to electronically submit warranty claims directly to the
580 factory for reimbursement.

- 581 • Authorized dealer only - accessibility to multiple dealer reports that allow the dealership
582 to maintain communication with the customer on the status of orders, claims, and phone
583 contacts.
- 584 • Authorized dealer and customer - access to all currently published Operation and
585 Maintenance and Service publications.
- 586 • Authorized dealer only - access to manufacturer Service Bulletins and Work Instructions
587 containing information on current service topics and recommendations provided.
- 588 • Authorized dealer and customer - access to upcoming training classes offered by the
589 manufacturer.
- 590 • Authorized dealer only - access to interactive electronic learning modules (Operators
591 Guides) covering the operation of major vehicle components.
- 592 • Authorized dealer only - access to customer service articles, corporate news, quarterly
593 newsletters, and key contacts.

594 **BID BOND**

595 All bidders shall provide a bid bond as security for the bid in the form of a 10% bid bond to
596 accompany their bid. This bid bond shall be issued by a Surety Company who is listed on the
597 U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570.
598 The bid bond shall be issued by an authorized representative of the Surety Company and shall be
599 accompanied by a certified power of attorney dated on or before the date of bid. The bid bond
600 shall include language, which assures that the bidder/principal shall give a bond or bonds as may
601 be specified in the bidding or contract documents, with good and sufficient surety for the faithful
602 performance of the contract, including the Basic One (1) Year Limited Warranty, and for the
603 prompt payment of labor and material furnished in the prosecution of the contract.

604 Proposals received from bidders who do not manufacture the chassis shall provide a warranty
605 that shall be issued jointly and severally by, and signed by, both the bidder and the chassis
606 manufacturer.

607 If the successful bidder does not manufacture the chassis, the bidder shall supply a warranty
608 bond, in addition to their performance bond, along with their signed contract. This warranty
609 bond shall guarantee all terms and conditions of the Basic One (1) Year Limited Warranty and
610 names both the bidder and chassis manufacturer as co-principals. This warranty bond shall be
611 issued for the contract amount and shall remain in force for a term which is consistent with the
612 term of the Basic One (1) Year Limited Warranty.

613 Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of
614 a vehicle shall apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any
615 surety bond related to the sale of a vehicle shall not apply to any other warranties that are
616 included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of
617 any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

618 In the event of any contradiction or inconsistency between this provision and any other document
619 or assertion, this provision shall prevail.

620 **PERFORMANCE BOND**

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

628 **APPROVAL DRAWING**

629 A drawing of the proposed apparatus shall be provided for approval before construction begins.
630 The sales representative shall also have a copy of the same drawing. The finalized and approved
631 drawing shall become part of the contract documents. This drawing shall indicate the chassis
632 make and model, location of the lights, siren, horns, compartments, major components, etc.

633 A "revised" approval drawing of the apparatus shall be prepared and submitted by the
634 manufacturer to the purchaser showing any changes made to the approval drawing.

635 **ELECTRICAL WIRING DIAGRAMS**

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

638

639 **FIRE APPARATUS SPECIFICATIONS**

640 **CHASSIS**

641 Chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be
642 manufactured in the apparatus body builder's facility eliminating any split responsibility. The
643 chassis shall be designed and manufactured for heavy-duty service, with adequate strength and
644 capacity for the intended load to be sustained and the type of service required.

645 **MAXIMUM OVERALL HEIGHT**

646 The maximum overall height of the apparatus shall be 121.00 - inches.

647 **MAXIMUM OVERALL LENGTH**

648 The maximum overall length of the apparatus shall be 31.00 - feet.

649 **WHEELBASE**

650 The wheelbase of the vehicle shall be no greater than 184.00 inches.

651 GVW RATING

652 The gross vehicle weight rating shall be a minimum of 45,000 lbs.

653 FRAME

654 The chassis frame shall be built with two (2) steel channels bolted to five (5) cross members or
655 more, depending on other options of the apparatus. The side rails shall be heat-treated steel
656 measuring 10.25" x 3.50" x 0.375".

657 Each rail shall have a section modulus of 16.00 cubic inches, yield strength of 120,000 psi, and a
658 resisting bending moment (rbm) of 1,921,069 inch-pounds.

659 FRAME REINFORCEMENT

660 A full-length mainframe "C" liner shall be provided.

661 The liner shall be an internal "C" design, heat-treated steel measuring 9.38" x 3.13" x 0.25".

662 Each reinforcement member shall have a section modulus of 3.90 cubic inches, yield strength of
663 120,000 psi and resisting bending moment (rbm) of 938,762 in-lb.

664 FRONT AXLE

665 The front axle shall be a reverse "I" beam type with inclined king pins. It shall be a Dana axle,
666 Model D-2000F (or like), with a rated capacity of 20,000 lb.

667 FRONT SUSPENSION

668 The front springs shall be a Standens, three (3)-leaf, taper leaf design, 54.00" long x 4.00" wide,
669 with a ground rating of 20,000 lb. (or like).

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

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

676 SHOCK ABSORBERS

677 Heavy-duty telescoping shock absorbers shall be provided on the front axle.

678 FRONT OIL SEALS

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

680 FRONT TIRES

681 Front tires shall be Goodyear 385/65R22.5 radials, 18 ply Armor Max MSA tread, rated for
682 20,050 lb maximum axle load and 68 mph maximum speed (or like).

683 The tires shall be mounted on Alcoa© 22.50" x 12.25" Dura-Bright® polished aluminum disc
684 type wheels with a ten (10) stud, 11.25" bolt circle (or like).

685 **REAR AXLE**

686 The rear axle shall be a Dana, Model S23-172, with a capacity of 24,000 lb. (or like).

687 **TOP SPEED OF VEHICLE**

688 A rear axle ratio shall be furnished to allow the vehicle to reach a top speed of 68 mph.

689 **REAR SUSPENSION**

690 Rear suspension shall be a Hendrickson FMX 242 EX, air ride with a ground rating of 24,000 lb.

691 The suspension shall have the following features (or like):

- 692 • Heavy-duty shock absorbers to protect air springs from overextension
- 693 • Heavy-duty torque rods and bushings
- 694 • Premium, heavy-duty rubber bushings require no lubrication
- 695 • Integrated stabilizer design results in greater stability
- 696 • Low spring rate air springs for excellent ride quality
- 697 • Dual height control valves to maintain level vehicle from side to side

698 **REAR OIL SEALS**

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

700 **REAR TIRES**

701 Rear tires shall be four (4) Goodyear 12R22.50 radials, load range H, Endurance RSA highway
702 tread, rated for 27,120 lb maximum axle load and 75 mph maximum speed (or like).

703 The tires shall be mounted on Alcoa© 22.50" x 9.00" Dura-Bright® aluminum disc wheels with
704 a ten (10) stud, 11.25" bolt circle (or like).

705 **TIRE BALANCE**

706 All tires shall be balanced with Counteract balancing beads. The beads shall be inserted into the
707 tire and eliminate the need for wheel weights (or like).

708 **TIRE PRESSURE MANAGEMENT**

709 There shall be a LED AirSecure™ tire alert pressure management system provided, that shall
710 monitor each tire's pressure. A sensor shall be provided on the valve stem of each tire for a total
711 of six (6) tires (or like).

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

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

717 **FRONT HUB COVERS**

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

720 **REAR HUB COVERS**

721 A pair of stainless-steel high-hat hub covers shall be provided on rear axle hubs.

722 **CHROME LUG NUT COVERS**

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

724 **MUD FLAPS**

725 Mud flaps shall be installed behind the front and rear wheels of the apparatus.

726 **SPARE TIRE**

727 There shall be one (1) spare Goodyear tire(s) to match the vehicle's front tires (or like). Each
728 spare tire shall be mounted on an aluminum wheel.

729 The aluminum wheel shall be Dura-Bright finish (or like).

730 **SPARE TIRE**

731 There shall be one (1) spare Goodyear tire(s) to match the vehicle's rear tires (or like). Each
732 spare tire shall be mounted on an aluminum wheel.

733 The aluminum wheel shall be Dura-Bright finish (or like).

734 **WHEEL CHOCKS**

735 There shall be one (1) pair of folding Zeugmatic, Model SAC-44-E, aluminum alloy, Quick-
736 Choc wheel blocks with easy-grip handle provided (or like).

737 **Wheel Chock Brackets**

738 There shall be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock
739 brackets provided for the Zia Matic, Model SAC-44-E, folding wheel chocks (or like). The
740 brackets shall be made of aluminum and consist of a quick release spring loaded rod to hold the
741 wheel chocks in place. The brackets shall be mounted below the left side rear compartment.

742 **ANTI-LOCK BRAKE SYSTEM**

743 The vehicle shall be equipped with a Meritor WABCO 4S4M, anti-lock braking system (or like).
744 The ABS shall provide a 4-channel anti-lock braking control on both the front and rear wheels.
745 A digitally controlled system that utilizes microprocessor technology shall control the anti-lock
746 braking system. Each wheel shall be monitored by the system. When any particular wheel
747 begins to lockup, a signal shall be sent to the control unit. This control unit shall then reduce the

748 braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake
749 system shall eliminate the lockup of any wheel thus helping to prevent the apparatus from
750 skidding out of control.

751 **BRAKES**

752 The service brake system shall be full air type by Bendix® (or like).

753 Front brakes shall be Model ADB22X™, disc type with automatic pad wear adjustment and
754 17.00" rotors for improved stopping distance (or like).

755 The rear brakes shall be Bendix®, Model ES1657D, 16.50" x 7.00" cam operated with automatic
756 slack adjusters (or like).

757 **BRAKE SYSTEM AIR COMPRESSOR**

758 The air compressor shall be a Cummins/WABCO with 18.7 cubic feet per minute output (or
759 like).

760 **BRAKE SYSTEM**

761 The brake system shall include:

- 762 • Brake treadle valve
- 763 • Heated automatic moisture ejector on air dryer
- 764 • Total air system minimum capacity of 4,272 cubic inches
- 765 • Two (2) air pressure gauges with a red warning light and an audible alarm, which
766 activates when air pressure falls below 60 psi
- 767 • Spring set parking brake system
- 768 • Parking brake operated by a push-pull style control valve
- 769 • A parking "brake on" indicator light on instrument panel
- 770 • Park brake relay/inversion and anti-compounding valve, in conjunction with a double
771 check valve system, with an automatic spring brake application at 40 psi
- 772 • A pressure protection valve to prevent all air operated accessories from drawing air from
773 the air system when the system pressure drops below 80 psi (550 kPa)
- 774 • 1/4 turn drain valves on each air tank

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

776 To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets (no
777 exception).

778 **BRAKE SYSTEM AIR DRYER**

779 The air dryer shall be a WABCO System Saver 1200 IWT (or like), with internal wet tank, spin-
780 on coalescing filter cartridge and 100-watt heater.

781 **BRAKE LINES**

782 Color-coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective
783 loom where necessary in the chassis.

784 **AIR INLET**

785 One (1) air inlet with 3D series male coupling shall be provided. It shall allow station air to be
786 supplied to the apparatus brake system through a shoreline hose. The inlet shall be located
787 forward in the driver side lower step well of cab. A check valve shall be provided to prevent
788 reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating
789 female fitting shall also be provided with the loose equipment.

790 **ADDITIONAL AIR TANK FOR AIR HORN**

791 An additional air tank with 1,454 cubic inch displacement shall be provided to increase the
792 capacity of the air system. This tank shall be dedicated for air horn use.

793 The air tank shall be primed and painted to meet a minimum 750-hour salt spray test. To reduce
794 the effects of corrosion, the air tank shall be mounted with stainless steel brackets (no exception).

795 The output flow of the engine air compressor varies with engine rpm. Full compressor output is
796 only achieved at governed engine speed. Engine speed may be limited by generators, pumps and
797 other PTO driven options.

798 **AIR COMPRESSOR WITH AUTO DRAIN - BRAKE SYSTEM MAINTENANCE**

799 A Kussmaul, model 091-9B-1-AD (or like), air compressor will be provided with Auto Drain
800 feature. It will be driven by the 120-volt shoreline electrical system and will be located behind
801 the driver’s seat. The compressor will maintain the air pressure in the chassis air brake system
802 while the vehicle is not in use. A pressure switch will sense when the system pressure drops and
803 automatically start the compressor, which then will run until pressure is restored.

804 **ENGINE**

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

Make:	Cummins (or like)
Model:	L9
Power:	400 hp at 2100 rpm
Torque:	1250 lb.-ft at 1400 rpm
Governed Speed:	2200 rpm
Emissions Level:	EPA 2021
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	543 cubic inches (8.9L)
Starter:	Delco Remy 39MT™

Fuel Filters:	Spin-on style primary filter with water separator and water-in-fuel sensor. Secondary spin-on style filter.
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806

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

812 **HIGH IDLE**

813 A high idle switch shall be provided, inside the cab, on the instrument panel, which shall
 814 automatically maintain a preset engine rpm. A switch shall be installed, at the cab instrument
 815 panel, for activation/deactivation.

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

820 **ENGINE BRAKE**

821 A Jacobs® (or like) engine brake is to be installed with the controls located on the instrument
 822 panel within easy reach of the driver.

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

825 The engine brake shall activate when the system is on, and the throttle is released.

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

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

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

831 **CLUTCH FAN**

832 A fan clutch shall be provided. The fan clutch shall be automatic when the pump transmission is
 833 in "Road" position, and constantly engaged when in "Pump" position.

834 **FLOOR MOUNT, ACCELERATOR PEDAL**

835 There shall be a standard automotive style floor mounted accelerator pedal hinged and bolted to
 836 the floor of the cab in place of the standard suspended accelerator pedal.

837 ENGINE AIR INTAKE

838 The engine air intake shall be located above the engine cooling package. It shall draw fresh air
839 from the front of the apparatus through the radiator grille.

840 The ember separator is designed to prevent road dirt and recirculating hot air from entering the
841 engine.

842 The ember separator shall be easily accessible by tilting the cab.

843 EXHAUST SYSTEM

844 The exhaust system shall be stainless steel from the turbo to the engine's aftertreatment device
845 and shall be 4.00" in diameter. The exhaust system shall include a single module aftertreatment
846 device to meet current EPA standards. An insulation wrap shall be provided on all exhaust pipes
847 between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment
848 device. The exhaust shall terminate horizontally ahead of the right-side rear wheels. A tailpipe
849 diffuser shall be provided to reduce the temperature of the exhaust as it exits. Heat deflector
850 shields shall be provided to isolate chassis and body components from the heat of the tailpipe
851 diffuser.

852 EXHAUST MODIFICATION

853 The Plymovent exhaust diffuser shall be reduced to 5.00" in the center to accommodate the fire
854 department's air recovery system. There shall be a minimum of 4.00" clearance around the
855 diffuser for proper cooling. The 5.00" extension pipe coming out of the end of the diffuser shall
856 be flush with the body rub rail.

857 RADIATOR

858 The radiator and the complete cooling system shall meet or exceed NFPA and engine
859 manufacturer cooling system standards.

860 For maximum corrosion resistance and cooling performance, the entire radiator core shall be
861 constructed using long life aluminum alloy. The radiator core shall consist of aluminum fins,
862 having a serpentine design, brazed to aluminum tubes. No solder joints or leaded material of any
863 kind shall be acceptable in the core assembly.

864 The radiator core shall have a minimum front area of 1060 square inches.

865 Supply tank shall be made of heavy-duty glass-reinforced nylon and the return tank shall be
866 made of aluminum. Both tanks shall be crimped onto the core assembly using header tabs and a
867 compression gasket to complete the radiator core assembly. There shall be a full steel frame
868 around the inserts to enhance cooling system durability and reliability.

869 The radiator shall be compatible with commercial antifreeze solutions.

870 The radiator assembly shall be isolated from the chassis frame rails with rubber isolators to
871 prevent the development of leaks caused by twisting or straining when the apparatus operates
872 over uneven terrain.

873 The radiator shall include a de-aeration/expansion tank. For visual coolant level inspection, the
874 radiator shall have a built-in sight glass. The radiator shall be equipped with a 15-psi pressure
875 relief cap.

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

878 Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the
879 radiator.

880 **COOLANT LINES**

881 Gates® (or like) silicone hoses shall be used for the radiator and cab heater hoses installed by the
882 chassis manufacturer.

883 The chassis manufacturer shall also use Gates® (or like) silicone brand hose on other heater and
884 auxiliary coolant circuits

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

888 **FUEL TANK**

889 A 65-gallon fuel tank shall be provided and mounted at the rear of the chassis. The tank shall be
890 constructed of stainless steel. It shall be equipped with swash partitions and a vent. The exterior
891 of the tank shall be painted to match the chassis frame. To reduce the effects of corrosion, the
892 fuel tank shall be mounted with stainless steel straps (no exception).

893 A 0.75" drain plug shall be provided in a low point of the tank for drainage.

894 A fill inlet shall be located on the left-hand side of the body and be covered with a hinged,
895 spring-loaded, stainless-steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only".

896 A 0.50" diameter vent shall be provided running from top of tank to just below fuel fill inlet.

897 The tank shall meet all FHWA 393.67 requirements, including a fill capacity of 95 percent of
898 tank volume.

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

900 **DIESEL EXHAUST FLUID TANK**

901 A 4.5-gallon diesel exhaust fluid (DEF) tank shall be provided and mounted in the driver's side
902 body rearward of the rear axle.

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

904 A fill inlet shall be provided and marked "Diesel Exhaust Fluid Only". The fill inlet shall be
905 located adjacent to the engine fuel inlet behind a common hinged, spring loaded, polished
906 stainless-steel door on the driver side of the vehicle.

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

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

911 **FUEL PRIMING PUMP**

912 A Cummins (or like) automatic electronic fuel priming pump shall be integrated as part of the
913 engine.

914 **FUEL SHUTOFF**

915 A shutoff valve shall be installed in the fuel line, on both sides of the fuel filter.

916 **TRANSMISSION**

917 An Allison 6th generation, Model EVS 3000P (or like), electronic torque converting automatic
918 transmission shall be provided.

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

922 Two (2) PTO openings shall be located on both sides of converter housing (positions 4 o'clock
923 and 8 o'clock) as viewed from the rear.

924 A transmission temperature gauge with red light and audible alarm shall be installed on the cab
925 dash.

926 **TRANSMISSION SHIFTER**

927 A five (5)-speed push button shift module shall be mounted to right of driver on console. Shift
928 position indicator shall be indirectly lit for after dark operation.

929 The transmission ratio shall be:

1st	3.49 to 1.00
2nd	1.86 to 1.00

3rd	1.41 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00
R	5.03 to 1.00

930

931 **TRANSMISSION COOLER**

932 A Modine (or like) plate and fin transmission oil cooler shall be provided using engine coolant to
 933 control the transmission oil temperature.

934 **TRANSMISSION PROGRAM**

935 The transmission shall shift to neutral when parking brake is set.

936 **DRIVELINE**

937 Drivelines shall be a heavy-duty metal tube and be equipped with Spicer® (or like) 1710
 938 universal joints.

939 The shafts shall be dynamically balanced before installation.

940 A splined slip joint shall be provided in each driveshaft where the driveline design requires it.
 941 The slip joint shall be coated with Glidecoat® (or like) or equivalent.

942 **DRIVELINE SAFETY LOOP(S)**

943 There shall be three (3) driveline safety loop(s) provided to help retain the drive shaft in the
 944 event of a drive shaft or cardan joint failure.

945 **STEERING**

946 Dual steering gear, with integral heavy-duty power steering, shall be provided. For reduced
 947 system temperatures, the power steering shall incorporate an air to oil cooler and Vickers® (or
 948 like) V20NF hydraulic pump with integral pressure and flow control. All power steering lines
 949 shall have wire braded lines with crimped fittings.

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

952 **STEERING WHEEL**

953 The steering wheel shall be 18.00" in diameter, have tilting and telescoping capabilities, and a 2-
 954 spoke design.

955 **LOGO AND CUSTOMER DESIGNATION ON DASH**

956 The dash panel shall have an emblem containing the fire apparatus manufacturer's logo and
 957 customer name. The emblem shall have three (3) rows of text for the customer's department

958 name. There shall be a maximum of eight (8) characters in the first row, 11 characters in the
 959 second row and 11 characters in the third row.

960 The first row of text shall be: NIAGARA FALLS

961 The second row of text shall be: FIRE

962 The third row of text shall be: DEPARTMENT

963 **AUTOMATIC CHASSIS LUBRICATION**

964 A Vogel Automatic Lubrication System (or like) shall be provided. The lubrication shall be
 965 supplied while the vehicle ignition switch is active to allow a uniform application of grease to the
 966 locations listed. The electronic control unit that forms part of the system shall activate the pump
 967 after an adjustable interval time. The unit shall control and monitor pump operation and report
 968 any faults via an indicator light on the dashboard of the driver's cab.

969 The lubrication system reservoir, which requires a 15.00" wide x 14.50" high x 6.25" deep
 970 mounting area, shall be located pump module, right side on the apparatus.

- 971 • Slack Adjusters
- 972 • Brake Cam Screws
- 973 • Steering Assist Cylinder (if applicable)
- 974 • Tie Rods
- 975 • Drag Link
- 976 • King Pins
- 977 • Spring Pins
- 978 • Shackle Pins
- 979 • Walking Beam Pins (Tandem axle, if applicable)

980 **BUMPER**

981 A one (1)-piece bumper manufactured from .25" formed steel with a .38" bend radius shall be
 982 provided. The bumper shall be a minimum of 10.00" high with a 1.50" top and bottom flange,
 983 shall be attached to a bolted modular extension frame. The bumper shall be had 45 degree
 984 corners and side plates. The bumper shall be metal finished and painted job color.

985 The bumper shall be extended 26.00" from front face of cab.

986 The bumper extension frame shall be fabricated using .38" gussets welded to 2.00" x 5.00" steel
 987 tubing running front to back with .50" front and rear plates mounted to the chassis frame.
 988 Fabricated "U" shaped channel supports the weight of the bumper and provides the main strength
 989 in frontal crash. .25" steel is formed into "C" shaped backing plates for mounting of the bumper
 990 and providing protection to the cab.

991 The bumper extension's cross section is considered expendable, and a crush zone. The bumper is
992 not intended for pushing other vehicles or objects.

993 Tow hooks/eyes located under the bumper extension are for straight pull only.

994 **TOW HOOKS**

995 Two (2) chromed steel tow hooks shall be installed under the bumper and attached to the front
996 frame members. The tow hooks shall be designed and positioned to allow up to a 6,000 lb.
997 straight horizontal pull in line with the centerline of the vehicle. The tow hooks shall not be used
998 for lifting of the apparatus.

999 **BUMPER TRAY**

1000 A full width bumper tray, constructed of smooth aluminum, shall be located in the under slung
1001 bumper extension.

1002 The tray shall be a bolted modular design, 8.00" deep.

1003 The tray shall have capacity for tray 200' of 1-3/4" DJ Mercedes (or like) Hose tray and 150' of
1004 1-3/4" DJ Mercedes Hose.

1005 Black rubber grating shall be provided at the bottom of the tray. Drain holes are also provided.

1006 **GRAVEL PAN**

1007 A gravel pan, constructed of bright aluminum treadplate, shall be furnished between the bumper
1008 and cab face.

1009 The gravel pan shall be properly supported from the underside to prevent flexing and vibration of
1010 the aluminum treadplate.

1011 **HOSE RESTRAINT**

1012 One (1) hose trays shall be provided with hose restraint(s).

1013 Heavy black nylon webbing made of 2.00" nylon strap with a 2.00" box pattern netting shall be
1014 provided to secure the hose during travel.

1015 The webbed netting shall be fastened permanently on one side with stainless steel footman loops
1016 and secured on the opposite side with Velcro.

1017 **CAB**

1018 The cab shall be designed specifically for the fire service and manufactured by the chassis
1019 builder.

1020 The cab shall be built by the apparatus manufacturer in a facility located on the manufacturer's
1021 premises (no exception).

- 1022 For reasons of structural integrity and enhanced occupant protection, the cab shall be a heavy-
1023 duty design, constructed to the following minimal standards.
- 1024 The Cab shall be a minimum of 60.00 inches from the center line of the front axle to the exterior
1025 cab wall. The cab shall have 12 main vertical structural members located in the A-pillar (front
1026 cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts), and rear wall areas.
1027 The A-pillar shall be constructed of solid A356-T5 aluminum castings. The B-pillar and C-pillar
1028 shall be constructed from 0.13" wall extrusions. The rear wall shall be constructed of two (2)
1029 2.00" x 2.00" outer aluminum extrusions and two (2) 2.00" x 1.00" inner aluminum extrusions.
1030 All main vertical structural members shall run from the floor to 4.625" x 3.864" x 0.090" thick
1031 roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being
1032 welded into a 0.25" thick corner casting at each of the front corners of the roof assembly.
- 1033 The front of the cab shall be constructed of a 0.13" firewall plate, covered with a 0.090" front
1034 skin (for a total thickness of 0.22"), and reinforced with a full width x 0.50" thick cross-cab
1035 support located just below the windshield and fully welded to the engine tunnel. The cross-cab
1036 support shall run the full width of the cab and weld to each A-pillar, the 0.13" firewall plate, and
1037 the front skin.
- 1038 The cab floors shall be constructed of 0.125" thick aluminum plate and reinforced at the firewall
1039 with an additional 0.25" thick cross-floor support providing a total thickness of 0.375" of
1040 structural material at the front floor area. The front floor area shall also be supported with two
1041 (2) triangular 0.30" wall extrusions that also provides the mounting point for the cab lift. This
1042 tubing shall run from the floor wireway of the cab to the engine tunnel side plates, creating the
1043 structure to support the forces created when lifting the cab.
- 1044 The cab shall be 96.00" wide (outside door skin to outside door skin) to maintain maximum
1045 maneuverability (no exception).
- 1046 The forward cab section shall have an overall height (from the cab roof to the ground) of
1047 approximately 99.00". The crew cab section shall have a 10.00" raised roof, with an overall cab
1048 height of approximately 109.00". The overall height listed shall be calculated based on a truck
1049 configuration with the lowest suspension weight rating, the smallest diameter tires for the
1050 suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires,
1051 wheels, and suspension shall increase the overall height listed.
- 1052 The floor to ceiling height inside the crew cab shall be 64.50" in the center and outboard
1053 positions.
- 1054 The crew cab floor shall measure 36.00" from the rear wall to the front of the rear facing seat
1055 risers.

- 1056 The engine tunnel, at the rearward highest point (knee level), shall measure 51.50" to the rear
1057 wall.
- 1058 The crew cab shall be a totally enclosed design with the interior area completely open to improve
1059 visibility and verbal communication between the occupants.
- 1060 The cab shall be a full tilt cab style.
- 1061 A 3-point cab mount system with rubber isolators shall improve ride quality by isolating chassis
1062 vibrations from the cab.
- 1063 **CAB ROOF DRIP RAIL**
- 1064 For enhanced protection from inclement weather, a drip rail shall be furnished on the sides of the
1065 cab. The drip rail shall be painted to match the cab roof and bonded to the sides of the cab. The
1066 drip rail shall extend the full length of the cab roof.
- 1067 **INTERIOR CAB INSULATION**
- 1068 The cab shall include 1.00" insulation in the ceiling, 1.50" insulation in the side walls, and 2.00"
1069 insulation in the rear wall to maximize acoustic absorption and thermal insulation.
- 1070 **FENDER LINERS**
- 1071 Full circular inner fender liners in the wheel wells shall be provided.
- 1072 **PANORAMIC WINDSHIELD**
- 1073 A 1-piece safety glass windshield shall be provided with over 2,775 square inches of clear
1074 viewing area. The windshield shall be full width and shall provide the occupants with a
1075 panoramic view. The windshield shall consist of three (3) layers: outer light, middle safety
1076 laminate, and inner light. The outer light layer shall provide superior chip resistance. The
1077 middle safety laminate layer shall prevent the windshield glass pieces from detaching in the
1078 event of breakage. The inner light shall provide yet another chip resistant layer. The cab
1079 windshield shall be bonded to the aluminum windshield frame using a urethane adhesive. A
1080 custom frit pattern shall be applied on the outside perimeter of the windshield for a finished
1081 automotive appearance.
- 1082 **WINDSHIELD WIPERS**
- 1083 Three (3) electric windshield wipers with washer shall be provided that meet FMVSS and SAE
1084 requirements.
- 1085 The washer reservoir shall be able to be filled without raising the cab.
- 1086 **ENGINE TUNNEL**
- 1087 Engine hood side walls shall be constructed of 0.375" aluminum. The top shall be constructed of
1088 0.125" aluminum and shall be tapered at the top to allow for more driver and passenger elbow
1089 room.

- 1090 The engine hood shall be insulated for protection from heat and sound. The noise insulation
1091 keeps the dBA level within the limits stated in the current NFPA 1901 standards.
- 1092 The engine tunnel shall be no higher than 17.00" off the crew cab floor (no exception).
- 1093 **CAB REAR WALL EXTERIOR COVERING**
- 1094 The exterior surface of the rear wall of the cab shall be overlaid with bright aluminum treadplate
1095 except for areas that are not typically visible when the cab is lowered.
- 1096 **CAB LIFT**
- 1097 A hydraulic cab lift system shall be provided consisting of an electric powered hydraulic pump,
1098 dual lift cylinders, and necessary hoses and valves.
- 1099 Hydraulic pump shall have a manual override for backup in the event of electrical failure.
- 1100 Lift controls shall be located on the right-side pump panel or front area of the body in a
1101 convenient location.
- 1102 The cab shall be capable of tilting 43 degrees to accommodate engine maintenance and removal.
- 1103 The cab shall be locked down by a 2-point normally closed spring-loaded hook type latch that
1104 fully engages after the cab has been lowered. The system shall be hydraulically actuated to
1105 release the normally closed locks when the cab lift control is in the raised position and cab lift
1106 system is under pressure. When the cab is completely lowered and system pressure has been
1107 relieved, the spring-loaded latch mechanisms shall return to the normally closed and locked
1108 position.
- 1109 The hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from
1110 accidentally descending when the control is located in the tilt position.
- 1111 For increased safety, a redundant mechanical stay arm shall be provided that must be manually
1112 put in place on the left side between the chassis and cab frame when the cab is in the raised
1113 position. This device shall be manually stowed to its original position before the cab can be
1114 lowered.
- 1115 **Cab Lift Interlock**
- 1116 The cab lift system shall be interlocked to the parking brake. The cab tilt mechanism shall be
1117 active only when the parking brake is set, and the ignition switch is in the on position. If the
1118 parking brake is released, the cab tilt mechanism shall be disabled.
- 1119 **GRILLE**
- 1120 A bright finished aluminum mesh grille screen, inserted behind a premium bright finished grille
1121 surround, shall be provided on the front center of the cab.

DOOR JAMB SCUFFPLATES

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

SCUFFPLATES, REAR CAB CORNER GUARDS

Both rear cab corners shall be furnished with a full height, polished stainless steel corner guard scuffplate. The guard shall extend 1.00" from the corner to protect paint from damage when pulling items (such as booster hose) around the cab.

SIDE OF CAB MOLDING

Chrome molding shall be provided on both sides of cab.

MIRRORS

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

DOORS

To enhance entry and egress to the cab, the forward cab doors shall be a minimum of 37.50" wide x 75.50" high. The crew cab doors shall be located on the sides of the cab and shall be constructed in the same manner as the forward cab doors. The crew cab door openings shall be a minimum of 34.30" wide x 85.50" high.

The forward cab and crew cab doors shall be constructed of extruded aluminum with a nominal material thickness of 0.093". The exterior door skins shall be constructed from 0.090" aluminum.

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

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

The cab doors shall be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys shall be Model 751. The locks shall be capable of activating when the doors are open or closed. The doors shall remain locked if locks are activated when the doors are opened, then closed.

1156 A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11-gauge leaf
1157 shall be provided on all cab doors. There shall be double automotive-type rubber seals around
1158 the perimeter of the door framing and door edges to ensure a weather-tight fit.

1159 A chrome grab handle shall be provided on the inside of each cab door for ease of entry.

1160 A red webbed grab handle shall be installed on the crew cab door stop strap. The grab handles
1161 shall be securely mounted.

1162 The cab steps at each cab door location shall be located inside the cab doors to protect the steps
1163 from weather elements.

1164 **Door Panels**

1165 The inner cab door panels shall be constructed out of brushed stainless steel.

1166 **MANUAL CAB DOOR WINDOWS**

1167 All cab entry doors shall contain a conventional roll down window.

1168 **CAB STEPS**

1169 The forward cab and crew cab access steps shall be a full size two (2) step design to provide
1170 largest possible stepping surfaces for safe ingress and egress. The bottom steps shall be designed
1171 with a grip pattern punched into bright aluminum treadplate material to provide support, slip
1172 resistance, and drainage. The bottom steps shall be a bolt-in design to minimize repair costs
1173 should they need to be replaced. The forward cab steps shall be a minimum 25.00" wide, and the
1174 crew cab steps shall be 21.65" wide with a 10.00" minimum depth. The inside cab steps shall
1175 not exceed 16.50" in height.

1176 The vertical surfaces of the step well shall be aluminum treadplate.

1177 **CAB EXTERIOR HANDRAILS**

1178 A 1.25" diameter slip-resistant, knurled aluminum handrail shall be provided adjacent to each
1179 cab and crew cab door opening to assist during cab ingress and egress.

1180 **STEP LIGHTS**

1181 There shall be six (6) white LED step lights with chrome housing installed for cab and crew cab
1182 access steps.

1183 One (1) light for the left access steps.

1184 Two (2) lights for the left side crew cab access steps.

1185 Two (2) lights for the right-side crew cab access steps.

1186 One (1) light for the right-side access step.

1187 To ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc)
1188 covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5
1189 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

1190 The lights shall be activated when the battery switch is on, and the adjacent door is opened.

1191 **FENDER CROWNS**

1192 Stainless steel fender crowns shall be installed at the cab wheel openings.

1193 **CREW CAB WINDOWS**

1194 One (1) fixed window with tinted glass shall be provided on each side of the cab, to the rear of
1195 the front cab door. The windows shall be sized to enhance light penetration into the cab interior.
1196 The windows shall measure 18.70" wide x 23.75" high.

1197 **CAB DASH**

1198 The driver side dash, switch panel located to the right of the driver, and center console shall be
1199 an easily removable high impact resistant polymer cover.

1200 The instrument gauge cluster shall be surrounded with a high impact ABS plastic contoured to
1201 the same shape of the instrument gauge cluster.

1202 The officer side dash shall be a flat top design with an upper beveled edge to provide easy
1203 maintenance and shall be constructed out of aluminum and painted to match the cab interior.

1204 **MOUNTING PLATE ON ENGINE TUNNEL**

1205 Equipment installation provisions will be installed on the engine tunnel.

1206 A 0.188" smooth aluminum plate will be bolted to the top surface of the engine tunnel. The plate
1207 will follow the contour of the engine tunnel and will run the entire length of the engine
1208 tunnel. The plate will be spaced off the engine tunnel 1.00" to allow for wire routing below the
1209 plate.

1210 The mounting surface will be painted to match the cab interior.

1211 **CAB INTERIOR**

1212 The cab interior shall be constructed of primarily metal (painted aluminum) to withstand the
1213 severe duty cycles of the fire service.

1214 The engine tunnel shall be painted aluminum to match the cab interior.

1215 For durability and ease of maintenance, the cab interior side walls shall be painted aluminum.

1216 The rear wall shall be painted aluminum.

- 1217 Headliner shall be installed in both forward and rear cab sections. Headliner material shall be
1218 vinyl. A sound barrier shall be part of its composition. Material shall be installed on aluminum
1219 sheet and securely fastened to interior cab ceiling.
- 1220 Forward portion of cab headliner shall permit easy access for service of electrical wiring or other
1221 maintenance needs.
- 1222 All wiring shall be placed in metal raceways. Routing through holes in tubing shall not be
1223 accepted due to chaffing that installation shall cause.
- 1224 **CAB INTERIOR UPHOLSTERY**
- 1225 The cab interior upholstery shall be 36 oz dark silver-gray vinyl.
- 1226 **CAB INTERIOR PAINT**
- 1227 The cab interior metal surfaces, excluding the rear heater panels, shall be painted fire smoke
1228 gray, vinyl texture paint.
- 1229 The rear heater panels shall be painted black, vinyl textured paint.
- 1230 **CAB FLOOR**
- 1231 The cab and crew cab floor areas shall be covered with Polydamp™ (or like) acoustical floor mat
1232 consisting of a black pyramid rubber facing and closed cell foam decoupler.
- 1233 The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer
1234 a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water
1235 absorption) which offers a sound dampening material for reducing sound levels.
- 1236 **DEFROST/AIR CONDITIONING SYSTEM**
- 1237 A ceiling mounted combination heater, defroster and air conditioning system shall be installed in
1238 the cab above the engine tunnel area.
- 1239 **Cab Defroster**
- 1240 A 54,000 BTU heater-defroster unit with 690 SCFM of air flow shall be provided inside the cab.
1241 The heater-defrost shall be installed in the forward portion of the cab ceiling. Air outlets shall be
1242 strategically located in the cab header extrusion per the following:
- 1243 One (1) adjustable shall be directed towards the left side cab window
1244 One (1) adjustable shall be directed towards the right-side cab window
1245 Six (6) fixed outlets shall be directed at the windshield
- 1246 The defroster shall be capable of clearing 98 percent of the windshield and side glass when tested
1247 under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a
1248 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield.
1249 The defroster system shall meet or exceed SAE J382 requirements.

Cab/Crew Auxiliary Heater

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

Air Conditioning

A condenser shall be a 59,644 BTU output that meets and exceeds the performance specification shall be mounted on the radiator. Mounting the condenser below the cab or body would reduce the performance of the system and shall not be acceptable.

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

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

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

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

Four (4) shall be directed towards the seating position on the left side of the cab

Four (4) shall be directed towards the seating position on the right side of the cab

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

Five (5) shall be directed towards crew cab area

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

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

Climate Control

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

1281 The system shall control the temperature of the cab and crew cab automatically by pushing the
 1282 center of the fan speed control knob. Rotate the center temperature control knob to set the cab
 1283 and crew cab temperature.

1284 The AC system shall be manually activated by pushing the center of the temperature control
 1285 knob. Pushing the center of the air flow distribution knob shall engage the AC for max defrost,
 1286 setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.

1287 The system controller shall be located within panel position #12.

Gravity Drain Tubes

1289 Two (2) condensate drain tubes shall be provided for the air conditioning evaporator. The drip
 1290 pan shall have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip
 1291 pan. No pumps shall be provided.

SUN VISORS

1293 Two (2) smoked Lexan™ (or like) sun visors shall be provided. The sun visors shall be located
 1294 above the windshield with one (1) mounted on each side of the cab.

1295 There shall be no retention bracket provided to help secure each sun visor in the stowed position.

GRAB HANDLES

1297 A black rubber covered grab handle shall be mounted on the door post of the driver and officer's
 1298 side cab door to assist in entering the cab. The grab handles shall be securely mounted to the
 1299 post area between the door and windshield.

ENGINE COMPARTMENT LIGHTS

1301 There shall be one (1) Whelen (or like), Model 3SC0CDCR, 12-volt DC, 3.00" white LED
 1302 light(s) with Whelen (or like), Model 3FLANGEC, chrome flange kit(s) installed under the cab
 1303 to be used as engine compartment illumination.

1304 These light(s) shall be activated automatically when the cab is raised.

ACCESS TO ENGINE DIPSTICKS

1306 For access to the engine oil and transmission fluid dipsticks, there shall be a door on the engine
 1307 tunnel, inside the crew cab. The door shall be on the rear wall of the engine tunnel, on the
 1308 vertical surface.

1309 The engine oil dipstick shall allow for checking only. The transmission dipstick shall allow for
 1310 both checking and filling.

1311 The door shall have a rubber seal for thermal and acoustic insulation. One (1) flush lift and turn
 1312 latch shall be provided on the access door.

1313 **SEATING CAPACITY**

1314 The seating capacity in the cab shall be four (4).

1315 **DRIVER SEAT**

1316 A seat shall be provided in the cab for the driver. The seat design shall be a cam action type,
 1317 with air suspension. For increased convenience, the seat shall include a manual control to adjust
 1318 the horizontal position (6.00" travel). The manual horizontal control shall be a towel-bar style
 1319 located below the forward part of the seat cushion. To provide flexibility for multiple driver
 1320 configurations, the seat shall have an adjustable reclining back. The seat back shall be a high
 1321 back style with side bolster pads for maximum support. For optimal comfort, the seat shall be
 1322 provided with 17.00" deep foam cushions designed with EVC (elastomeric vibration control).

1323 The seat shall be furnished with a 3-point, shoulder type seat belt.

1324 **OFFICER SEAT**

1325 A seat shall be provided in the cab for the passenger. The seat shall be a fixed type with no
 1326 suspension. For optimal comfort, the seat shall be provided with 17.00" deep foam cushions
 1327 designed with EVC (elastomeric vibration control).

1328 The seat back shall be an SCBA back style with 5 degrees fixed recline angle. The SCBA cavity
 1329 shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA
 1330 cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-
 1331 bolting it in the desired location.

1332 The seat shall be furnished with a 3-point, shoulder type seat belt.

1333 **RADIO COMPARTMENT**

1334 A radio compartment shall be provided under the officer's seat.

1335 The inside compartment dimensions shall be 16.00" wide x 7.50" high x 15.00" deep, with the
 1336 back of the compartment angled up to match the cab structure.

1337 A drop-down door with one (1) lift and turn latch shall be provided for access.

1338 The compartment shall be constructed of smooth aluminum and painted to match the cab
 1339 interior.

1340 **REAR FACING DRIVER SIDE OUTBOARD SEAT**

1341 There shall be one (1) rear facing seat provided at the driver side outboard position in the crew
 1342 cab. For optimal comfort, the seat shall be provided with 17.00" deep foam cushions designed
 1343 with EVC (elastomeric vibration control).

1344 The seat back shall be an SCBA back style with 5 degrees fixed recline angle. The SCBA cavity
 1345 shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA

1346 cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-
1347 bolting it in the desired location.

1348 The seat shall be furnished with a 3-point, shoulder type seat belt.

1349 **REAR FACING PASSENGER SIDE OUTBOARD SEAT**

1350 There shall be one (1) rear facing seat provided at the passenger side outboard position in the
1351 crew cab. For optimal comfort, the seat shall be provided with 17.00" deep foam cushions
1352 designed with EVC (elastomeric vibration control).

1353 The seat back shall be an SCBA back style with 5 degrees fixed recline angle. The SCBA cavity
1354 shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA
1355 cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-
1356 bolting it in the desired location.

1357 The seat shall be furnished with a 3-point, shoulder type seat belt.

1358 **FORWARD FACING CENTER CABINET**

1359 A forward-facing cabinet shall be provided in the crew cab at the center position.

1360 The cabinet shall be 38.50" wide x 60.00" high x 20.00" deep with one (1) Amdor rollup door
1361 with anodized finish, locking with #751 key. The frame to frame opening of the cabinet shall be
1362 36.00" wide x 54.75" high. The minimum clear door opening shall be 33.25" wide x 48.87"
1363 high.

1364 The cabinet shall include two (2) infinitely adjustable shelves with a 1.25" up turned lip with a
1365 dual action finish.

1366 The cabinet shall include no louvers.

1367 The cabinet shall be constructed of smooth aluminum and painted to match the cab interior.

1368 **Cabinet Light**

1369 There shall be one (1) white Amdor (or like) LED strip light installed on the left side of the
1370 interior cabinet door opening and one (1) white Amdor (or like) LED strip light installed on the
1371 right side of the interior cabinet door opening. The lights shall extend the full height of the
1372 compartment door opening. The lighting shall be controlled by a heavy-duty magnetic door
1373 switch.

1374 **SEAT UPHOLSTERY**

1375 All seat upholstery shall be leather grain 36 oz black vinyl resistant to oil, grease and mildew.

1376 The cab shall have four (4) seating positions.

1377 **AIR BOTTLE HOLDERS**

1378 All SCBA type seats in the cab shall have a "Hands-Free" auto clamp style bracket in its
 1379 backrest. For efficiency and convenience, the bracket shall include an automatic spring clamp
 1380 that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For
 1381 protection of all occupants in the cab, in the event of an accident, the inertial components within
 1382 the clamp shall constrain the SCBA bottle in the seat and shall exceed the NFPA standard of 9G.
 1383 Bracket designs with manual restraints (belts, straps, buckles) that could be inadvertently left
 1384 unlocked and allow the SCBA to move freely within the cab during an accident, shall not be
 1385 acceptable.

1386 There shall be a quantity of three (3) SCBA brackets.

1387 **SEAT BELTS**

1388 All cab and tiller cab (if applicable) seating positions shall have red seat belts. To provide quick,
 1389 easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length shall
 1390 meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.

1391 The 3-point shoulder type seat belts shall include height adjustment. This adjustment shall
 1392 optimize the belts effectiveness and comfort for the seated firefighter. The 3-point shoulder type
 1393 seat belts shall be furnished with dual automatic retractors that shall provide ease of operation in
 1394 the normal seating position.

1395 The 3-point shoulder type belts shall also include the ReadyReach (or like) D-loop assembly to
 1396 the shoulder belt system. The ReadyReach (or like) feature adds an extender arm to the D-loop
 1397 location placing the D-loop in a closer, easier to reach location.

1398 Any flip up seats shall include a 3-point shoulder type belts only.

1399 To ensure safe operation, the seats shall be equipped with seat belt sensors in the seat cushion
 1400 and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled.

1401 **HELMET STORAGE PROVIDED BY FIRE DEPARTMENT**

1402 NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided.

1403 There is no helmet storage on the apparatus as manufactured. The fire department shall provide
 1404 a location for storage of helmets.

1405 **CAB DOME LIGHTS**

1406 There shall be four (4) dual LED dome lights with black bezels provided. Two (2) lights shall be
 1407 mounted above the inside shoulder of the driver and officer and two (2) lights shall be installed
 1408 and located, one (1) on each side of the crew cab.

1409 The color of the LED's shall be red and white.

1410 The white LEDs shall be controlled by the door switches and the lens switch.

1411 The color LEDs shall be controlled by the lens switch.

1412 In order to ensure exceptional illumination, each white LED dome light shall provide a minimum
 1413 of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when
 1414 mounted 40.00" above the seat.

1415 **HANDHELD LIGHT**

1416 There shall be two (2) Streamlight, Vulcan, Model #44315 (or like), hand lights provided with a
 1417 vehicle mount with 12VDC direct wire charging rack and quick release buckle strap mounted
 1418 TBD time of preconstruction.

1419 Each light housing shall be orange in color.

1420 **CAB INSTRUMENTATION**

1421 The cab instrument panel shall include gauges, telltale indicator lamps, control switches, alarms,
 1422 and a diagnostic panel. The function of the instrument panel controls and switches shall be
 1423 identified by a label adjacent to each item. Actuation of the headlight switch shall illuminate the
 1424 labels in low light conditions. Telltale indicator lamps shall not be illuminated unless necessary.
 1425 The cab instruments and controls shall be conveniently located within the forward cab section,
 1426 forward of the driver. The gauge assembly and switch panels are designed to be removable for
 1427 ease of service and low cost of ownership.

1428 **Gauges**

1429 The gauge panel shall include the following ten (10) black faced gauges with black bezels to
 1430 monitor vehicle performance:

1431 Voltmeter gauge (volts):

- 1432 • Low volts (11.8 VDC)
- 1433 • Amber telltale light on indicator light display with steady tone alarm
- 1434 • High volts (15.5 VDC)
- 1435 • Amber telltale light on indicator light display with steady tone alarm
- 1436 • Engine Tachometer (RPM)
- 1437 • Speedometer MPH (Major Scale), KM/H (Minor Scale)

1438 Fuel level gauge (Empty - Full in fractions):

- 1439 • Low fuel (1/8 full)
- 1440 • Amber indicator light in gauge dial with steady tone alarm

1441 Engine Oil pressure Gauge (PSI):

- 1442 • Low oil pressure to activate engine warning lights and alarms
- 1443 • Red indicator light in gauge dial with steady tone alarm

1444 Front Air Pressure Gauges (PSI):

- 1445 • Low air pressure to activate warning lights and alarm
- 1446 • Red indicator light in gauge dial with steady tone alarm
- 1447 Rear Air Pressure Gauges (PSI):
- 1448 • Low air pressure to activate warning lights and alarm
- 1449 • Red indicator light in gauge dial with steady tone alarm
- 1450 Transmission Oil Temperature Gauge (Fahrenheit):
- 1451 • High transmission oil temperature activates warning lights and alarm
- 1452 • Amber indicator light in gauge dial with steady tone alarm
- 1453 Engine Coolant Temperature Gauge (Fahrenheit):
- 1454 • High engine temperature activates an engine warning light and alarms
- 1455 • Red indicator light in gauge dial with steady tone alarm
- 1456 Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions):
- 1457 • Low fluid (1/8 full)
- 1458 • Amber indicator light in gauge dial

1459 **Indicator Lamps**

1460 To promote safety, the following telltale indicator lamps shall be located on the instrument panel
 1461 in clear view of the driver. The indicator lamps shall be "dead-front" design that is only visible
 1462 when active. The colored indicator lights shall have descriptive text or symbols.

1463 The following amber telltale lamps shall be present:

- 1464 • Low coolant
- 1465 • Trac cntl (traction control) (where applicable)
- 1466 • Check engine
- 1467 • Check trans (check transmission)
- 1468 • Air rest (air restriction)
- 1469 • DPF (engine diesel particulate filter regeneration)
- 1470 • HET (engine high exhaust temperature) (where applicable)
- 1471 • ABS (antilock brake system)
- 1472 • MIL (engine emissions system malfunction indicator lamp) (where applicable)
- 1473 • Regen inhibit (engine emissions regeneration inhibit) (where applicable)
- 1474 • Side roll fault (where applicable)
- 1475 • Front air bag fault (where applicable)
- 1476 • Aux brake overheat (auxiliary brake overheat) (where applicable)
- 1477 • The following red telltale lamps shall be present:
- 1478 • Ladder rack down
- 1479 • Parking brake Stop engine
- 1480 • The following green telltale lamps shall be present:
- 1481 • Left turn

- 1482 • Right turn
- 1483 • Battery on
- 1484 • Ignition
- 1485 • Aux brake (auxiliary brake engaged) (where applicable)
- 1486 • The following blue telltale lamps shall be present:
- 1487 • High beam

1488 **Alarms**

1489 Audible steady tone warning alarm: A steady audible tone alarm shall be provided whenever a
 1490 warning condition is active.

1491 **Indicator Lamp and Alarm Prove-Out**

1492 A system shall be provided which automatically tests telltale indicator lights and alarms located
 1493 on the cab instrument panel. Telltale indicators and alarms shall perform prove-out for 3 to 5
 1494 seconds when the ignition switch is moved to the on position with the battery switch on.

1495 **Control Switches**

1496 For ease of use, the following controls shall be provided immediately adjacent to the cab
 1497 instrument panel within easy reach of the driver. All switches shall have backlit labels for low
 1498 light applications.

1499 Headlight/Parking light switch: A three (3)-position maintained rocker switch shall be provided.
 1500 The first switch position shall deactivate all parking and headlights. The second switch position
 1501 shall activate the parking lights. The third switch shall activate the headlights.

1502 Panel back lighting intensity control switch: A three (3)-position momentary rocker switch shall
 1503 be provided. Pressing the top half of the switch, "Panel Up" increases the panel back lighting
 1504 intensity and pressing the bottom half of the switch, "Panel Down" decreases the panel back
 1505 lighting intensity. Pressing the half or bottom half of the switch several times shall allow back
 1506 lighting intensity to be gradually varied from minimum to maximum intensity level for ease of
 1507 use.

1508 Ignition switch: A three (3)-position maintained/momentary rocker switch shall be provided.
 1509 The first switch position shall turn off and deactivate vehicle ignition. The second switch
 1510 position shall activate vehicle ignition and shall perform prove-out on the telltale indicators and
 1511 alarms for 3 to 5 seconds after the switch is turned on. A green indicator lamp is activated with
 1512 vehicle ignition. The third momentary position shall temporarily silence all active cab alarms.
 1513 An alarm "chirp" may continue as long as alarm condition exists. Switching ignition to off
 1514 position shall terminate the alarm silence feature and reset function of cab alarm system.

1515 Engine start switch: A two (2)-position momentary rocker switch shall be provided. The first
 1516 switch position is the default switch position. The second switch position shall activate the
 1517 vehicle's engine. The switch actuator is designed to prevent accidental activation.

1518 Hazard switch shall be provided on the instrument panel or on the steering column.

1519 Heater, defrost, and air conditioning control panel.

1520 Turn signal arm: A self-canceling turn signal with high beam headlight controls.

1521 Windshield wiper control shall have high, low, and intermittent modes.

1522 Parking brake control: An air actuated push/pull park brake control.

1523 Chassis horn control: Activation of the chassis horn control shall be provided through the center
 1524 of the steering wheel.

1525 High idle engagement switch: A maintained rocker switch with integral indicator lamp shall be
 1526 provided. The switch shall activate and deactivate the high idle function. The "OK To Engage
 1527 High Idle" indicator lamp must be active for the high idle function to engage. A green indicator
 1528 lamp integral to the high idle engagement switch shall indicate when the high idle function is
 1529 engaged.

1530 "OK To Engage High Idle" indicator lamp: A green indicator light shall be provided next to the
 1531 high idle activation switch to indicate that the interlocks have been met to allow high idle
 1532 engagement.

1533 Emergency switching shall be controlled by multiple individual warning light switches for
 1534 various groups or areas of emergency warning lights. An Emergency Master switch provided on
 1535 the instrument panel that enables or disables all individual warning light switches is included.

1536 An additional "Emergency Master" button shall be provided on the lower left-hand corner of the
 1537 gauge panel to allow convenient control of the "Emergency Master" system from inside the
 1538 driver's door when standing on the ground.

1539 **Custom Switch Panels**

1540 The design of cab instrumentation shall allow for emergency lighting and other switches to be
 1541 placed within easy reach of the operator thus improving safety. There shall be positions for up to
 1542 four (4) switch panels in the lower instrument console and up to six (6) switch panels in the
 1543 overhead visor console. All switches have backlit labels for low light conditions.

1544 **Diagnostic Panel**

1545 A diagnostic panel shall be provided and accessible while standing on the ground. The panel
 1546 shall be located inside the driver's side door left of the steering column. The diagnostic panel
 1547 shall allow diagnostic tools such as computers to connect to various vehicle systems for

1548 improved troubleshooting providing a lower cost of ownership. Diagnostic switches shall allow
 1549 ABS systems to provide blink codes should a problem exist.

1550 The diagnostic panel shall include the following:

- 1551 • ENGINE/TRANSMISSION/ABS J1939 Diagnostic Port
- 1552 • ABS Diagnostic Switch and Indicator - The switch and amber indicator shall allow
 1553 access to diagnostic mode and display of standard ABS system fault blink codes that may
 1554 be generated by the ABS system
- 1555 • DPF REGEN (Diesel Particulate Filter Regeneration Switch) (where applicable) shall be
 1556 provided to request regeneration of the engine emission system. An amber indicator shall
 1557 be provided on top of the switch that shall illuminate in a "CHECK ENGINE" condition
- 1558 • REGEN INHIBIT (Diesel Particulate Filter Regeneration Inhibit Switch) (where
 1559 applicable) shall be provided that shall request that regeneration be temporarily
 1560 prevented. A green indicator shall be provided on top of the Regen Inhibit switch that
 1561 shall illuminate when the Regen Inhibit feature is active. Regen Inhibit shall be disabled
 1562 upon cycling of the ignition switch to the off state.

1563 **AIR RESTRICTION INDICATOR**

1564 A high air restriction warning indicator light (electronic) shall be provided.

1565 **"DO NOT MOVE APPARATUS" INDICATOR**

1566 A flashing red indicator light, located in the driving compartment, shall be illuminated
 1567 automatically per the current NFPA requirements. The light shall be labeled "Do Not Move
 1568 Apparatus If Light Is On."

1569 The same circuit that activates the Do Not Move Apparatus indicator shall activate a pulsing
 1570 alarm when the parking brake is released.

1571 **SWITCH PANELS**

1572 The built-in switch panels shall be located in the lower console or overhead console of the cab.
 1573 Switches shall be rocker type with an indicator light, of which is an integral part of the switch.

1574 **WIPER CONTROL**

1575 Wiper control shall consist of a two (2)-speed windshield wiper control with intermittent feature
 1576 and windshield washer controls. The control shall be located on the left side of the center
 1577 instrument panel.

1578 The wipers shall be interlocked to the parking brake. The wipers shall terminate operation when
 1579 the parking brake is set.

1580 **SPARE CIRCUIT**

1581 There shall be three (3) pair of wires, including a positive and a negative, installed on the
1582 apparatus.

1583 The above wires shall have the following features:

- 1584 • The positive wire shall be connected directly to the battery power
- 1585 • The negative wire shall be connected to ground
- 1586 • Wires shall be protected to 15 amps at 12 volts DC
- 1587 • Power and ground shall terminate officer side dash area, in EMS compartment(s) and on
1588 the driver's side of the engine tunnel
- 1589 • Termination shall be with 3/8" studs and plastic covers
- 1590 • Wires shall be sized to 125 percent of the protection

1591 The circuit(s) may be load managed when the parking brake is set.

1592 **SPARE CIRCUIT**

1593 There shall be one (1) dual USB fast charge socket mount installed on the apparatus.

1594 The above wires shall have the following features:

- 1595 • The positive wire shall be connected directly to the battery power.
- 1596 • The negative wire shall be connected to ground.
- 1597 • Wires shall be protected to 4.8 amps at 12 volts DC.
- 1598 • The USB socket mount shall be one (1) on the driver's side dash, one (1) on the officer's
1599 side dash.
- 1600 • Termination shall be a Blue Sea Systems (or like) part number 1045 dual USB charger
1601 socket.
- 1602 • Wires shall be sized to 125% of the protection.

1603 This circuit(s) may be load managed when the parking brake is applied.

1604 **SPARE CIRCUIT**

1605 There shall be one (1) pair of wires, including a positive and a negative, installed on the
1606 apparatus.

1607 The above wires shall have the following features:

- 1608 • The positive wire shall be connected directly to the battery power.
- 1609 • The negative wire shall be connected to ground.
- 1610 • Wires shall be protected to 40 amps at 12 volts DC.
- 1611 • Power and ground shall terminate TBD at time of preconstruction.
- 1612 • Termination shall be with 3/8" studs and plastic covers.

- 1613 • Wires shall be sized to 125 percent of the protection.

1614 This circuit(s) may be load managed when the parking brake is set.

1615 **INFORMATION CENTER**

1616 There shall be an LCD display integral to the cab gauge panel provided that shall display the
 1617 following information:

- 1618 • Total distance
- 1619 • Trip distance
- 1620 • Total hours
- 1621 • Trip hours
- 1622 • PTO "A" hours
- 1623 • PTO "B" hours

1624 **VEHICLE DATA RECORDER**

1625 There shall be a vehicle data recorder (VDR) capable of reading and storing vehicle information
 1626 provided.

1627 The information stored on the VDR can be downloaded through a USB port mounted in a
 1628 convenient location determined by cab model. A USB cable can be used to connect the VDR to a
 1629 laptop to retrieve required information. The program to download the information from the
 1630 VDR will be available to download on-line.

1631 The vehicle data recorder shall be capable of recording the following data via hardwired and/or
 1632 CAN inputs:

- 1633 • Vehicle Speed - MPH
- 1634 • Acceleration - MPH/sec
- 1635 • Deceleration - MPH/sec
- 1636 • Engine Speed - RPM
- 1637 • Engine Throttle Position - % of Full Throttle
- 1638 • ABS Event - On/Off
- 1639 • Seat Occupied Status - Yes/No by Position
- 1640 • Seat Belt Buckled Status - Yes/No by Position
- 1641 • Master Optical Warning Device Switch - On/Off
- 1642 • Time - 24 Hour Time
- 1643 • Date - Year/Month/Day

Seat Belt Monitoring System

A seat belt monitoring system (SBMS) shall be provided. The SBMS shall be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

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

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

RADIO ANTENNA MOUNT

There shall be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed on the right side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the instrument panel area. A weatherproof cap shall be installed on the mount.

VEHICLE CAMERA SYSTEM

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

One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse.

The camera image shall be displayed on a 7.00" LCD display located in view of the driver on the dash. The display shall include manual camera activation capability and audio from the active camera.

The following components shall be included:

- One (1) MO700136DC, display
- One (1) SV-CW134639CAI, camera
- All necessary cables

ELECTRICAL POWER CONTROL SYSTEM

A compartment shall be provided in or under the cab to house the vehicle's electrical power and signal circuit protection and control components. The power and signal protection and control compartment shall contain circuit protection devices and power control devices. Power and signal protection and control components shall be protected against corrosion, excessive heat, excessive vibration, physical damage, and water spray.

Serviceable components shall be readily accessible.

1676 Circuit protection devices, which conform to SAE standard, shall be utilized to protect each
1677 circuit. All circuit protection devices shall be sized to prevent wire and component damage
1678 when subjected to extreme current overload. General protection circuit breakers shall be Type-I
1679 automatic reset (continuously resetting) and conform to SAE J553 or J258. When required,
1680 automotive type fuses conforming to SAE J554, J1284, J1888 or J2077 shall be utilized to
1681 protect electronic equipment.

1682 Power control relays and solenoids shall have a direct current (dc) rating of 125 percent of the
1683 maximum current for which the circuit is protected.

1684 Visual status indicators shall be supplied to identify control safety interlocks and vehicle status.
1685 In addition to visual status indicators, audible alarms designed to provide early warning of
1686 problems before they become critical shall be used.

1687 **VOLTAGE MONITOR SYSTEM**

1688 A voltage monitor system shall be provided to indicate the status of each battery system
1689 connected to the vehicle's electrical load. The monitor system shall provide visual and audio
1690 warning when the system voltage is above or below optimum levels.

1691 **POWER AND GROUND STUDS**

1692 Spare circuits shall be provided in the primary distribution center for two-way radio equipment.

1693 The spare circuits shall consist of the following:

- 1694 • One (1) 12-volt DC, 30-amp battery direct spare
- 1695 • One (1) 12-volt DC ground and un-fused switched battery stud located in or adjacent to
1696 the power distribution center

1697 **EMI/RFI PROTECTION**

1698 The electrical system proposed shall include means to control undesired electromagnetic and
1699 radio frequency emissions. State of the art electrical system design and components shall be
1700 used to ensure radiated and conducted EMI (electromagnetic interference) and RFI (radio
1701 frequency interference) emissions are suppressed at their source.

1702 The apparatus proposed shall have the ability to operate in the electromagnetic environment
1703 typically found in fire ground operations. The contractor shall be able to demonstrate the EMI
1704 and RFI testing has been done on similar apparatus and certifies that the vehicle proposed meets
1705 SAE J551 requirements.

1706 EMI/RFI susceptibility shall be controlled by applying immune circuit designs, shielding,
1707 twisted pair wiring and filtering. The electrical system shall be designed for full compatibility
1708 with low level control signals and high-powered two-way radio communication systems.

1709 Harness and cable routing shall be given careful attention to minimize the potential for
 1710 conducting and radiated EMI-RFI susceptibility.

1711 **ELECTRICAL**

1712 All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern
 1713 automotive practices. All wiring shall be high temperature crosslink type. Wiring shall be run,
 1714 in loom or conduit, where exposed and have grommets where wire passes through sheet metal.
 1715 Automatic reset circuit breakers shall be provided which conform to SAE Standards. Wiring
 1716 shall be color, function and number coded. Function and number codes shall be continuously
 1717 imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors
 1718 shall be positive locking, and environmentally sealed to withstand elements such as temperature
 1719 extremes, moisture and automotive fluids.

1720 Electrical wiring and equipment shall be installed utilizing the following guidelines:

- 1721 1. All holes made in the roof shall be caulked with silicon, rope caulk is not acceptable.
 1722 Large fender washers, liberally caulked, shall be used when fastening equipment to the
 1723 underside of the cab roof.
- 1724 2. Any electrical component that is installed in an exposed area shall be mounted in a
 1725 manner that shall not allow moisture to accumulate in it. Exposed area shall be defined
 1726 as any location outside of the cab or body.
- 1727 3. Electrical components designed to be removed for maintenance shall not be fastened
 1728 with nuts and bolts. Metal screws shall be used in mounting these devices. Also, a coil
 1729 of wire shall be provided behind the appliance to allow them to be pulled away from
 1730 mounting area for inspection and service work.
- 1731 4. Corrosion preventative compound shall be applied to all terminal plugs located outside
 1732 of the cab or body. All non-waterproof connections shall require this compound in the
 1733 plug to prevent corrosion and for easy separation (of the plug).
- 1734 5. All lights that have their sockets in a weather exposed area shall have corrosion
 1735 preventative compound added to the socket terminal area.
- 1736 6. All electrical terminals in exposed areas shall have silicon (1890) applied completely
 1737 over the metal portion of the terminal.

1738 All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108,
 1739 shall be furnished. Rear identification lights shall be recessed mounted for protection. Lights and
 1740 wiring mounted in the rear bulkheads shall be protected from damage by installing a false
 1741 bulkhead inside the rear compartments.

1742 An operational test shall be conducted to ensure that any equipment that is permanently attached
 1743 to the electrical system is properly connected and in working order.

1744 The results of the tests shall be recorded and provided to the purchaser at time of delivery.

1745 **BATTERY SYSTEM**

1746 There shall be four (4) 12-volt, Interstate, group 31 batteries that include the following features
 1747 provided:

- 1748 • 950 CCA (cold cranking amps)
- 1749 • 170 reserve capacity
- 1750 • High cycle
- 1751 • Maintenance free
- 1752 • Rating of 4750 CCA at 0 degrees Fahrenheit
- 1753 • 195 minutes of reserve capacity
- 1754 • Threaded stud

1755 **BATTERY SYSTEM**

1756 There shall be a single starting system with an ignition switch and starter button provided and
 1757 located on the cab instrument panel.

1758 **MASTER BATTERY SWITCH**

1759 There shall be a master battery switch provided within the cab within easy reach of the driver to
 1760 activate the battery system.

1761 An indicator light shall be provided on the instrument panel to notify the driver of the status of
 1762 the battery system.

1763 **BATTERY COMPARTMENTS**

1764 Batteries shall be placed on non-corrosive mats and be stored in well ventilated compartments
 1765 located under the cab.

1766 Heavy-duty battery cables shall be used to provide maximum power to the electrical system.
 1767 Cables shall be color coded.

1768 Battery terminal connections shall be coated with anti-corrosion compound. Battery solenoid
 1769 terminal connections shall be encapsulated with semi-permanent rubberized compound.

1770 **JUMPER STUDS**

1771 One (1) set of battery jumper studs with plastic color-coded covers shall be included on the
 1772 battery compartments.

1773 **BATTERY CHARGER**

1774 There shall be a Blue Sea, Model P12 (or like), battery charger provided. A Blue Sea, Model
 1775 7517 (or like), P12 remote display shall be included with the installation. Three bar graphs shall
 1776 be provided on the remote display.

1777 The charger shall have a maximum output of 40 amps and a fully automatic regulation.

1778 The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to
1779 the battery charger.

1780 Battery charger shall be located in the cab behind the driver's seat.

1781 The battery charger indicator shall be displayed through the window behind the driver seat. The
1782 display shall be mounted on a bracket so that it is visible from outside the apparatus in the lower
1783 corner of the window.

1784 **AUTO EJECT FOR SHORELINE**

1785 There shall be one (1) Kussmaul™ (or like), Model 091-55-20-120, 20-amp 120-volt AC
1786 shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.

1787 The shoreline inlet(s) shall include yellow weatherproof flip up cover(s).

1788 There shall be a release solenoid wired to the vehicle's starter to eject the AC connector when the
1789 engine is starting.

1790 The shoreline(s) shall be connected to the battery charger.

1791 There shall be a mating connector body supplied with the loose equipment.

1792 There shall be a label installed near the inlet(s) that state the following:

- 1793 • Line Voltage
- 1794 • Current Rating (amps)
- 1795 • Phase
- 1796 • Frequency

1797 The shoreline receptacle shall be located on the driver side of cab, above wheel.

1798 **ALTERNATOR**

1799 A Leece-Neville, Model BLP4004H (or like), alternator shall be provided. It shall have a rated
1800 output current of 350 amp as measured by SAE method J56. The alternator shall feature an
1801 integral, self-diagnostic regulator and rectifier. The alternator shall be connected to the power
1802 and ground distribution system with heavy-duty cables sized to carry the full rated alternator
1803 output.

1804 **ELECTRONIC LOAD MANAGEMENT**

1805 An electronic load management (ELM) system that monitors the vehicles 12-volt electrical
1806 system, and automatically reduces the electrical load in the event of a low voltage condition and
1807 by doing so, ensures the integrity of the electrical system.

1808 The ELM shall monitor the vehicle's voltage while at the scene (parking brake applied). It shall
1809 sequentially shut down individual electrical loads when the system voltage drops below a preset

1810 value. Two (2) separate electrical loads shall be controlled by the load manager. The ELM shall
1811 sequentially re-energize electrical loads as the system voltage recovers.

1812 **HEADLIGHTS**

1813 There shall be four (4) JW Speaker®, Model 8800 (or like), 4" x 6" rectangular LED lights
1814 mounted in the front quad style, chrome housing on each side of the cab grille:

1815 the outside light on each side shall contain a part number 055***1 low beam module

1816 the inside light on each side shall contain a part number 055***1 high beam module

1817 the headlights to include chrome bezels

1818 The low beam lights shall be activated when the headlight switch is on.

1819 The high beam and low beam lights shall be activated when the headlight switch and the high
1820 beam switch is activated.

1821 **FRONT DIRECTIONALS**

1822 The front directional's shall be Whelen®, Model M62T (or like), 4.31" high x 6.75" wide x 1.37"
1823 deep directional lights with amber LEDs. The lens color(s) to be the same as the LEDs. The
1824 directional's shall be housed in the same common bezel as the front warning light and shall be
1825 located above the headlights. The housing to be polished and the trim shall be chrome.

1826 The flash pattern of the directional lights shall be Steady On (Arrow).

1827 **INTERMEDIATE LIGHT**

1828 There shall be two (2) Weldon, Model 9186-8580-29 (or like), amber LED turn signal marker
1829 lights furnished, one (1) each side, in the rear fender panel. The light shall double as a turn
1830 signal and marker light.

1831 **CAB CLEARANCE/MARKER/ID LIGHTS**

1832 There will be two (2) amber LED lights provided to indicate the presence and overall length of
1833 the vehicle in the following locations:

1834 Two (2) lights with amber LEDs as front side clearance lights will be installed, one (1) on each
1835 side above the cab doors.

1836 All other forward facing clearance lights will be included with the visor scene light.

1837 **FRONT CAB SIDE DIRECTIONAL/MARKER LIGHTS**

1838 There shall be two (2) Weldon, Model 9186-8580-29 (or like), amber LED lights installed front
1839 of the cab door, one (1) on each side of the cab.

1840 The lights shall activate as marker lights with the headlight switch and directional lights with the
1841 corresponding directional circuit.

REAR CLEARANCE/MARKER/ID LIGHTING

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

- As close as practical to the vertical centerline
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height

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

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

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

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

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

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

Per FMVSS 108 and CMVSS 108 requirements.

REAR FMVSS LIGHTING

The rear stop/tail and directional LED lighting shall consist of the following:

- Two (2) Whelen® (or like), Model M6BTT, red LED stop/taillights

- 1875 • Two (2) Whelen (or like), Model M6T, amber LED arrow turn lights

1876 The lights shall be provided with color lenses.

1877 The lights shall be mounted in a polished combination housing.

1878 There shall be two (2) Whelen Model M6BUW (or like), LED backup lights provided in the
1879 taillight housing.

1880 **LICENSE PLATE BRACKET**

1881 There shall be one (1) license plate bracket located below the tailboard on a removable bolt-on
1882 bracket located driver side.

1883 A white LED light shall illuminate the license plate. A stainless-steel light shield shall be
1884 provided over the light that shall direct illumination downward, preventing white light to the
1885 rear.

1886 **LIGHTING BEZEL**

1887 There shall be two (2) Whelen, Model M6FCV4P(or like) , four (4) place chromed ABS
1888 housings with Manufacturers logos provided for the rear M6 series stop/tail, directional, back up,
1889 scene lights or warning lights.

1890 **BACK-UP ALARM**

1891 A PRECO, Model 1040(or like), solid-state electronic audible back-up alarm that actuates when
1892 the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute
1893 and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding
1894 environmental noise levels.

1895 **CAB PERIMETER SCENE LIGHTS**

1896 There shall be four (4) Amdor, Model AY-LB-12HW020 (or like), 350 lumens each, 20.00"
1897 white LED strip lights provided, one (1) for each cab door.

1898 These lights shall be activated automatically when the battery switch is on, and the exit doors are
1899 opened or by the same means as the body perimeter scene lights.

1900 **PUMP HOUSE PERIMETER LIGHTS**

1901 There shall be two (2) Amdor, Model AY-LB-12HW020 (or like), 350 lumens each, 20.00" LED
1902 weatherproof strip lights with brackets provided under the pump panel running boards, one (1)
1903 each side.

1904 If the combination of options in the vehicle does not permit clearance for a 20.00" light, a 12.00"
1905 version of the Amdor (or like) light shall be installed.

1906 The lights shall be controlled by the same means as the body perimeter lights.

BODY PERIMETER SCENE LIGHTS

There shall be two (2) Amdor, Model AY-LB-12HW020 (or like), 350 lumens, 20.00" long, white LED's, 12-volt DC lights provided at the rear step area of the body, one (1) each side shining to the rear.

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

ADDITIONAL PERIMETER LIGHTS

There shall be two (2) lights Amdor®, Model AY-LB-12HW012 (or like), 190 lumens each, 12.00" white LED perimeter light(s) provided one (1) light under each side running board.

These lights shall be activated the same as the body perimeter lights.

STEP LIGHTS

Four (4) white LED step lights shall be provided. One (1) step light shall be provided on each side, on the front compartment face and two (2) step lights at the rear to illuminate the tailboard.

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

These step lights shall be actuated with the pump panel light switch.

All other steps on the apparatus shall be illuminated per the current edition of NFPA 1901.

12 VOLT LIGHTING

There will be a HiViz Model (or like) FT-B-72-ML-*, 2.56" high x 75.20" long x 3.31" deep 28,158 raw lumens 12-volt DC light provided on the front cab roof as far forward as practical. The light will include white scene LEDs, two (2) amber LEDs as clearance lights and three (3) amber LEDs as identification lights.

The painted parts of the light housing and brackets shall be painted job color red.

The clearance and identification LEDs will be activated with the headlight switch.

The scene LEDs will be activated when the battery switch is on and by a 3-position rocker switch with the bottom position activating the outside and inboard middle group of flood LED's, middle position all LED's off and top position activating all LED's.

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

12 VOLT DC SCENE LIGHTS

There shall be one (1) Fire Research Model SPA (or like) ***-Q20, 20,000 lumens 12-volt DC powered lights with white LEDs installed on the apparatus located on the cab, officers side cab, raised roof, centered above window.

The light(s) shall be installed on surface mount bracket(s).

The painted parts of this light assembly to be white with a white bezel.

The lights shall be activated by a switch at the driver's side switch panel, by a switch at the passenger's side switch panel and when the cab or crew cab doors on the passenger's side are open.

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

12 VOLT DC SCENE LIGHTS

There shall be one (1) Fire Research Model FCA***-V20, 20,000 lumens 12-volt DC powered light(s) (or like) with white LEDs installed on the apparatus located on the cab, back of cab, outboard left side.

The light(s) shall be installed on vertical surface mount push-up pole(s) and to be connected to the Do Not Move Truck Indicator circuit.

The painted parts of the light(s) to be white.

The lights shall be activated by a switch at the left side pump panel.

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

12 VOLT DC SCENE LIGHTS

There shall be one (1) Fire Research Model FCA***-V20, 20,000 lumens 12-volt DC powered light(s) (or like) with white LEDs installed on the apparatus located on the cab, back of cab, outboard right side.

The light(s) shall be installed on vertical surface mount push-up pole(s) and to be connected to the Do Not Move Truck Indicator circuit.

The painted parts of the light(s) to be white.

The lights shall be activated by a switch at the left side pump panel.

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

12 VOLT DC SCENE LIGHTS

There shall be one (1) Fire Research Model SPA***-Q20, 20,000 lumens 12-volt DC powered lights (or like) with white LEDs installed on the apparatus located on the cab, drivers side cab, raised roof, centered above window.

The light(s) shall be installed on surface mount bracket(s).

The painted parts of this light assembly to be white with a white bezel.

The lights shall be activated by a switch at the driver's side switch panel, by a switch at the passenger's side switch panel and when the cab or crew cab doors on the driver's side are open.

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

DECK LIGHTS

There shall be two (2) Whelen, Model PFBP12C, 12-volt DC LED floodlights (or like) with swivel mount provided at the rear of the hose bed, one (1) each side.

The lights shall be activated by a control from a switch at the rear of the truck.

HOSE BED LIGHTS

There shall be white 12-volt DC LED light strips with stainless steel protective cover, provided to light the hose bed area. Hose Bed lights shall meet the photometric levels listed in NFPA 1901 for Hose Bed lighting requirements.

Light strip(s) shall be installed along the upper edge of the left side of the hose bed.

Light strip(s) shall be installed along the upper edge of the right side of the hose bed.

The lights shall be activated by a cup switch at the rear of the apparatus no more than 72.00" from the ground.

WALKING SURFACE LIGHTS

There shall be white 12-volt DC LED light strips with stainless steel protective cover, provided to light the cargo area.

One (1) light strip shall be installed the entire length of the driver's side of the cargo area.

One (1) light strip shall be installed the entire length of the passenger's side of the cargo area.

The light shall be activated when the body step lights are on.

WATER TANK

Booster tank shall have a capacity of 750 gallons and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated (or like).

Tank joints and seams shall be nitrogen welded inside and out.

- 1995 Tank shall be baffled in accordance with NFPA Bulletin 1901 requirements.
- 1996 Baffles shall have vent openings at both the top and bottom to permit movement of air and water
1997 between compartments.
- 1998 Longitudinal partitions shall be constructed of .38" polypropylene plastic and shall extend from
1999 the bottom of the tank through the top cover to allow for positive welding.
- 2000 Transverse partitions shall extend from 4.00" off the bottom of the tank to the underside of the
2001 top cover.
- 2002 All partitions shall interlock and shall be welded to the tank bottom and sides.
- 2003 Tank top shall be constructed of .50" polypropylene. It shall be recessed .38" and shall be
2004 welded to the tank sides and the longitudinal partitions.
- 2005 Tank top shall be sufficiently supported to keep it rigid during fast filling conditions.
- 2006 Construction shall include 2.00" polypropylene dowels spaced no more than 30.00" apart and
2007 welded to the transverse partitions. Two (2) of the dowels shall be drilled and tapped (.50"
2008 diameter, 13.00" deep) to accommodate lifting eyes.
- 2009 A sump that will be sized dependent on the tank to pump plumbing shall be provided at the
2010 bottom of the water tank.
- 2011 Sump shall include a drain plug and the tank outlet.
- 2012 Tank shall be installed in a fabricated cradle assembly constructed of structural steel.
- 2013 Sufficient crossmembers shall be provided to properly support bottom of tank. Crossmembers
2014 shall be constructed of steel bar channel or rectangular tubing.
- 2015 Tank shall "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber
2016 cushions, .50" thick x 3.00" wide, shall be placed on all horizontal surfaces that the tank rests on.
- 2017 Stops or other provision shall be provided to prevent an empty tank from bouncing excessively
2018 while moving vehicle.
- 2019 Mounting system shall be approved by the tank manufacturer.
- 2020 Fill tower shall be constructed of .50" polypropylene and shall be a minimum of 8.00" wide x
2021 14.00" long.
- 2022 Fill tower shall be furnished with a .25" thick polypropylene screen and a hinged cover.

2023 An overflow pipe, constructed of 4.00" schedule 40 polypropylene, shall be installed
2024 approximately halfway down the fill tower, and extend through the water tank and exit to the
2025 rear of the rear axle.

2026 **TANK CRADLE**

2027 The water tank shall be installed in a fabricated cradle assembly constructed of stainless steel.

2028 Sufficient crossmembers shall be provided to properly support bottom of tank. Crossmembers
2029 shall be constructed of stainless-steel bar channel or rectangular tubing.

2030 **SLEEVE, PLUMBING, THROUGH TANK**

2031 Two (2) sleeves shall be provided in the water tank for a 3.00" pipe to the rear.

2032 **HOSE BED**

2033 The hose bed shall be fabricated of .125" -5052 aluminum with a nominal 38,000 psi tensile
2034 strength.

2035 Upper and rear edges of side panels shall have a double break for rigidity, a split tube finish shall
2036 not be acceptable.

2037 The upper inside area of the beavertails shall be covered with brushed stainless steel to prevent
2038 damage to painted surface when hose is removed.

2039 Flooring of the hose bed shall be removable aluminum grating with the top surface corrugated to
2040 aid in hose aeration. The grating slats shall be a minimum of 0.50" x 4.50" with spacing between
2041 slats for hose ventilation.

2042 The hose bed interior walls shall be unpainted and dual action finished.

2043 Hose bed shall accommodate L to R Bed (1) - 300' Of 2.50" DJ Hose Bed (2) - 500' of 5.00" DJ
2044 Hose Bed (3) - 700' of 3.00" DJ Hose.

2045 **HOSE BED DIVIDER**

2046 Two (2) hosebed dividers shall be furnished for separating hose.

2047 Each divider shall be constructed of a .25" brushed aluminum sheet. Flat surfaces shall be sanded
2048 for uniform appearance or constructed of brushed aluminum.

2049 Divider shall be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.

2050 Divider shall be held in place by tightening bolts, at each end.

2051 Acorn nuts shall be installed on all bolts in the hose bed which have exposed threads.

2052 A cross-divider shall be provided just behind the fill tower. The divider shall be bolted to the
2053 side sheet.

HOSEBED HOSE RESTRAINT

A red hosebed cover shall be furnished with awning rail (aluminum retainer) fasteners at the front and velcro fasteners on the sides. There shall be seat belt buckle fasteners at the bottom of the rear body sheet below the hosebed. The flap at the rear shall be lead shot weighted.

RUNNING BOARDS

Running boards shall be fabricated of .125" bright aluminum treadplate.

Each running board shall be supported by a welded 2.00" square tubing and channel assembly, which shall be bolted to the pump compartment substructure.

Running boards shall be 12.75" deep and spaced .50" away from the pump panel.

A splash guard shall be provided above the running board treadplate.

TAILBOARD

The tailboard shall also be constructed of .125" bright aluminum treadplate and spaced .50" from the body, as well as supported by a structural steel assembly.

The tailboard area shall be 18.00" deep and full width of the body. The outboard sides of the tailboard shall be angled at 45 degrees beginning at the point where the body meets the tailboard at the forward outboard edge angling rearward to the rear edge of the tailboard.

The exterior side shall be flanged down and in for increased rigidity of tailboard structure.

REAR WALL, SMOOTH ALUMINUM/BODY MATERIAL

The rear facing surfaces of the center rear wall shall be smooth aluminum.

The bulkheads, the surface to the rear of the side body compartments, shall be smooth and the same material as the body.

The rear wall shall be flush.

REAR TOW EYES

Two (2) tow eyes, which are an integral part of the body mounting substructure, shall be installed below the rear of the truck.

The tow eyes shall be of adequate strength to allow the truck to be pulled from the eyes.

REAR TOW BAR

One (1) tow bar shall be installed under the tailboard, 3.00" forward from the rear of the tailboard. With air ride suspension and a 65-gallon fuel tank, the tow bar will be located .50" further rearward than normal when there is this combination of options.

2084 The tow bar assembly shall be designed and positioned to allow up to a 30-degree upward angled
2085 pull of 17,000 lb., or a 20,000 lb. straight horizontal pull in line with the centerline of the vehicle.

2086 The tow bar design shall have been tested and evaluated using finite element analysis techniques.

2087 **COMPARTMENTATION**

2088 Body and compartments shall be fabricated of a minimum 0.125", 5052-H32 aluminum.

2089 Side compartments shall be an integral assembly with the rear fenders.

2090 Circular fender liners shall be provided for prevention of rust pockets and ease of maintenance.

2091 Side compartment flooring shall be of the sweep out design with the floor higher than the
2092 compartment door lip.

2093 The side compartment door opening shall be framed by flanging the edges in 1.75" and bending
2094 out again 0.75" to form an angle.

2095 Drip protection shall be provided above the doors by means of bright aluminum extrusion,
2096 formed bright aluminum treadplate or polished stainless steel.

2097 The top of the compartment shall be covered with bright aluminum treadplate rolled over the
2098 edges on the front, rear and outward side. These covers shall have the corners welded.

2099 Side compartment covers shall be separate from the compartment tops.

2100 Front facing compartment walls shall be covered with bright aluminum treadplate.

2101 All screws and bolts which protrude into a compartment shall have acorn nuts on the ends to
2102 prevent injury.

2103 **UNDERBODY SUPPORT SYSTEM**

2104 Due to the severe loading requirements of this pumper a method of body and compartment
2105 support suitable for the intended load shall be provided.

2106 The backbone of the support system shall be the chassis frame rails which is the strongest
2107 component of the chassis and is designed for sustaining maximum loads.

2108 The support system shall include 0.375" thick steel vertical angle supports bolted to the chassis
2109 frame rails with 0.625" diameter bolts.

2110 Attached to the bottom of the steel vertical angles shall be horizontal angles, with gussets welded
2111 to the vertical members, which extend to the outside edge of the body.

2112 A steel frame shall be mounted on the top of these supports to create a floating substructure
2113 which shall result in a 500 lb. equipment support rating per lower compartment.

2114 The steel frames as well as the steel vertical angles shall be treated with a Hot-Dipped
 2115 Galvanized process to provide resistance to corrosion and chemicals.

2116 The floating substructure shall be separated from the horizontal members with neoprene
 2117 elastomer isolators. These isolators shall reduce the natural flex stress of the chassis from being
 2118 transmitted to the body.

2119 Isolators shall have a broad load range, proven viability in vehicular applications, be of a failsafe
 2120 design and allow for all necessary movement in three (3) transitional and rotational modes.

2121 The neoprene isolators shall be installed in a modified V three (3)-point mounting pattern to
 2122 reduce the natural flex of the chassis being transmitted to the body.

2123 A design with body compartments hanging on the chassis in an unsupported fashion shall not be
 2124 acceptable.

AGGRESSIVE WALKING SURFACE

2125 All exterior surfaces designated as stepping, standing, and walking areas shall comply with the
 2126 required average slip resistance of the current NFPA standards.
 2127

LOUVERS

2128 Louvers shall be stamped into compartment walls to provide the proper airflow inside the body
 2129 compartments and to prevent water from dripping into the compartment. Where these louvers
 2130 are provided, they shall be formed into the metal and not added to the compartment as a separate
 2131 plate.
 2132

TESTING OF BODY DESIGN

2133 Body structural analysis shall be fully tested. Proven engineering and test techniques such as
 2134 finite element analysis, strain gauging, and model analysis shall be performed with special
 2135 attention given to fatigue, life and structural integrity of the cab, body and substructure.
 2136

2137 Body shall be tested while loaded to its greatest in-service weight.

2138 The criteria used during the testing procedure shall include:

- 2139 • Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may
 2140 experience when driving over a curb.
- 2141 • Making a 90-degree turn, while driving at 20 mph to simulate aggressive driving
 2142 conditions.
- 2143 • Driving the vehicle at 35 mph on a washboard road.
- 2144 • Driving the vehicle at 55 mph on a smooth road.
- 2145 • Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough
 2146 pavement.

2147 Evidence of actual testing techniques shall be made available upon request.

2148 **LEFT SIDE COMPARTMENTATION**

2149 The left side compartmentation shall consist of three (3) rollup door compartments.

2150 LS3 - A full height, rollup door compartment ahead of the rear wheels shall be provided. The
2151 interior dimensions of this compartment shall be 44.00" wide x 66.63" high x 25.88" deep in the
2152 lower 25.00" of the compartments and 12.00" deep in the remaining upper portion. The clear
2153 door opening shall be a minimum of 38.25" wide x 56.88" high.

2154 LS2 - A rollup door compartment over the rear wheels shall be provided. The interior
2155 dimensions of this compartment shall be 66.50" wide x 32.88" high x 12.00" deep. The clear
2156 door opening shall be a minimum of 58.25" wide x 23.13" high.

2157 LS1 - A full height, rollup door compartment behind the rear wheels shall be provided. The
2158 interior dimensions of this compartment shall be 47.75" wide x 67.63" high x 25.88" deep in the
2159 lower 26.00" of height and 12.00" deep in the remaining upper section of the compartment. The
2160 clear door opening shall be a minimum of 44.75" wide x 57.88" high.

2161 The interior height of the compartments shall be measured from the compartment floor to the
2162 ceiling. The spool of the rollup door at the top of the compartment takes up some usable space.
2163 The depth of the compartments shall be measured from the back wall to the inside of the door
2164 frame.

2165 Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall
2166 easily be accomplished with one (1) hand.

2167 **RIGHT SIDE COMPARTMENTATION**

2168 The right-side compartmentation shall consist of three (3) rollup door compartments.

2169 RS3 - A full height, rollup door compartment ahead of the rear wheels shall be provided. The
2170 interior dimensions of this compartment shall be 44.00" wide x 66.63" high x 25.88" deep in the
2171 lower 25.00" of the compartments and 12.00" deep in the remaining upper portion. The clear
2172 door opening shall be a minimum of 38.25" wide x 56.88" high.

2173 RS2 - A rollup door compartment over the rear wheels shall be provided. The interior
2174 dimensions of this compartment shall be 66.50" wide x 32.88" high x 12.00" deep. The clear
2175 door opening shall be a minimum of 58.25" wide x 23.13" high.

2176 RS1 - A full height, rollup door compartment behind the rear wheels shall be provided. The
2177 interior dimensions of this compartment shall be 47.75" wide x 67.63" high x 25.88" deep in the
2178 lower 26.00" of height and 12.00" deep in the remaining upper section of the compartment. The
2179 clear door opening shall be a minimum of 44.75" wide x 57.88" high.

- 2180 The interior height of the compartments shall be measured from the compartment floor to the
2181 ceiling. The spool of the rollup door at the top of the compartment takes up some usable space.
2182 The depth of the compartments shall be measured from the back wall to the inside of the door
2183 frame.
- 2184 Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall
2185 easily be accomplished with one (1) hand.
- 2186 **SIDE COMPARTMENT ROLLUP DOOR(S)**
- 2187 There shall be six (6) compartment doors installed on the side compartments, double faced,
2188 aluminum construction, satin aluminum and manufactured by AMDOR™ brand (or like) rollup
2189 doors.
- 2190 Door(s) shall be constructed using 1.00" extruded double wall aluminum slats which will feature
2191 a flat smooth interior surface to provide maximum protection against equipment hang-up. The
2192 slats shall be connected with a structural driven ball and socket hinge designed to provide
2193 maximum curtain diaphragm strength. Mounting and adjusting the curtain shall be done with a
2194 clip system that connects the curtain to the balancer drum allowing for easy tension adjustment
2195 without tools. The slats shall be mounted in reusable slat shoes with positive snap-lock
2196 securement.
- 2197 Each slat will incorporate weather tight recessed dual durometer seals. One (1) fin will be
2198 designed to locate the seal within the extrusion. The second will serve as a wiping seal which
2199 will also allow for compression to prevent water ingress.
- 2200 The doors shall be mounted in a one (1)-piece aluminum side frame with recessed side seals to
2201 minimize seal damage during equipment deployment. All seals including side frames, top
2202 gutters and bottom panel are to be manufactured utilizing non-marring materials.
- 2203 Bottom panel flange of rollup door will be equipped with two (2) cut-outs to allow for easier
2204 access with gloved hands.
- 2205 A polished stainless steel lift bar to be provided for each roll-up door. The lift bar shall be
2206 located at the bottom of door with striker latches installed at the base of the side frames. Side
2207 frame mounted door strikers will include support beneath the stainless-steel lift bar to prevent
2208 door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals.
- 2209 All injection molded rollup door wear components will be constructed of Type 6 nylon.
- 2210 Each rollup door shall have a 3.00-inch diameter balancer/tensioner drum to assist in lifting the
2211 door. A garage door style shall not acceptable.
- 2212 The header for the rollup door assembly shall not exceed 4.00".

- 2213 A heavy-duty magnetic switch shall be used for control of open compartment door warning
2214 lights.
- 2215 **REAR COMPARTMENTATION**
- 2216 A roll-up door compartment above the rear tailboard shall be provided.
- 2217 B1 - The interior dimensions of this compartment shall be 40.00" wide x 40.63" high x 25.88"
2218 deep. The interior height of the compartments shall be measured from the compartment floor to
2219 the ceiling. The spool of the rollup door at the top of the compartment takes up some usable
2220 space. The depth of the compartments shall be measured from the back wall to the inside of the
2221 door frame.
- 2222 A louvered, removable access panel shall be furnished on the back wall of the compartment.
- 2223 The rear compartment shall be open into the rear side compartments.
- 2224 The clear door opening of this compartment shall be a minimum of 33.25" wide x 30.88" high.
- 2225 Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall
2226 easily be accomplished with one hand.
- 2227 **ROLLUP REAR COMPARTMENT DOOR**
- 2228 The rear compartment shall have a rollup door.
- 2229 The door shall be double faced, aluminum construction, satin aluminum and manufactured by
2230 AMDOR™ brand (or like) rollup doors.
- 2231 The door shall be constructed using 1.00" extruded double wall aluminum slats which shall
2232 feature a flat smooth interior surface to provide maximum protection against equipment hang-up.
2233 The slats shall be connected with a structural driven ball and socket hinge designed to provide
2234 maximum curtain diaphragm strength. Mounting and adjusting the curtain shall be done with a
2235 clip system that connects the curtain to the balancer drum allowing for easy tension adjustment
2236 without tools. The slats shall be mounted in reusable slat shoes with positive snap-lock
2237 securement.
- 2238 Each slat shall incorporate weather tight recessed dual durometer seals. One (1) fin shall be
2239 designed to locate the seal within the extrusion. The second shall serve as a wiping seal which
2240 shall also allow for compression to prevent water ingress.
- 2241 The door shall be mounted in a one (1)-piece aluminum side frame with recessed side seals to
2242 minimize seal damage during equipment deployment. All seals including side frames, top
2243 gutters and bottom panel are to be manufactured utilizing non-marring materials.
- 2244 Bottom panel flange of rollup door shall be equipped with two (2) cut-outs to allow for easier
2245 access with gloved hands.

- 2246 A polished stainless steel lift bar to be provided for each roll-up door. The lift bar shall be
2247 located at the bottom of door with striker latches installed at the base of the side frames. Side
2248 frame mounted door strikers shall include support beneath the stainless-steel lift bar to prevent
2249 door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals.
- 2250 All injection molded rollup door wear components shall be constructed of Type 6 nylon.
- 2251 The door shall have a 3.00-inch diameter balancer/tensioner drum to assist in lifting the door
2252 (garage door style) shall not acceptable.
- 2253 The header for the rollup door assembly shall not exceed 4.00".
- 2254 A heavy-duty magnetic switch shall be used for control of open compartment door warning
2255 lights.
- 2256 **DOOR GUARD**
- 2257 There shall be seven (7) compartment doors that shall include a guard/drip pan designed to
2258 protect the rollup door from damage when in the retracted position and contain any water spray.
2259 The guard shall be fabricated from stainless steel and installed left side rearward compartment,
2260 left side over the wheel compartment, left side forward compartment, right side rearward
2261 compartment, right side over the wheel compartment, right side forward compartment and rear
2262 compartment.
- 2263 **COMPARTMENT LIGHTING**
- 2264 There shall be seven (7) compartment(s) with two (2) white 12-volt DC Amdor brand (or like)
2265 LED compartment light strips. The dual light strips shall extend the full length of each
2266 compartment, centered vertically along each side of the door framing. There shall be two (2)
2267 light strips per compartment. The dual light strips shall be in all body compartment(s).
- 2268 Any remaining compartments without light strips shall have a 6.00" diameter Truck-Lite, Model:
2269 79384 lights (or like). Each light shall have a number 1076 one filament, two wire bulb.
- 2270 Opening the compartment door shall be provided with a heavy-duty magnetic switch to turn the
2271 compartment lighting on.
- 2272 **MOUNTING TRACKS**
- 2273 There shall be seven (7) sets of tracks for mounting shelf(s) in LS1, LS2, LS3, RS1, RS2, RS3
2274 and B1. These tracks shall be installed vertically to support the adjustable shelf(s) and shall be
2275 full height of the compartment. The tracks shall be unpainted with a natural finish.
- 2276 **ADJUSTABLE SHELVES**
- 2277 There shall be ten (10) shelves with a capacity of 500 lb. provided.
- 2278 The shelf construction shall consist of .188" aluminum with a dual action finish with 2.00" sides.

2279 Each shelf shall be infinitely adjustable by means of a threaded fastener, which slides in a track.

2280 The shelves shall be held in place by .12" thick stamped plated brackets and bolts.

2281 The location(s) shall be in RS1 at the transition point, in RS1 in the upper third in, RS3 at the
 2282 transition point, RS3 in the upper third, LS2 and RS2 centered between the floor and ceiling, in
 2283 LS3 in the upper third, in LS3 in the upper third, in LS1 in the upper third and in LS1 in the
 2284 upper third.

2285 **MATTING, COMPARTMENT SHELVING**

2286 Turtle Tile (or like) compartment matting shall be provided on ten (10) shelves. The locations
 2287 are all ten (10) shelves.

2288 The color of Turtle Tile shall be black.

2289 **COMPARTMENT FLOOR MATTING**

2290 Turtle Tile (or like) compartment matting shall be provided in six (6) compartment(s). The
 2291 locations are LS1, LS2, LS3, RS1, RS2, and RS3.

2292 The color of Turtle Tile (or like) shall be black.

2293 **STORAGE TUBES**

2294 An aluminum storage tube shall be provided for equipment storage at cab interior, drivers side
 2295 forward facing rear wall, outboard. The tube shall be for storage of two (2) "D" size O2 Bottles.

2296 Each tube shall be 5.00" x 5.00" x 10.00" H deep and capped on the end.

2297 A total of two (2) shall be provided.

2298 **RUB RAIL**

2299 Bottom edge of the side and rear of the body compartments shall be trimmed with a bright
 2300 aluminum extruded rub rail.

2301 Trim shall be 2.12" high with 1.38" flanges turned outward for rigidity.

2302 The rub rails shall not be an integral part of the body construction, which allows replacement in
 2303 the event of damage.

2304 **BODY FENDER CROWNS**

2305 Polished stainless steel fender crowns shall be provided around the rear wheel openings with a
 2306 dielectric barrier shall be provided between the fender crown and the fender sheet metal to
 2307 prevent corrosion.

2308 The fender crowns shall be held in place with stainless steel screws that thread directly into a
 2309 composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals

2310 contact and greatly reduce the chance for corrosion. Rubber welting shall be provided between
2311 the body and crown.

2312 **BODY FENDER LINER**

2313 A painted to match the lower body color fender liner shall be provided. The liners shall be
2314 removable to aid in the maintenance of rear suspension components.

2315 **HARD SUCTION HOSE**

2316 Hard suction hose shall not be required.

2317 **HANDRAILS**

2318 The handrails shall be 1.25" diameter knurled aluminum to provide a positive gripping surface.

2319 Chrome plated end stanchions shall support the handrail. Plastic gaskets shall be used between
2320 end stanchions and any painted surfaces.

2321 Drain holes shall be provided in the bottom of all vertically mounted handrails.

2322 Handrails shall be provided to meet NFPA 1901 section 15.8 requirements. The handrails shall
2323 be installed as noted on the sales drawing.

2324 One (1) vertical handrail shall be located on the right-side rear beavertail.

2325 **HANDRAIL**

2326 One (1) full width horizontal handrail shall be provided below the hose bed at the rear of the
2327 apparatus.

2328 **EXTINGUISHER/AIR BOTTLE/ STORAGE (TRIANGULAR)**

2329 A total of two (2) extinguisher/air bottle/storage compartments will be provided right side one
2330 (1) ahead and one (1) behind the rear axle. The triangular shaped compartment will be sized to
2331 fit an 8.00" diameter extinguisher in the lower area and an 8.00" diameter extinguisher in the
2332 upper area. The compartment will be approximately 25.50" deep. A partition will be provided
2333 to separate the compartment. Also, inside the compartment, black rubber matting will be
2334 provided. The compartment will be furnished with a drain hole. A polished stainless steel,
2335 triangular shaped door with a South Co raised trigger C2 Chrome lever latch will be provided to
2336 contain the air bottles. A dielectric barrier will be provided between the door hinge, hinge
2337 fasteners and the body sheet metal.

2338 **AIR BOTTLE COMPARTMENT STRAP**

2339 A strap will be provided in the air bottle compartment(s) to help contain the bottles when the
2340 vehicle is parked on an incline. The strap will wrap around the neck and attach to the wall of the
2341 compartment.

AIR BOTTLE STORAGE (TRIPLE)

A quantity of one (1) air bottle compartment designed to hold (3) air bottles up to 7.25" in diameter x 26.00" deep shall be provided on the left side forward of the rear wheels.

A Polished stainless-steel door with a Southco (or like) raised trigger C2 chrome lever latch shall be provided to contain the air bottle. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, black rubber matting shall be provided.

AIR BOTTLE COMPARTMENT STRAP

A strap shall be provided in the air bottle compartment(s) to help contain the air bottles when the vehicle is parked on an incline. The strap shall wrap around the neck and attach to the wall of the compartment.

AIR BOTTLE STORAGE (SINGLE)

A quantity of one air bottle compartment, approximately 7.50" wide x 7.50" tall x 26.00" deep, will be provided on the driver side rearward of the rear wheels. The triangular door will cover the air bottle opening, the DEF tank access, and Fuel Fill. The compartment will be square with angled corners.

A polished stainless-steel door with a South Co (or like) raised trigger C2 chrome lever latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, black rubber matting will be provided.

AIR BOTTLE COMPARTMENT STRAP

A strap will be provided in the air bottle compartment to help contain the air bottle when the vehicle is parked on an incline. The strap will wrap around the neck and attach to the wall of the compartment.

EXTENSION LADDER

There shall be a 24' two-section aluminum Duo-Safety Series 900-A (or like) extension ladder provided.

ROOF LADDER

There shall be a 14' aluminum Duo-Safety Series 775-A (or like) roof ladder provided.

LADDER STORAGE

The ladders shall be stored between the water tank and the right-side compartments.

The ladders shall extend into the pump compartment just to the rear of the water pump discharges.

- 2375 The ladder storage area shall be enclosed as practical by means of sheet metal to protect the
- 2376 ladders from road dirt. The ladders that extend into the pump house shall also be enclosed. A
- 2377 black rubber boot shall be provided to enclose the ladders in the gap between the pump house
- 2378 and the body.

- 2379 Each ladder shall be stored vertically in a separate stainless steel storage trough. Each stainless-
- 2380 steel trough shall be lined with Dura-Surf nylon slides (or like).

- 2381 An aluminum enclosure shall be provided at the rear of the body to properly contain the ladders.
- 2382 This enclosure shall extend to the rear of the side body compartments.

- 2383 The enclosure shall also include a vertically hinged smooth aluminum door with a D-handle latch
- 2384 to access the ladders. The door shall be hinged on the left side.

- 2385 On the rear wall, there shall be a bright aluminum treadplate scuff plate around the door for the
- 2386 ladder enclosure.

- 2387 **FOLDING LADDER**
- 2388 One (1) 10.00' aluminum, Series 585-A, Duo-Safety (or like) folding ladder shall be installed.

- 2389 **BACKBOARD STORAGE**
- 2390 A transverse area over the pump and forward of the cargo area shall hold one (1) storage trough.

- 2391 A blister shall be supplied at each side to enclose the backboards due to their length.

- 2392 The backboards shall be accessible from either side of the vehicle through the aluminum
- 2393 treadplate door(s) with a Southco raised trigger C2 chrome latch. The door(s) shall be hinged on
- 2394 the top.

- 2395 The size of the backboard(s) to be stored shall be 74.00" long x 16.00" wide x 2.00" high.

- 2396 **PIKE POLE 8 FT**
- 2397 There shall be one (1) 8' Nupla (or like) pike pole, Classic model provided.

- 2398 **PIKE POLE STORAGE**
- 2399 There shall be storage designated right side for one (1) pike pole 8' or longer pike poles stored in
- 2400 a tube between the side sheet and tank in the ground ladder storage compartment.

- 2401 **PIKE POLE, 6'**
- 2402 One (1) pike pole, 6' long Nupla (or like) Pike Pole Classic model provided.

- 2403 **PIKE POLE STORAGE**
- 2404 There shall be storage designated right side for one (1) pike pole with a .75" standard notch
- 2405 stored in a tube between the side sheet and tank in the ground ladder storage compartment.

FOLDING STEPS FRONT OF BODY

2406
2407 Folding steps shall be provided full height on the left and right side of the body module body
2408 compartments to provide access to the cargo bed. Steps shall be spaced evenly on the sales
2409 drawing. Actual quantity may vary due to pump panel interferences but shall meet the NFPA
2410 required maximum stepping height.

2411 The Trident (or like) steps shall be bright finished, non-skid with a black tread coating on the
2412 stepping surface.

2413 The steps shall incorporate an LED light to illuminate the stepping surface.

2414 The steps can be used as a hand hold with two openings wide enough for a gloved hand.

LADDER, TOP ACCESS

2415
2416 An Alco-Lite Sure-Step access ladder (or like), constructed of aluminum with stainless hardware,
2417 shall be provided on the left side at the rear of the apparatus.

2418 The ladder is collapsible and self-retracting. To use, the bottom section of the ladder flips down
2419 and the ladder pulls out to a ten-degree climbing angle. To store, the bottom section flips up and
2420 locks, while gas struts retract the ladder into a safely stored position.

2421 The ladder shall have mill finish on the outboard rails with cast aluminum steps. The steps have
2422 large drain holes and a non-skid surface to provide safety and traction. Handrails with heavy-
2423 duty stainless-steel stanchions shall be provided on the top section of the ladder.

SLIDE-OUT PLATFORM WITH MANUAL SLIDES

2424
2425 Two (2) slide out platforms shall be provided. The capacity rating shall be 500 lbs. in the
2426 extended position. Manual peg locks shall be provided for both the "in" and "out" positions.
2427 Each platform shall have an aluminum treadplate surface.

2428 There shall be an Amdor LumaBar H2O, Model AY-9500-0** white 12-volt DC LED light (or
2429 like) provided to illuminate the ground area.

2430 The location shall be left and right-side pump module.

ADDITIONAL STEP

2431
2432 An 8.00" deep, full width bright aluminum treadplate step shall be provided at the rear of the
2433 body.

PUMP COMPARTMENT

2434
2435 The pump compartment shall be separate from the hose body and compartments so that each
2436 may flex independently of the other. The pump compartment shall be constructed of the same
2437 material as the body compartmentation.

- 2438 The pump compartment substructure shall be a fabricated assembly of steel tubing, angles and
2439 channels which supports both the fire pump and the side running boards.
- 2440 The pump compartment shall be mounted on the chassis frame rails with rubber biscuits in a
2441 four-point pattern to allow for chassis frame twist.
- 2442 Pump compartment, pump, plumbing and gauge panels shall be removable from the chassis in a
2443 single assembly.
- 2444 **PUMP MOUNTING**
- 2445 Pump shall be mounted to a substructure which shall be mounted to the chassis frame rail using
2446 rubber isolators. The mounting shall allow chassis frame rails to flex independently without
2447 damage to the fire pump.
- 2448 **LEFT SIDE PUMP CONTROL PANELS**
- 2449 All pump controls and gauges shall be located at the left side of the apparatus and properly
2450 identified.
- 2451 Layout of the pump control panel shall be ergonomically efficient and systematically organized.
- 2452 The pump operator's control panel shall be removable in two (2) main sections for ease of
2453 maintenance:
- 2454 The upper section shall contain sub panels for the mounting of the pump pressure control device,
2455 engine monitoring gauges, electrical switches, and foam controls (if applicable). Sub panels
2456 shall be removable from the face of the pump panel for ease of maintenance. Below the sub
2457 panels shall be located all valve controls and line pressure gauges.
- 2458 The lower section of the panel shall contain all inlets, outlets, and drains.
- 2459 All push/pull valve controls shall have 1/4 turn locking control rods with polished chrome plated
2460 zinc tee handles. Guides for the push/pull control rods shall be chrome plated zinc castings
2461 securely mounted to the pump panel. Push/pull valve controls shall be capable of locking in any
2462 position. The control rods shall pull straight out of the panel and shall be equipped with
2463 universal joints to eliminate binding.
- 2464 **IDENTIFICATION TAGS**
- 2465 The identification tag for each valve control shall be recessed in the face of the tee handle.
- 2466 All discharge outlets shall have color coded identification tags, with each discharge having its
2467 own unique color. Color coding shall include the labeling of the outlet and the drain for each
2468 corresponding discharge.
- 2469 All line pressure gauges shall be mounted directly above the corresponding discharge control tee
2470 handles and recessed within the same chrome plated casting as the rod guide for quick

2471 identification. The gauge and rod guide casting shall be removable from the face of the pump
2472 panel for ease of maintenance. The casting shall be color coded to correspond with the discharge
2473 identification tag.

2474 All remaining identification tags shall be mounted on the pump panel in chrome plated bezels.

2475 The pump panel on the right side shall be removable with lift and turn type fasteners.

2476 Trim rings shall be installed around all inlets and outlets.

2477 **PUMP**

2478 Pump shall be a Waterous CSU (or like), 1500 gpm single (1) stage midship mounted centrifugal
2479 type.

2480 Pump shall be the class "A" type.

2481 Pump shall deliver the percentage of rated discharge at pressures indicated below:

- 2482 • 100% of rated capacity at 150 psi net pump pressure.
- 2483 • 70% of rated capacity at 200 psi net pump pressure.
- 2484 • 50% of rated capacity at 250 psi net pump pressure.

2485 Pump body shall be close-grained gray iron, bronze fitted, and horizontally split in two (2)
2486 sections for easy removal of the entire impeller shaft assembly (including wear rings).

2487 Pump shall be designed for complete servicing from the bottom of the truck, without disturbing
2488 the pump setting or apparatus piping.

2489 Pump case halves shall be bolted together on a single horizontal face to minimize chance of
2490 leakage and facilitate ease of reassembly. No end flanges shall be used.

2491 Discharge manifold of the pump shall be cast as an integral part of the pump body assembly and
2492 shall provide a minimum of three (3) 3.50" openings for flexibility in providing various
2493 discharge outlets for maximum efficiency.

2494 The three (3) 3.50" openings shall be located as follows: one (1) outlet to the right of the pump,
2495 one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.

2496 Impeller shaft shall be stainless steel, accurately ground to size. It shall be supported at each end
2497 by sealed, anti-friction ball bearings for rigid precise support. Impeller shall have flame plated
2498 hubs assuring maximum pump life and efficiency despite any presence of abrasive matter in the
2499 water supply.

2500 Bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and
2501 oil seals. No special or sleeve type bearings shall be used.

- 2502 Pump shall be equipped with a self-adjusting, maintenance-free, mechanical shaft seal.
- 2503 The mechanical seal shall consist of a flat, highly polished, spring fed carbon ring that rotates
2504 with the impeller shaft. The carbon ring shall press against a highly polished stainless steel
2505 stationary ring that is sealed within the pump body.
- 2506 In addition, a throttling ring shall be pressed into the steel chamber cover, providing a very small
2507 clearance around the rotating shaft in the event of a mechanical seal failure. The pump
2508 performance shall not deteriorate, nor shall the pump lose prime, while drafting if the seal fails
2509 during pump operation.
- 2510 Wear rings shall be bronze and easily replaceable to restore original pump efficiency and
2511 eliminate the need to replace the entire pump casing due to wear.
- 2512 **PUMP TRANSMISSION**
- 2513 The pump transmission shall be made of a three (3) piece, aluminum, horizontally split casing.
2514 Power transfer to pump shall be through a high strength Morse HY-VO silent drive chain (or
2515 like). By the use of a chain rather than gears, 50% of the sprocket shall be accepting or
2516 transmitting torque, compared to two (2) or three (3) teeth doing all the work.
- 2517 Drive shafts shall be 2.35" diameter hardened and ground alloy steel and supported by ball
2518 bearings. The case shall be designed to eliminate the need for water cooling.
- 2519 **PUMPING MODE**
- 2520 An interlock system shall be provided to ensure that the pump drive system components are
2521 properly engaged so that the apparatus can be safely operated. The interlock system shall be
2522 designed to allow stationary pumping only.
- 2523 **AIR PUMP SHIFT**
- 2524 Pump shift engagement shall be made by a two (2) position sliding collar, actuated
2525 pneumatically (by air pressure), with a three (3) position air control switch located in the cab. A
2526 manual back-up shift control shall also be located on the left side pump panel.
- 2527 Two (2) indicator lights shall be provided adjacent to the pump shift inside the cab. One (1)
2528 green light shall indicate the pump shift has been completed and be labeled "pump engaged".
2529 The second green light shall indicate when the pump has been engaged, and that the chassis
2530 transmission is in pump gear. This indicator light shall be labeled "OK to pump".
- 2531 The pump shift shall be interlocked to prevent the pump from being shifted out of gear when the
2532 chassis transmission is in gear to meet NFPA requirements.
- 2533 The pump shift control in the cab shall be illuminated to meet NFPA requirements.

TRANSMISSION LOCK-UP

2534
2535 The direct gear transmission lock-up for the fire pump operation shall engage automatically
2536 when the pump shift control in the cab is activated.

AUXILIARY COOLING SYSTEM

2537
2538 A supplementary heat exchange cooling system shall be provided to allow the use of water from
2539 the discharge side of the pump for cooling the engine water. The heat exchanger shall be a
2540 separate unit. It shall be installed in the pump or engine compartment with the control located on
2541 the pump operator's control panel. The exchanger shall be plumbed to the master drain valve.

INTAKE RELIEF VALVE

2542
2543 One (1) Trident Air Max (or like) intake relief valve(s) shall be installed on the suction side of
2544 the pump preset at 125 psig.

2545 The relief valve shall have a working range of 50 PSI to 350 PSI.

2546 The outlet shall terminate below the frame rails with a 2.50" National Standard hose thread
2547 adapter and shall have a "do not cap" warning tag.

2548 One (1) adjustable air regulator and pressure indicating gauge shall be located on a common
2549 bezel behind the left side pump panel with a stainless-steel access door to control the intake
2550 valve(s).

PRESSURE CONTROLLER

2551
2552 A Fire Research, INCONTROL Model TGA400 pressure governor (or like) shall be provided.

2553 A pressure transducer shall be installed in the water discharge and intake manifold on the pump.

2554 The display panel shall be located at the pump operator's panel.

PRIMING PUMP

2555
2556 The priming pump shall be a Trident Emergency Products (or like) compressed air powered,
2557 high efficiency, multistage venturi based AirPrime System, conforming to standards outlined in
2558 the current edition of NFPA 1901.

2559 All wetted metallic parts of the priming system are to be of brass and stainless-steel construction.

2560 One (1) priming control shall open the priming valve and start the pump primer.

PUMP DRAIN

2561
2562 A Trident (or like) multi-port pump drain shall be used in place of the standard pump drain.

PUMP MANUALS

2563
2564 There shall be a total of two (2) pump manuals provided by the pump manufacturer and
2565 furnished with the apparatus. The manuals shall be provided by the pump manufacturer in the

2566 form of two (2) electronic copies. Each manual shall cover pump operation, maintenance, and
 2567 parts.

2568 **PLUMBING, STAINLESS STEEL AND HOSE**

2569 All inlet and outlet lines shall be plumbed with either stainless steel pipe, flexible polypropylene
 2570 tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hoses shall be
 2571 equipped with brass or stainless-steel couplings. All stainless-steel hard plumbing shall be a
 2572 minimum of a schedule 10 wall thickness.

2573 Where vibration or chassis flexing may damage or loosen piping or where a coupling is required
 2574 for servicing, the piping shall be equipped with victaulic or rubber couplings.

2575 Plumbing manifold bodies shall be ductile cast iron or stainless steel.

2576 All piping lines are to be drained through a master drain valve or shall be equipped with
 2577 individual drain valves. All drain lines shall be extended with a hose to drain below the chassis
 2578 frame.

2579 All water carrying gauge lines shall be of flexible polypropylene tubing.

2580 All piping, hose and fittings shall have a minimum of a 500 PSI hydrodynamic pressure rating.

2581 **FOAM SYSTEM PLUMBING**

2582 All piping that is in contact with the foam concentrate or foam/water solution shall be stainless
 2583 steel. The fittings shall be stainless steel or brass. Cast iron pump manifolds will be allowed.

2584 **MAIN PUMP INLETS**

2585 A 6.00" pump manifold inlet shall be provided on each side of the vehicle. The suction inlets
 2586 shall include removable die cast zinc screens that are designed to provide cathodic protection for
 2587 the pump, thus reducing corrosion in the pump.

2588 **SHORT SUCTION TUBE(S)**

2589 The suction tube(s) on the water pump shall have short suction tube(s) installed to allow for
 2590 installation of adapters, elbows or intake valves without excessive overhang.

2591 **INLET BUTTERFLY VALVE**

2592 There shall be one (1) butterfly valve provided on the left side main pump inlet.

2593 The 6.00" Jamesbury (or like) inlet valve shall be recessed behind the pump panel with a
 2594 stainless-steel trim ring around the opening.

2595 A built-in, adjustable pressure relief valve and a 3/4" bleeder valve shall be provided on the inlet
 2596 side of the valve.

2597 There shall be an Akron (or like) 9333 electric valve controller provided on the pump operator's
2598 panel. The electric control must be of a true position feedback design, requiring no clutches in
2599 the motor or current limiting. The unit must be completely sealed with momentary open, close as
2600 well and an optional one touch full open feature to operate the valve actuator. The controller
2601 shall provide position indication on a full color, backlit LCD display. It shall have manual
2602 adjustment of the brightness as well as an auto dimming option.

2603 The electric actuator shall be furnished with a manual override accessible at the pump panel.

2604 A maintain switch shall be provided behind the stainless-steel access door near the manual
2605 override. The switch shall cut off power to the valve to allow for manual override valve
2606 actuation.

2607 **MAIN PUMP INLET CAP**

2608 The main pump inlets shall have National Standard Threads with a long handle chrome cap.

2609 The cap shall incorporate a thread design to automatically relieve stored pressure in the line
2610 when disconnected (no exception).

2611 **VALVES**

2612 All ball valves shall be Akron® Brass in-line valves (or like). The Akron valves (or like) shall
2613 be the 8000 series heavy-duty style with a stainless-steel ball and a simple two-seat design. No
2614 lubrication or regular maintenance is required on the valve.

2615 Valves shall have a **ten (10) year** warranty.

2616 The location of the valve for the one (1) inlet shall be recessed behind the pump panel.

2617 **INLET CONTROL**

2618 The side auxiliary inlet(s) shall incorporate a quarter-turn ball valve with the control located at
2619 the inlet valve. The valve operating mechanism shall indicate the position of the valve.

2620 **LEFT SIDE INLET**

2621 There shall be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating
2622 with a 2.50" (F) National Standard hose thread adapter.

2623 The auxiliary inlet shall be provided with a strainer, chrome swivel and plug.

2624 **RIGHT SIDE INLET**

2625 There shall be one (1) auxiliary inlet with a 2.50" valve at the right-side pump panel, terminating
2626 with a 2.50" (F) National Standard hose thread adapter.

2627 The auxiliary inlet shall be provided with a strainer, chrome swivel and plug.

ANODE, INLET

One (1) pair of sacrificial Zinc anodes shall be provided in the water pump to protect the pump from corrosion. One (1) shall be placed in the inlet side of the pump and the other one (1) in the discharge side of the pump.

ADAPTER, INLET

One (1) adapter for the inlet shall be provided. The elbow adapter shall be furnished for the left side main pump inlet/s. The elbow/s shall be 6.00" female NST swivel to 5.00" Storz. A 5.00" Storz cap shall be provided with the elbow.

LARGE DIAMETER REAR INLET

A 5.00" inlet rear inlet with screen shall be provided using 5.00" piping and a 5.00" butterfly valve.

Screen shall provide cathodic protection against corrosion in piping.

Piping shall contain only large radiused elbows, no mitered joints.

The plumbing shall be routed to the rear through the water tank. The inlet shall terminate in the rear compartment, with the hose thread connection just behind the rear compartment door.

A bleeder valve shall be located at the threaded connection.

REAR INLET CONTROL

The rear inlet shall be gated with an electric operated control at the pump operator's panel. The control shall be momentary to allow the valve to be gated for ease of operation. Indicator lights shall be provided to show if the valve is open or closed.

REAR INLET ELBOW & CAP

The rear 5.00" inlet shall be furnished with a 5.00" (F) National Standard hose thread x 5.00" Storz elbow adapter with a Storz cap.

INTAKE RELIEF VALVE, REAR INLET

A Trident Air Max (or like) intake relief valve shall be installed on the inlet side of the rear inlet valve.

The relief valve shall have a working range of 50 PSI to 350 PSI.

The outlet shall terminate below the frame rails with a 2.50" National Standard hose thread adapter and shall have a "do not cap" warning tag.

The control for this rear inlet intake relief valve shall be operated with the main pump Trident Air Max (or like) intake relief valve controls.

INLET BLEEDER VALVE

A 0.75" ball type bleeder valve shall be provided for each side gated inlet. The valves shall be located behind the panel with a handwheel type knob for the control extended to the outside of the panel. The water, which is discharged by the valve, shall be routed below the chassis frame rails.

TANK TO PUMP

The booster tank shall be connected to the intake side of the pump with stainless steel piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. Tank to pump line shall run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

TANK REFILL

A 1.50" combination tank refill and pump re-circulation line shall be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

DISCHARGE OUTLET CONTROLS

The discharge outlets shall incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism shall indicate the position of the valve.

If a handwheel control valve is used, the control shall be a minimum of a 3.9" diameter stainless steel handwheel with a dial position indicator built into the center of the handwheel.

Any 3.00 inch or larger discharge valve shall be a slow-operating valve in accordance with NFPA 16.7.5.3.

LEFT SIDE DISCHARGE OUTLETS

There shall be Two (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.

LEFT SIDE OUTLET ELBOWS

The 2.50" discharge outlets located on the left side pump panel shall be furnished with a 2.50" (F) National Standard (or like) hose thread x 2.50" (M) National Standard (or like) hose thread, chrome plated, 45-degree elbow.

The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).

RIGHT SIDE DISCHARGE OUTLETS

There shall be One (1) discharge outlet with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" (M) National Standard (or like) hose thread adapter.

RIGHT SIDE OUTLET ELBOWS

The 2.50" discharge outlets located on the right-side pump panel shall be furnished with a 2.50" (F) National Standard (or like) hose thread x 2.50" (M) National Standard (or like) hose thread, chrome plated, 45 degree elbow.

The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).

LARGE DIAMETER DISCHARGE OUTLET

There shall be a 4.00" discharge outlet with a 4.00" Akron valve installed on the right side of the apparatus, terminating with a 4.00" (M) National Standard hose thread adapter. This discharge outlet shall be actuated with a handwheel control at the pump operator's control panel.

An indicator shall be provided to show when the valve is in the closed position.

LARGE DIAMETER OUTLET ELBOWS

The 4.00" outlet(s) shall be furnished with one (1) 4.00" (F) National Standard (or like) hose thread x 5.00" Storz elbow adapter with Storz cap.

FRONT DISCHARGE OUTLET

There shall be one (1) 1.50" discharge outlet piped to the front of the apparatus and located on the top of the left side of the front bumper.

Plumbing shall consist of 2.00" piping and flexible hose with a 2.00" full flow valve with control at the pump operator's panel. A fabricated weldment made of stainless-steel pipe shall be used in the plumbing where appropriate. The piping shall terminate with a 1.50" NST with 90-degree stainless steel swivel.

There shall be automatic drains provided at all low points of the piping.

FRONT CROSSLAY RESTRAINT

A black 1.00" nylon webbing design with 2.00" box pattern shall be provided across the top of the bumper mounted crosslay, to secure the hose during travel.

The webbing shall be permanently attached at the front (bumper side) of the crosslay opening, allowing the webbing to hang over the bumper when crosslay is deployed. 1.00" web straps shall loop through footman loops located at the opposite side of the permanently attached webbing. The straps shall attach with seat belt fasteners. An orange nylon strap shall be attached to the seat belt buckle for releasing the buckle on the webbing.

2724 **ADDITIONAL FRONT DISCHARGE OUTLET**

2725 There shall be one (1) 1.50" discharge outlet piped to the front of the apparatus and located on
2726 the top of the right side of the front bumper.

2727 Plumbing shall consist of 2.00" piping and flexible hose with a 2.00" full flow valve with control
2728 at the pump operator's panel. A fabricated weldment made of stainless-steel pipe shall be used in
2729 the plumbing where appropriate. The piping shall terminate with a 1.50" NST with 90-degree
2730 stainless steel swivel.

2731 There shall be automatic drains provided at all low points of the piping.

2732 **REAR DISCHARGE OUTLET**

2733 There shall be One (1) discharge outlet piped to the rear of the hose bed, right side, installed so
2734 proper clearance is provided for spanner wrenches or adapters. Plumbing shall consist of 2.50"
2735 piping along with a 2.50" full flow ball valve with the control from the pump operator's panel.

2736 **REAR OUTLET ELBOWS**

2737 The 2.50" discharge outlets located at the rear of the apparatus shall be furnished with a 2.50" (F)
2738 National Standard (or like) hose thread x 2.50" (M) National Standard hose thread, chrome
2739 plated, 45-degree elbow.

2740 The elbow shall incorporate a thread design to automatically relieve stored pressure in the line
2741 when disconnected (no exception).

2742 **FRONT OF HOSE BED DISCHARGE OUTLET**

2743 There shall be One (1) discharge outlet discharge(s) piped to the front of the hose bed and
2744 located left side front of hose bed. Plumbing shall consist of 2.50" piping with a 2.50" full-flow
2745 ball valve controlled at the pump operator's panel. The discharge(s) shall terminate with a 2.50"
2746 (M) National Standard (or like) hose thread adapter.

2747 **DISCHARGE CAPS/ INLET PLUGS**

2748 Chrome plated, rocker lug, caps with chain shall be furnished for all discharge outlets 1.00" thru
2749 3.00" in size, besides the pre-connected hose outlets.

2750 Chrome plated, rocker lug, plugs with chain shall be furnished for all auxiliary inlets 1.00" thru
2751 3.00" in size.

2752 The caps and plugs shall incorporate a thread design to automatically relieve stored pressure in
2753 the line when disconnected (no exception).

2754 **OUTLET BLEEDER VALVE**

2755 A 0.75" bleeder valve shall be provided for each outlet 1.50" or larger. Automatic drain valves
2756 are acceptable with some outlets if deemed appropriate with the application.

2757 The valves shall be located behind the panel with a T swing style handle control extended to the
2758 outside of the side pump panel.

2759 The handles shall be chrome plated and provide a visual indication of valve position.

2760 The T swing handle shall provide an ergonomic position for operating the valve without twisting
2761 the wrist and provides excellent leverage.

2762 Bleeders shall be located at the bottom of the pump panel. They shall be properly labeled
2763 identifying the discharge they are plumbed in to.

2764 The water discharged by the bleeders shall be routed below the chassis frame rails.

2765 **REDUCER**

2766 There shall be three (3) adapters with 2.50" FNST x 1.50" MNST threads and a 1.50" chrome
2767 plated cap installed on two (2) DS pump panel, one (1) PS pump panel.

2768 **DELUGE RISER**

2769 A 3.00" deluge riser shall be installed above the pump in such a manner that a monitor can be
2770 mounted and used effectively. Piping shall be installed securely so no movement develops when
2771 the line is charged. The riser shall be gated and controlled at the pump operator's panel.

2772 Any 3.00 inch or larger discharge valve shall be a slow-operating valve in accordance with
2773 NFPA 16.7.5.3.

2774 **TELESCOPIC PIPING**

2775 The deluge riser piping shall include an 18.00" Task Force Model XG18 Extend-A-Gun (or like)
2776 extension.

2777 This extension shall be telescopic to allow the deluge gun to be raised 18.00" increasing the
2778 range of operation.

2779 A position sensor shall be provided on the telescopic piping that shall activate the "do not move
2780 vehicle" light inside the cab when the monitor is in the raised position.

2781 **MONITOR**

2782 A Task Force Tips Crossfire #XFT-NJ monitor (or like) shall be properly installed on the deluge
2783 riser. This monitor shall be painted as provided by monitor manufacturer.

2784 **NOZZLE, DELUGE**

2785 A Task Force Tips Master Stream Series M-R nozzle (or like) will be provided.

2786 Included will be a Task Force Tips XF-SS5 stream straightener (or like) and MST-4NJ quad
2787 stacked tips.

- 2788 Tip sizes will be 1 3/8", 1 1/2", 1 3/4" and 2".
- 2789 The deluge riser Extend-a-Gun (or like) shall have provisions for direct mounting a Task Force
2790 Tips CrossFire (or like) monitor.
- 2791 **CROSSLAY HOSE BEDS**
- 2792 One (1) crosslays with 1.50" outlets shall be provided. Each bed to be capable of carrying 200'
2793 of 1.75" double jacketed hose and shall be plumbed with 2.00" i.d. pipe and gated with a 2.00"
2794 quarter turn ball valve.
- 2795 Outlets to be equipped with a 1.50" National Standard hose (or like) thread 90-degree swivel
2796 located in the hose bed so that hose may be removed from either side of apparatus.
- 2797 The crosslay controls shall be at the pump operator's panel.
- 2798 The center crosslay dividers shall be fabricated of 0.25" aluminum and shall provide adjustment
2799 from side to side. The divider shall be unpainted with a brushed finish.
- 2800 Vertical scuff plates, constructed of stainless steel shall be provided at the front and rear ends of
2801 the bed on each side of vehicle.
- 2802 Crosslay bed flooring shall consist of removable perforated brushed aluminum.
- 2803 **CROSSLAY HOSE RESTRAINT**
- 2804 A black 2.00" nylon webbing design with 2.00" box pattern shall be provided across each end of
2805 one (1) crosslay(s) to secure the hose during travel. The webbing shall be permanently attached
2806 at the front of the crosslay opening. There shall be 2.00" cam buckle fasteners located at the
2807 opposite end of the permanently attached webbing.
- 2808 **CROSSLAY COVER**
- 2809 A hinged .19" aluminum treadplate cover shall be installed over the crosslay hose beds. It shall
2810 include a latch at each end of the cover to hold it securely in place, a chrome grab handle at each
2811 end for opening and closing the cover and a foam rubber gasket where the cover comes into
2812 contact to a painted surface.
- 2813 The cover shall be provided with rubber latch hold open device.
- 2814 The hinge shall be to the front of the hose beds.
- 2815 **CROSSLAY 8.00" LOWER THAN STANDARD**
- 2816 The crosslays shall be lowered 8.00" from standard.

CROSSLAY ROLLER

2817
2818 A stainless-steel roller shall be mounted horizontally and vertically at each crosslay opening to
2819 aid in hose removal. The vertical rollers shall be installed on the dividers and to the front and
2820 rear of the crosslays.

BOOSTER HOSE REEL

2821 A Hannay (or like) electric rewind booster hose reel shall be installed in the rear compartment.

2823 The exterior finish of the reel shall be painted #269 gray from the reel manufacturer.

2824 Compartment floor shall be covered with bright aluminum treadplate.

2825 Roll-up door for this compartment shall not interfere with the hose reel.

2826 A polished stainless-steel roller and guide assembly shall be provided at the rear on each side so
2827 the booster hose does not rub against a painted surface.

2828 Discharge control shall be provided at the pump operator's panel. Plumbing to the reel shall
2829 consist of 1.50" Aeroquip hose and a 1.50" valve.

HOSE REEL BLOWOUT

2831 A hose reel blowout shall be furnished to blow out any remaining water from the hose reel. The
2832 blowout shall be piped from the wet tank of the brake system to the hose reel and shall be
2833 controlled at the pump operator's panel.

2834 Reel motor shall be protected from overload with a circuit breaker rated to match the motor.

2835 An electric rewind control switch shall be installed adjacent to the reel.

2836 Booster hose, 1.00" diameter and 150 feet, with chrome plated Barway, or equal couplings shall
2837 be provided.

2838 Working pressure of the booster hose shall be a minimum of 800 psi.

2839 Capacity of the hose reel shall be 150 feet of 1.00" booster hose.

FOAM PROPORTIONER

2841 A foam proportioning system shall be provided that is an on demand, automatic proportioning,
2842 single point, direct injection system suitable for all types of Class A and B foam concentrates,
2843 including the high viscosity (6000 cups), alcohol resistant Class B foams. Operation shall be
2844 based on direct measurement of water flow and remain consistent within the specified flows and
2845 pressures. The system shall automatically proportion foam solution at rates from .1 percent to 3
2846 percent regardless of variations in water pressure and flow, up to the maximum rated capacity of
2847 the foam concentrate pump.

- 2848 The design of the system shall allow operation from draft, hydrant, or relay operation.
- 2849 **System Capacity**
- 2850 The system shall have the ability to deliver the following minimum foam solution flow rates at
2851 accuracies that meet or exceed NFPA requirements at a pump rating of 150 psi.
- 2852 100 gpm @ 3 percent
- 2853 300 gpm @ 1 percent
- 2854 600 gpm @ 0.5 percent
- 2855 Class A foam setting in .1 percent increments from .1 percent to 1 percent. Typical settings of 1
2856 percent, .5 percent and .3 percent (maximum capacity shall be limited to the plumbing and water
2857 pump capacity).
- 2858 **Control System**
- 2859 The system shall be equipped with a digital electronic control display located on the pump
2860 operator's panel. Push button controls shall be integrated into the panel to turn the system
2861 on/off, control the foam percentage, and to set the operation modes.
- 2862 The percent of injection shall have a preset. This preset can be changed at the fire department as
2863 desired. The percent of injection shall be able to be easily changed at the scene to adjust to
2864 changing demands.
- 2865 Three (3) 0.50" tall LEDs shall display the foam percentage in numeric characters. Three (3)
2866 indicator LEDs shall also be included, one (1) green, one (1) red, and one (1) yellow. The LEDs
2867 shall indicate various system operation or error states.
- 2868 The indications shall be:
- 2869 Solid Green - System On
- 2870 Solid Red - Valve Position Error
- 2871 Solid Yellow - Priming System
- 2872 Flashing Green - Injecting Foam
- 2873 Flashing Red - Low Tank Level
- 2874 Flashing Yellow - Refilling Tank
- 2875 The control display shall house a microprocessor, which receives input from the systems water
2876 flow meter while also monitoring the position of the foam concentrate pump. The
2877 microprocessor shall compare the values of the water flow versus the position/rate of the foam
2878 pump, to ensure the proportion rate is accurate. One (1) check valve shall be installed in the
2879 plumbing to prevent foam from contaminating the water pump.

Hydraulic Drive System

The foam concentrate pump shall be powered by an electric over hydraulic drive system. The hydraulic system and motor shall be integrated into one (1) unit.

Foam Concentrate Pump

The foam concentrate pump shall be of positive displacement, self-priming; linear actuated design, driven by the hydraulic system. The pump shall be constructed of brass body; chrome plated stainless steel shaft, with a stainless-steel piston. In order to increase longevity of the pump, no aluminum shall be present in its construction.

A relief system shall be provided which is designed to protect the drive system components and prevent over pressuring the foam concentrate pump

The foam concentrate pump shall have minimum capacity for 3 gpm with all types of foam concentrates with a viscosity at or below 6000 cps including protein, fluoroprotein, AFFF, FFFP, or AR-AFFF. The system shall deliver only the amount of foam concentrate flow required, without recirculating foam back to the storage tank. Recirculating foam concentrate back to the storage tank can cause agitation and premature foaming of the concentrate, which can result in system failure. The foam concentrate pump shall be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.

External Foam Concentrate Connection

An external foam pick-up shall be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up shall be designed to allow continued operation after the on-board foam tank is empty, or the use of foam different than the foam in the foam tank.

Panel Mounted External Pick-Up Connection / Valve

A bronze three (3)-way valve shall be provided. The unit shall be mounted to the pump panel. The valve unit shall function as the foam system tank to pump valve and external suction valve. The external foam pick-up shall be one (1) 1.00" Cam-Lock with a cap.

Pick-Up Hose

A flexible hose with an end for insertion into foam containers shall be provided. The hose shall be supplied with a 1.00" Cam-Lock connector. The hose shall be shipped loose.

Discharges

The foam system shall be plumbed to the two (2) front bumper crosslay discharges, & (1) crosslay discharge.

System Electrical Load

The maximum current draw of the electric motor and system shall be no more than 55 amperes at 12 VDC.

SINGLE FOAM TANK REFILL

2914
2915 The foam system's proportioning pump shall be used to fill the foam tank. This shall allow use
2916 of the auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam
2917 tank. A foam shut-off switch shall be installed in the fill dome of the tank to shut the system
2918 down when the tank is full. The fill operation shall be controlled by a mode in the foam system
2919 controller. While the proportioner pump is filling the tank, the controller shall display a flashing
2920 yellow LED to indicate that the tank is filling. When the tank is full, as determined by the float
2921 switch in the tank dome, the pump shall stop, and the controller shall shut the yellow LED off. If
2922 it attempted to use tank fill and the refill valve and suction valve are in the wrong position(s),
2923 then a red LED shall illuminate to indicate the improper valve position(s). When the valves are
2924 positioned properly, then filling shall commence.

FOAM TANK

2925
2926 The foam tank shall be an integral portion of the polypropylene water tank. The cell shall have a
2927 capacity of 30 gallons of foam with the intended use of Class A foam. The foam cell shall not
2928 reduce the capacity of the water tank. The foam cell shall have a screen in the fill dome and a
2929 breather in the lid.

FOAM TANK DRAIN

2930
2931 The foam tank drain shall be a 1.00" quarter turn drain valve located inside the pump/plumbing
2932 compartment.

COLOR CODED TAGS

2933
2934 A detailed drawing/chart of the colors used on all of the inlet(s) and outlet(s) shall be provided
2935 for the customer to review. The customer will be allowed to make changes and/or mark-ups to
2936 this approval drawing/chart. The fire apparatus manufacturer shall make revisions (If needed) to
2937 the drawing per the customer changes and/or mark-ups as long as the changes are physically
2938 possible within a specific product line.

2939 The finalized and signed customer approved drawing/chart of the colors shall become part of the
2940 contract documents.

SPECIAL TEXT/VERBIAGE TAGS

2941
2942 A detailed drawing/chart of the text/verbiage used on all of the inlet(s) and outlet(s) shall be
2943 provided for the customer to review. The customer will be allowed to make changes and/or
2944 mark-ups to this approval drawing/chart. The fire apparatus manufacturer shall make revisions
2945 (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are
2946 physically possible within a specific product line.

2947 The finalized and signed customer approved drawing/chart of the text/verbiage shall become part
2948 of the contract documents.

2949 **PUMP PANEL CONFIGURATION**

2950 The pump panel configuration shall be arranged and installed in an organized manner that shall
 2951 provide user-friendly operation.

2952 **PUMP AND GAUGE PANEL**

2953 The pump and gauge panels shall be constructed of stainless steel with a brushed finish. A
 2954 polished aluminum trim molding shall be provided on both sides of the pump panel.

2955 **PUMP ACCESS**

2956 **Right Side Panel**

2957 The right-side upper pump panel shall be removable.

2958 **Panel Fastener**

2959 The removable panels shall be secured with black swell latch.

2960 The left side pump panels shall be attached with screws.

2961 The right-side lower pump panel (drain bank) shall be attached with screws.

2962 **PUMP COMPARTMENT LIGHT**

2963 There shall be one (1) Whelen®, Model 3SC0CDCR (or like), 3.00" white 12-volt DC LED
 2964 light(s) with Whelen, Model 3FLANGEC, flange(s) installed in the pump compartment.

2965 There shall be a switch accessible through a door on the pump panel included with this
 2966 installation.

2967 Engine monitoring graduated LED indicators shall be incorporated with the pressure controller.

2968 Also provided at the pump panel shall be the following:

- Master Pump Drain Control

2970 **THROTTLE READY GREEN INDICATOR LIGHT**

2971 There shall be a green indicator light integrated with the pressure governor and/or engine throttle
 2972 installed on the pump operator’s panel that is activated when the pump is in throttle ready mode.

2973 **OK TO PUMP INDICATOR LIGHT**

2974 There shall be a green indicator light installed on the pump operator’s panel that is activated
 2975 when the pump is in Ok to Pump mode.

2976 **FUEL GAUGE**

2977 A fuel gauge will be provided.

AIR HORN BUTTON

An air horn control button shall be provided at the pump operator's control panel. This button shall be red in color and properly labeled and put within easy reach of the operator.

VACUUM AND PRESSURE GAUGES

The pump vacuum and pressure gauges shall be liquid filled and manufactured by Class 1 Incorporated © (or like).

The gauges shall be a minimum of 4.00" in diameter and shall have white faces with black lettering, with a pressure range of 30.00"-0-600#.

Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

The pump pressure and vacuum gauges shall be installed adjacent to each other at the pump operator's control panel.

Test port connections shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They shall have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They shall be marked with a label.

This gauge shall include a 10-year warranty against leakage, pointer defect, and defective bourdon tube.

PRESSURE GAUGES

The individual "line" pressure gauges for the discharges shall be interlube filled and manufactured by Class 1© (or like).

They shall be a minimum of 2.50" in diameter and shall have white faces with black lettering.

Gauges shall have a pressure range of 0-400#.

The individual pressure gauge shall be installed as close to the outlet control as practical.

WATER LEVEL GAUGE

There shall be an electronic water level gauge provided on the operator's panel that registers water level by means of five (5) colored LED lights. The lights shall be durable, ultra-bright five (5) LED design viewable through 180 degrees. The water level indicators shall be as follows:

100 percent = Green

75 percent = Yellow

50 percent = Yellow

25 percent = Yellow

Refill = Red

- 3011 The light shall flash when the level drops below the given level indicator to provide an eighth of
3012 a tank indication. To further alert the pump operator, the lights shall flash sequentially when the
3013 water tank is empty.
- 3014 The level measurement shall be based on the sensing of head pressure of the fluid in the tank.
- 3015 The display shall be constructed of a solid plastic material with a chrome plated die cast bezel to
3016 reduce vibrations that can cause broken wires and loose electronic components. The
3017 encapsulated design shall provide complete protection from water and environmental elements.
3018 An industrial pressure transducer shall be mounted to the outside of the tank. The field
3019 calibratable display measures head pressure to accurately show the tank level.
- 3020 **FOAM LEVEL GAUGE**
- 3021 An electronic foam level gauge shall be provided on the operator's panel that registers foam level
3022 by means of five (5) colored LED lights. The lights shall be durable, ultra-bright five (5) LED
3023 design viewable through 180 degrees. The foam level indicators shall be as follows:
- 3024 100 percent = Green
3025 75 percent = Yellow
3026 50 percent = Yellow
3027 25 percent = Yellow
3028 Refill = Red
- 3029 The light shall flash when the level drops below the given level indicator to provide an eighth of
3030 a tank indication. To further alert the pump operator, the lights shall flash sequentially when the
3031 foam tank is empty.
- 3032 The level measurement shall be based on the sensing of head pressure of the fluid in the tank.
- 3033 The display shall be constructed of a solid plastic material with a chrome plated die cast bezel to
3034 reduce vibrations that can cause broken wires and loose electronic components. The
3035 encapsulated design shall provide complete protection from foam and environmental elements.
3036 An industrial pressure transducer shall be mounted to the outside of the tank. The display shall
3037 be able to be calibrated in the field and shall measure head pressure to accurately show the tank
3038 level.
- 3039 **LIGHT SHIELD**
- 3040 There shall be a polished, 16-gauge stainless steel light shield installed over the pump operator's
3041 panel.
- 3042 There shall be 12-volt DC white LED lights installed under the stainless-steel light shield to
3043 illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the
3044 operation of the apparatus. These lights shall be activated by the pump panel light switch.
3045 Additional lights shall be included every 18.00" depending on the size of the pump house.

- 3046 One (1) pump panel light shall come on when the pump is in ok to pump mode.
- 3047 There shall be a light activated above the pump panel light switch when the parking brake is set.
- 3048 This is to afford the operator some illumination when first approaching the control panel.
- 3049 **ADDITIONAL LIGHT SHIELD**
- 3050 An additional polished, 16-gauge stainless steel light shield shall be provided above passenger's
- 3051 side pump panel.
- 3052 There shall be 12-volt DC white LED lights installed under the light shield to illuminate the
- 3053 controls, switches, essential instructions, gauges, and instruments necessary for the operation of
- 3054 the apparatus. These lights shall be activated by the pump panel light switch. Additional lights
- 3055 shall be included every 18.00" depending on the size of the pump house.
- 3056 **AIR HORN SYSTEM**
- 3057 Two (2) Hadley (or like), rectangular bell air horns shall be provided. The horns shall be
- 3058 mounted low through the lower bumper flange. The horn system shall be piped to the air brake
- 3059 system wet tank utilizing 0.38" tubing. A pressure protection valve shall be installed in-line to
- 3060 prevent the loss of air in the air brake system.
- 3061 **Air Horn Location**
- 3062 The air horns shall be located on each side of the bumper, inside of the frame rails.
- 3063 **Air Horn Control**
- 3064 The air horn(s) shall be activated by the following:
- 3065 Right side foot switch shall be mounted on the officer side, low on the vertical surface of the
- 3066 engine tunnel, for activation with the toe of a boot.
- 3067 Steering wheel horn ring with electric/air horn selector switch.
- 3068 **ELECTRONIC SIREN**
- 3069 A Whelen®, Model 295SLSA1 (or like), electronic siren with noise canceling microphone shall
- 3070 be provided.
- 3071 This siren to be active when the battery switch is on, and that emergency master switch is on.
- 3072 Electronic siren head shall be recessed in the driver side center switch panel.
- 3073 The electronic siren shall be controlled on the siren head only. No horn button or foot switches
- 3074 shall be required.

SPEAKERS

3076 There shall be two (2) Whelen®, Model SA315P (or like), black nylon composite, 100-watt,
 3077 speakers with through bumper mounting brackets and polished stainless-steel grille provided.
 3078 Each speaker shall be connected to the siren amplifier.

3079 The speakers shall be recessed in each side of the front bumper, just outside of the frame rails.

AUXILIARY MECHANICAL SIREN

3081 There shall be a Federal Signal Model Q2B (or like) mechanical siren furnished and installed in
 3082 the front of the apparatus.

3083 The Q2B shall be chrome finish.

3084 The siren shall have a 2-gauge cable connected to a power solenoid that is connected by a 2-
 3085 gauge cable ran battery direct to the primary chassis batteries and shall be labeled Q2B+ at the
 3086 battery. The power solenoid shall only be enabled when the emergency master switch is on.

3087 The siren shall have a 2-gauge ground wire connected to the chassis battery stud. The cable shall
 3088 be labeled Q2B- at the battery.

3089 When the chassis battery switch is on, and the emergency master switch is on, the Q2B siren
 3090 shall be activated by the following:

3091 The mechanical siren shall be recessed in the front bumper in the center. The siren shall be
 3092 supported by the bumper framework. The backside of the siren shall be protected with a
 3093 fabricated enclosure.

MECHANICAL SIREN CONTROL

3095 The mechanical siren shall be activated by the following:

3096 Steering wheel horn ring with horn/siren selector switch.
 3097 Right side momentary switch.

3098 A momentary switch shall be included in the right-side overhead switch panel to activate the
 3099 siren brake.

FRONT ZONE UPPER WARNING LIGHTS

3101 There shall be one (1) 72.00" Whelen Freedom IV LED lightbar mounted on the cab roof.

3102 The lightbar shall include the following:

- One (1) red flashing LED module in the driver's side end position.
- One (1) red flashing LED module in the driver's side front corner position.
- One (1) white flashing LED module in the driver's side first front position.
- One (1) red flashing LED module in the driver's side second front position.

- 3107 • One (1) red flashing LED module in the driver's side third front position.
 - 3108 • One (1) red flashing LED module in the driver's side fourth front position.
 - 3109 • Open in the driver's side fifth front position.
 - 3110 • Open in the driver's side sixth front position.
 - 3111 • Open in the passenger's side sixth front position.
 - 3112 • Open in the passenger's side fifth front position.
 - 3113 • One (1) red flashing LED module in the passenger's side fourth front position.
 - 3114 • One (1) red flashing LED module in the passenger's side third front position.
 - 3115 • One (1) red flashing LED module in the passenger's side second front position.
 - 3116 • One (1) white flashing LED module in the passenger's side first front position.
 - 3117 • One (1) red flashing LED module in the passenger's side front corner position.
 - 3118 • One (1) red flashing LED module in the passenger's side end position.
- 3119 There shall be clear lenses included on the lightbar.
- 3120 There shall be a switch in the cab on the switch panel to control this lightbar.
- 3121 The white LEDs shall be disabled when the parking brake is applied.
- 3122 The six (6) red flashing LED modules in the front positions may be load managed when the
3123 parking brake is applied.
- 3124 **LIGHTS, FRONT ZONE LOWER**
- 3125 Two (2) Whelen model M6** LED flashing warning lights shall be installed on the cab face
3126 above the headlights, in a common bezel with the directional lights.
- 3127 The driver's side front warning light to be red.
- 3128 The passenger's side front warning light to be red.
- 3129 Both lights shall include a colored lens.
- 3130 There shall be a switch located in the cab on the switch panel to control the lights.
- 3131 **HEADLIGHT FLASHER**
- 3132 The high beam headlights shall flash alternately between the left and right side.
- 3133 There shall be a switch installed in the cab on the switch panel to control the high beam flash.
- 3134 This switch shall be live when the battery switch and the emergency master switches are on.
- 3135 The flashing shall automatically cancel when the hi-beam headlight switch is activated or when
3136 the parking brake is set.

SIDE ZONE LOWER LIGHTING

There shall be six (6) Whelen®, Model M6** (or like), flashing LED warning lights with chrome trim installed per the following:

- Two (2) lights, one (1) each side on the bumper extension. The side front lights to be red.
- Two (2) lights, one (1) each side, as close to center above the front wheels as possible. The side middle lights to be red.
- Two (2) lights, one (1) each side, centered above rear wheels. The side rear lights to be red.
- The lights shall include a colored lens.
- There shall be a switch in the cab on the switch panel to control the lights.

INTERIOR CAB DOOR WARNING LIGHTS

There shall be four (4) Whelen® Model OS*00FCR (or like), 1.0" high x 1.5" long x 0.5" deep flashing LED warning lights with chrome trim.

- One (1) light(s) to include red flashing LEDs on the left side cab door
- One (1) light(s) to include red flashing LEDs on the right-side cab door.
- One (1) light(s) to include red flashing LEDs on the right-side crew cab door.
- One (1) light(s) to include red flashing LEDs on the left side crew cab door.
- Each light shall be located in the door pan as low and far to the outside as practical.
- Each light shall be activated when the battery switch is on, respective door is opened, and no other controls are on.

ELECTRICAL CONNECTORS FOR WARNING LIGHTS

The lights shall be installed with an insulated crimped factory butt splice connection.

SIDE WARNING LIGHTS

There shall be four (4) Whelen, Model WIONSMC* LED light(s) (or like) provided and located in the body rub rails one (1) each side ahead and behind the rear axle, centered front to back. The lights shall NOT be mounted with the rubber gasket behind the light which will allow the light(s) to fit in the rub rails.

- The color of each light shall be red LED with a clear lens.
- Each light shall be provided with a chrome plated ABS flange.
- The light(s) shall be activated with the side warning switch.

REAR ZONE LOWER LIGHTING

There shall be two (2) Whelen®, Model M6** (or like), LED flashing warning lights located at the rear of the apparatus.

- The driver's side rear light to be red

- 3170 The passenger's side rear light to be red
- 3171 Both lights shall include a lens that is colored to match the LED's.
- 3172 There shall be a switch located in the cab on the switch panel to control the lights.
- 3173 **REAR UPPER ZONE WARNING LIGHTS**
- 3174 There shall be two (2) Whelen, Model MCFLED2* (or like) LED warning beacons provided at
3175 the rear of the truck, one (1) each side.
- 3176 The color of the lights shall be:
- 3177 • The rear upper light(s) on the driver's side to be red.
 - 3178 • The rear upper light(s) on the passenger's side to be red.
- 3179 All lenses shall match the LED's.
- 3180 There shall be a switch located in the cab on the switch panel to control the beacons.
- 3181 The rear warning lights shall be mounted on top of the compartmentation with all wiring totally
3182 enclosed. The rear deck lights shall be mounted on the beavertails as high as possible.
- 3183 **120 VOLT RECEPTACLE**
- 3184 There will be one (1) 15/20-amp 120-volt AC three (3) wire straight blade duplex receptacle(s)
3185 with stainless steel wall plate installed in the forward-facing EMS cabinet, up high. The NEMA
3186 configuration for the receptacle(s) will be 5-20R.
- 3187 The receptacle(s) will be powered from the shoreline inlet.
- 3188 There will be a label installed near the receptacle(s) that state the following:
- 3189 • Line Voltage
 - 3190 • Current Rating (amps)
 - 3191 • Phase
 - 3192 • Frequency
- 3193 **120 VOLT RECEPTACLE**
- 3194 There shall be one (1), 15/20-amp 120-volt AC three (3) wire straight blade duplex receptacle(s)
3195 with interior stainless steel wall plate(s), installed LS1 compartment. The NEMA configuration
3196 for the receptacle(s) shall be 5-20R.
- 3197 The receptacle(s) shall be powered from the shoreline inlet.
- 3198 There shall be a label installed near the receptacle(s) that state the following:
- 3199 Line Voltage

3200 Current Rating (amps)

3201 Phase

3202 Frequency

3203 **DEALER SUPPLIED EQUIPMENT**

3204 Dealer to supply the following with the completed apparatus:

3205 **Miscellaneous**

3206 One (1) Dell Latitude 7220 Rugged, CTO laptop (or like) with the following specs:

- 3207 • 8th Generation Intel Core i5-8365U Processor (4 Core, 6MB Cache, 1.6 GHz, 15W)
- 3208 • Windows 11 Pro, English, French, Spanish
- 3209 • No Microsoft Office License included - 30-day trial offer only
- 3210 • Intel Core i5-8365U with u-blox NEO-M8 GPS card 8GB Memory
- 3211 • No Out-Of-Band Systems Management - vPro Disabled
- 3212 • 8GB 2133 MHz LPDDR3 Memory
- 3213 • M.2 256GB PCIe NVMe Class 40 Solid State Drive
- 3214 • 11.6-inch FHD (1920 x 1080), 1000 Nit Outdoor-Readable, AG/AS/AP, Glove-Capable
- 3215 • Touchscreen
- 3216 • Intel Wi-Fi 9560 Driver with Bluetooth
- 3217 • Intel Dual Band Wireless AC 9560 (802.11ac) 2x2
- 3218 • DWT5821E Snapdragon X20 4G/LTE Wireless WAN card for AT&T
- 3219 • Dell WWan Bracket Bar for Rugged
- 3220 • 2-cell 34wH) Lithium-Ion Primary Battery
- 3221 • 45-Watt AC Adapter
- 3222 • No Security Software
- 3223 • No Media
- 3224 • E4 Power Cord 1M for US
- 3225 • Latitude Rugged 7220 Getting Started Guide
- 3226 • US Order
- 3227 • No Carrying Case
- 3228 • No Secondary Battery
- 3229 • (DAO)Service and Support Guide MUI for DAO (English, French, Dutch, Spanish)
- 3230 • Custom Configuration
- 3231 • System Regulatory Label (WWAN)
- 3232 • Windows 10 Additional Software
- 3233 • Shipping Material, Shuffle

3234 One (1) HV-DS-Dell-602 Docking Station Dell Latitude 12 Rugged Tablet w/power

- 3235 One (1) HV-C-MD-207 Tilt Swivel Motion Device for Compact Tablet Devices
- 3236 One (1) HV-C-3259 Universal plate to mount Troy or Gamber products
- 3237 One (1) Radio: Motorola APX 4500 Model: M22QSS9PW1AN with an external speaker,
- 3238 installed.
- 3239 **MERCEDES HOSE**
- 3240 Sixteen (16) each Mercedes MTFS-800-DP 1.75 x 50' (or like); Permatek Alum. Coupling 1-3/4;
- 3241 x 1-1/2; x 2 NH R/L; Color Choice and Stencil
- 3242 Six (6) each Mercedes MTFS-800-DP 2-1/2 x 50'; Permatek Alum (or like). Coupling 2-1/2; x 2-
- 3243 7/8 NH R/L; Color Choice and Stencil
- 3244 Fourteen (14) each Mercedes MTFS-800-DP 3 x 50'; Permatek Alum (or like). Coupling 3 x 2-
- 3245 1/2 x 3-5/16 NH R/L Color Choice and Stencil
- 3246 One (1) each Mercedes Carry-Lite 1-3/4" x 100'; Alum (or like). Coupling 1-1/2; x 1-13/16 NH
- 3247 R/L Color Choice and Stencil
- 3248 One (1) each Mercedes Carry-Lite 1-7/5 x 50' (or like); Alum. Coupling 1-1/2; x 1-13/16 NH
- 3249 R/L Color Choice and Stencil
- 3250 Twelve (12) each Mercedes Highwater Deluge Layflat Supply Hose 5" x 50' (or like); Alum.
- 3251 Coupling 5"; Storz Gold Anodized with IReflect Lock Levers; Yellow with Stencil
- 3252 **KOCHECK**
- 3253 One (1) each Kocheck K 45-3 (or like).
- 3254 One (1) K05 Adjustable Hydrant Wrench Double Head Spanner with two (2) K01 universal
- 3255 spanner wrenches and one (1) triple holder standard color silver/black (or like).
- 3256 One (1) each Kocheck KS34; Four (4) Storz universal spanner wrenches w/ holder (or like).
- 3257 Two (2) each Kocheck Universal Spanner Model #K01 (or like)
- 3258 **REDHEAD BRASS**
- 3259 Three (3) each RedHead Brass Style 37, 2-1/2"; NH F x 1-1/2"; NH M rocker lug Adapter (or
- 3260 like)
- 3261 Two (2) each RedHead brass Style 35, 2-1/2"; NH x 2-1/2"; NH double F swivel rocker lug
- 3262 Adapter (or like)

- 3263 Three (3) each RedHead Brass Style 36, 2-1/2"; NH x 2-1/2"; NH double M rocker lug Adapter
3264 (or like)
- 3265 One (1) each RedHead Brass Style S-36, 5.00"; Storz x 2-1/2"; NH M Adapter (or like)
- 3266 One (1) each RedHead Brass Style SC, 5.00"; Storz Cap
3267 One (1) each RedHead Brass Style S-37, 5.00"; Storz x 4.00"; NH F Adapter (or like)
- 3268 **NUPLA**
- 3269 One (1) each Nupla N-33-060 6# Classic fiberglass handle Flathead Axe (or like)
- 3270 One (1) each Nupla N-31-060 6# Classic fiberglass handle Pickhead Axe (or like)
- 3271 One (1) each Nupla N-27-708 8# fiberglass handle Sledgehammer (or like)
- 3272 **PAC (Performance Advantage Corp)**
- 3273 One (1) each PAC Ironslock; Model #W-PAC-K5003 (or like)
- 3274 One (1) each PAC Pick Head Axe Hanger Pocket kit; Model #PAC-K5012 (or like)
- 3275 **TFT** Three (3) each TFT Handline Series, Handline w/ Grip 1.5-inch Female. H-VPGI 95-300
3276 GPM @100 PSI, Grip Under Valve (or like)
- 3277 One (1) each TFT Handline Series, Handline w/ Grip 2.5-inch Female. H-2VPGI 95-300 GPM
3278 @100 PSI, Grip under Valve (or like)
- 3279 One (1) each TFT Twister Series, Twister w/ Grip 1.00-inch Female. DS1040P, 10 & 40 GPM
3280 Dual Gallonage (or like)
- 3281 Two (2) each TFT Detent Valve w/ Grip 1-1/2"; Female x 1-1/2 inch; Male. H-VOI Swivel
3282 Rocker x Rigid Male (or like)
- 3283 Two (2) TFT Smoothbore Series, Straight Tips 15/16-inch x 1.5 inch female; FSS12 NH Thread
3284 (or like)
- 3285 One (1) TFT Gated Wye Thief, Model #**AYT-NJ-NF** 2-1/2 inch; F Swivel Rocker x 1-1/2 inch;
3286 M x 2-1/2 inch; M w/ Gauge (or like).
- 3287 **STREAMLIGHT**
- 3288 One (1) #4600 120v AC/12v DC Streamlight Portable Scene Light II (or like)
- 3289 **SUPER VAC**

3290 One (1) **V16-BD-SP** w/ optional Dewalt Flexvolt 12Ah (2); included 115v AC Fast Charger (or
 3291 like)

3292 **HARRINGTON**

3293 One (1) each Harrington 2-1/2 inch; Hydrant Ball Valve **HHBV-25NHM-25NH** Ball Valve (or
 3294 like).

3295 One (1) each Harrington 2-way ball valve **H200-40NH-25NH** 4.00-inch H F swivel rocker lug
 3296 inlet x (2) 2-1/2 inch NY M outlets (or like)

3297 **AKRON BRASS**

3298 One (1) each Akron Brass Leader Line Wye w/ Swivel. 2-1/2 inch; NH F Inlet x (2) 1-1/2 inch;
 3299 NH M outlets (or like)

3300 **R&B FABRICATIONS**

3301 One (1) each R & B Fabrications Tool Bag Model #443RD (or like)

3302 One (1) each R & B Fabrications Hydrant Bag Model #442RD (or like)

3303 One (1) each R & B fabrications High Rise Hose Strap Model #HS-150 (or like)

3304 **FIRE HOOKS UNLIMITED**

3305 One (1) each Fire Hooks Unlimited WIDE-ADZ Pro Halligan Tool. Model #FH-WA-PRO30 (or
 3306 like).

3307 **LOOSE EQUIPMENT**

3308 The following equipment shall be furnished with the completed unit:

3309 One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as
 3310 used in the construction of the unit

3311 **NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT**

3312 The following loose equipment as outlined in NFPA 1901, 2016 edition, section 5.9.3 and 5.9.4
 3313 shall be provided by the fire department.

3314 800 ft (60 m) of 2.50" (65 mm) or larger fire hose.

3315 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose.

3316 One (1) handline nozzle, 200 gpm (750 L/min) minimum.

3317 Two (2) handline nozzles, 95 gpm (360 L/min) minimum.

3318 One (1) smoothbore of combination nozzle with 2.50" shutoff that flows a minimum of 250 gpm.

- 3319 One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer
3320 than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by
3321 the SCBA manufacturer.
- 3322 One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the
3323 apparatus or stored in a specially designed storage space(s).
- 3324 One (1) first aid kit.
- 3325 Four (4) combination spanner wrenches.
- 3326 Two (2) hydrant wrenches.
- 3327 One (1) double female 2.50" (65 mm) adapter with National Hose threads.
- 3328 One (1) double male 2.50" (65 mm) adapter with National Hose threads.
- 3329 One (1) rubber mallet, for use on suction hose connections.
- 3330 Two (2) salvage covers each a minimum size of 12 ft x 14 ft (3.7 m x 4.3 m).
- 3331 One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207,
3332 *Standard for High Visibility Public Safety Vests*, and have a five-point breakaway feature that
3333 includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.
- 3334 Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped
3335 with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of
3336 the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the
3337 6.00" (152 mm) band.
- 3338 Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent
3339 orange traffic cones have illuminating capabilities.
- 3340 One (1) automatic external defibrillator (AED).
- 3341 Four (4) ladder belts meeting the requirements of NFPA 1983, *Standard on Fire Service Life*
3342 *Safety Rope and System Components* (if equipped with an aerial device).
- 3343
- 3344 If the supply hose carried does not use sexless couplings, an additional double female adapter
3345 and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets
3346 fastened to the apparatus.
- 3347
- 3348 If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated
3349 intakes with female swivel connection(s) compatible with the supply hose used on one side and a
3350 swivel connection with pump intake threads on the other side shall be carried. Any intake
3351 connection larger than 3.00" (75 mm) shall include a pressure relief device that meets the
3352 requirements of 16.6.6.
- 3353
- 3354 If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH
3355 female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not
3356 already mounted directly to the intake.
- 3357

3358 If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters shall be
3359 carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the
3360 hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not
3361 already mounted directly to the discharge or intake.

3362 **SOFT SUCTION HOSE PROVIDED BY FIRE DEPARTMENT**

3363 NFPA 1901, 2016 edition, section 5.8.2.1 requires a minimum of 20' of suction hose or 15' of
3364 supply hose shall be carried.

3365 Hose is not on the apparatus as manufactured. The fire department shall provide suction or
3366 supply hose.

3367 **STRAINER PROVIDED BY FIRE DEPARTMENT**

3368 NFPA 1901, 2016 edition, section 6.8.2.1.1 requires a suction strainer when suction hose is
3369 provided.

3370 The strainer is not on the apparatus as manufactured. The fire department shall provide the
3371 suction strainer.

3372 **DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT**

3373 NFPA 1901, 2016 edition, section 5.9.4 requires one (1) approved dry chemical portable fire
3374 extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus.

3375 The extinguisher is not on the apparatus as manufactured. The fire department shall provide and
3376 mount the extinguisher.

3377 **WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT**

3378 NFPA 1901, 2016 edition, section 5.9.4 requires one (1) 2.5 gallon or larger water extinguisher
3379 mounted in a bracket fastened to the apparatus.

3380 The extinguisher is not on the apparatus as manufactured. The fire department shall provide and
3381 mount the extinguisher.

3382 **FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT**

3383 NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) flathead axe mounted in a bracket
3384 fastened to the apparatus.

3385 The axe is not on the apparatus as manufactured. The fire department shall provide and mount
3386 the axe.

3387 **PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT**

3388 NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) pickhead axe mounted in a bracket
3389 fastened to the apparatus.

3390 The axe is not on the apparatus as manufactured. The fire department shall provide and mount
 3391 the axe.

3392 **PAINT PROCESS**

3393 The exterior custom cab and/or body painting procedure shall consist of a seven (7) step
 3394 finishing process. A commercial chassis paint process shall follow similar processes as
 3395 determined by the chassis manufacturer. The following procedure shall be used by the apparatus
 3396 manufacturer:

- 3397 1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body
 3398 shall be thoroughly cleaned and prepared for painting. Imperfections on the exterior
 3399 surfaces shall be removed and sanded to a smooth finish. Exterior seams shall be
 3400 sealed before painting. Exterior surfaces that shall not be painted include chrome
 3401 plating, polished stainless steel, anodized aluminum, and bright aluminum treadplate.
- 3402 2. Chemical Cleaning and Pretreatment - All surfaces shall be chemically cleaned to
 3403 remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well.
 3404 The aluminum surfaces shall be properly cleaned and treated using a high pressure,
 3405 high temperature 4 step Acid Etch process. The steel and stainless surfaces shall be
 3406 properly cleaned and treated using a high temperature 3 step process specifically
 3407 designed for steel or stainless. The chemical treatment converts the metal surface to a
 3408 passive condition to help prevent corrosion. A final pure water rinse shall be applied to
 3409 all metal surfaces.
- 3410 3. Surfacer Primer - The Surfacer Primer shall be applied to a chemically treated metal
 3411 surface to provide a strong corrosion protective base coat. A minimum thickness of 2
 3412 mils of Surfacer Primer is applied to surfaces that require a critical aesthetic finish. The
 3413 surfacer primer shall be a two-component high solids urethane that has excellent
 3414 sanding properties and an extra smooth finish when sanded.
- 3415 4. Finish Sanding - The surfacer primer shall be sanded with a fine grit abrasive to achieve
 3416 an ultra-smooth finish. This sanding process is critical to produce the smooth mirror
 3417 like finish in the topcoat.
- 3418 5. Sealer Primer - The sealer primer is applied prior to the base coat in all areas that have
 3419 not been previously primed with the surfacer primer. The sealer primer is a two-
 3420 component high solids urethane that goes on smooth and provides excellent gloss hold
 3421 out when top coated.
- 3422 6. Base coat Paint - Two coats of a high performance, two component high solids
 3423 polyurethane base coat shall be applied. The Base coat shall be applied to a thickness
 3424 that shall achieve the proper color match. The Base coat shall be used in conjunction
 3425 with a urethane clear coat to provide protection from the environment.
- 3426 7. Clear Coat - Two (2) coats of clear coat shall be applied over the base coat color. The
 3427 clear coat is a two-component high solids urethane that provides superior gloss and
 3428 durability to the exterior surfaces. Lap style doors shall be clear coated to match the

3429 body. Paint warranty for the roll-up doors shall be provided by the roll-up door
 3430 manufacturer.

3431 Specifications are written to define cyclic corrosion testing, physical strengths, durability, and
 3432 minimum appearance requirements must be met in order for an exterior paint finish to be
 3433 considered acceptable as a quality finish.

3434 Each batch of base coat color shall be checked for a proper match before painting of the cab and
 3435 the body. After the cab and body are painted, the color is verified again to make sure that it
 3436 matches the color standard. Electronic color measuring equipment shall be used to compare the
 3437 color sample to the color standard entered into the computer. Color specifications are used to
 3438 determine the color match. A Delta E reading shall be used to determine a good color match
 3439 within each family color.

3440 All removable items such as brackets, compartment doors, door hinges, and trim shall be
 3441 removed and separately if required, to ensure paint behind all mounted items. Body assemblies
 3442 that cannot be finish painted after assembly shall be finish painted before assembly.

3443 **Environmental Impact**

3444 Contractor shall meet or exceed all current State regulations concerning paint operations.
 3445 Pollution control shall include measures to protect the atmosphere, water and soil. Controls shall
 3446 include the following conditions:

- 3447 • Topcoats and primers shall be chrome and lead free.
- 3448 • Metal treatment chemicals shall be chrome free. The wastewater generated in the metal
 3449 treatment process shall be treated on-site to remove any other heavy metals.
- 3450 • Particulate emission collection from sanding operations shall have a 99.99 percent
 3451 efficiency factor.
- 3452 • Particulate emissions from painting operations shall be collected by a dry filter or water
 3453 wash process. If the dry filter is used, it shall have an efficiency rating of 98 percent.
 3454 Water wash systems shall be 99.97 percent efficient.
- 3455 • Water from water wash booths shall be reused. Solids shall be removed on a continual
 3456 basis to keep the water clean.
- 3457 • Paint wastes shall be disposed of in an environmentally safe manner.
- 3458 • Empty metal paint containers shall be recycled to recover the metal.
- 3459 • Solvents used in clean-up operations shall be recycled on-site or sent off-site for
 3460 distillation and returned for reuse.

3461 Additionally, the finished apparatus shall not be manufactured with or contain products that have
 3462 ozone depleting substances. Contractor shall, upon demand, present evidence that the
 3463 manufacturing facility meets the above conditions and that it is in compliance with the state EPA
 3464 rules and regulations.

PAIN

The cab and the body shall be painted Red #279 to match PPG 71663

GALVANIZED CHASSIS FRAME ASSEMBLY

The chassis frame assembly shall be hot dip galvanized before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that shall be hot dip galvanized are:

- Frame rails
- Frame liners
- Cross members
- Front frame extension

All galvanized components are inspected for compliance with ASTM specifications.

Battery boxes shall be stainless steel.

All components that are not galvanized shall be painted primer and gloss paint to match the lower job color.

AXLE HUB PAINT

All axle hubs shall be painted to match lower job color.

HOT DIP GALVANIZED PUMP HOUSE SUBSTRUCTURE

The pump house substructure (and walkway if applicable) shall be treated through a hot dip galvanizing process. These components shall be immersed in molten zinc to provide a coating that shall help protect against the effects of corrosion.

HOT DIP GALVANIZED BODY SUBSTRUCTURE

The compartment substructure shall be treated through a hot dip galvanizing process. These components shall be immersed in molten zinc to provide a coating that shall help protect against the effects of corrosion.

COMPARTMENT INTERIOR PAINT

The interior of all compartments shall be painted with a gray spatter type paint.

REFLECTIVE BAND

A 4.00" white reflective band shall be provided across the front of the vehicle and along the sides of the body.

The reflective band provided on the cab face shall be at the headlight level.

REAR CHEVRON STRIPING

3497
3498 There shall be alternating chevron striping located on the rear-facing vertical surface of the
3499 apparatus. The rear surface, excluding the rear compartment door, shall be covered.

3500 The colors shall be red and fluorescent yellow green diamond grade.

3501 Each stripe shall be 6.00" in width.

3502 This shall meet the requirements of the current edition of NFPA 1901, which states that 50% of
3503 the rear surface shall be covered with chevron striping.

CHEVRON STRIPING ON THE FRONT BUMPER

3504
3505 There will be alternating chevron striping located on the front bumper.

3506 The colors will be red and fluorescent yellow green diamond grade.

3507 The size of the striping will be 6.00".

REFLECTIVE STRIPE OUTLINE

3508
3509 A black outline shall be applied on the top and the bottom of the reflective band. There shall be
3510 one (1) set of outline stripes required.

CAB DOOR REFLECTIVE STRIPE

3511
3512 A 6.00" x 16.00" white reflective stripe shall be provided across the interior of each cab door.
3513 The stripe shall be located approximately 1.00" up from the bottom, on the door panel.

3514 This stripe shall meet the NFPA 1901 requirement.

LETTERING

3515
3516 The lettering shall be totally encapsulated between two (2) layers of clear vinyl.

LETTERING

3517
3518 Forty-one (41) to sixty (60) printed effect gold leaf lettering, 3.00" high, with outline and shade
3519 shall be provided.

LETTERING

3520
3521 There shall be printed effect gold leaf lettering, 18.00" high, with outline and shade provided.
3522 There shall be one (1) letter provided.

LETTERING

3523
3524 There shall be printed effect gold leaf lettering, 1.00" high, with outline and shade provided.
3525 There shall be three (3) letters provided.

LETTERING

3526 There shall be printed effect gold leaf lettering, 5.00" high, with outline and shade provided.

3527 There shall be ten (10) letters provided.

LETTERING

3529 There shall be printed effect gold leaf lettering, 12.00" high, with outline and shade provided.

3530 There shall be two (2) letters provided.

LETTERING

3532 Twenty-one (21) to forty (40) printed effect gold leaf lettering, 8.00" high, with outline and shade shall be provided.

EMBLEM

3535 There shall be two (2) pair of emblems showing a "Dept. Patch" installed on the driver/ officer cab doors. The emblem shall be made with reflective material. The size shall be approximately 12.00" high x 12.00" wide.

CAB GRILLE DESIGN

3539 An American flag design shall be painted on the cab grille.

UNDERCOATING, CAB & BODY

3541 The underside of the apparatus shall be undercoated with an asphalt petroleum-based material, dark in color.

3542 The undercoating material utilized on the apparatus shall be formulated to resist corrosion and deaden unwanted sound or road noise.

3543 Coating texture shall appear firm, flexible, and resistant to abrasion. Minimum dry film thickness shall be in the range of 8.00 to 12.00 mils.

3544 The material shall be applied to the following areas:

3545 Body and cab wheel well fender liners, on the back side only.

3546 Underside of body and cab sheet metal, and structural components.

3547 Underside and vertical sides of all sheet metal compartmentation, including support angles.

3548 Structural support members under running boards, rear platforms, battery boxes, walkways, etc.

3549 Inside surfaces of the pump heat enclosure, (when installed).

FIRE APPARATUS PARTS MANUAL

3554 There shall be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided.

3557 The manual(s) shall contain the following:

- 3558 • Job number
- 3559 • Part numbers with full descriptions
- 3560 • Table of contents
- 3561 • Parts section sorted in functional groups reflecting a major system, component, or
- 3562 assembly
- 3563 • Parts section sorted in alphabetical order
- 3564 • Instructions on how to locate parts

3565 Each manual shall be specifically written for the chassis and body model being purchased. It
 3566 shall not be a generic manual for a multitude of different chassis and bodies.

3567 **Service Parts Internet Site**

3568 The service parts information included in these manuals are also available on the factory website.
 3569 The website offers additional functions and features not contained in this manual, such as digital
 3570 photographs and line drawings of select items. The website also features electronic search tools
 3571 to assist in locating parts quickly.

3572 **CHASSIS SERVICE MANUALS**

3573 There shall be one (1) chassis service manuals on USB flash drives containing parts and service
 3574 information on major components provided with the completed unit.

3575 The manual shall contain the following sections:

- 3576 • Job number
- 3577 • Table of contents
- 3578 • Troubleshooting
- 3579 • Front Axle/Suspension
- 3580 • Brakes
- 3581 • Engine
- 3582 • Tires
- 3583 • Wheels
- 3584 • Cab
- 3585 • Electrical, DC
- 3586 • Air Systems
- 3587 • Plumbing
- 3588 • Appendix

3589 The manual shall be specifically written for the chassis model being purchased. It shall not be a
 3590 generic manual for a multitude of different chassis and bodies.

CHASSIS OPERATION MANUAL

The chassis operation manual shall be provided on one (1) USB flash drive.

ONE (1) YEAR MATERIAL AND WORKMANSHIP

Each new piece of apparatus shall be provided with a minimum **one (1) year** basic apparatus material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

ENGINE WARRANTY

A Cummins **five (5) year** limited engine warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.

STEERING GEAR WARRANTY

A TRW **one (1) year** limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.

FIFTY (50) YEAR STRUCTURAL INTEGRITY

The chassis frame shall be provided with a **fifty (50) year** material and workmanship limited warranty. The warranty shall cover the chassis frame as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

FRONT AXLE WARRANTY

An Eaton **five (5)-year/100,000-mile** parts and labor warranty shall be provided.

REAR AXLE WARRANTY

An Eaton **five (5)-year/100,000-mile** parts and labor warranty shall be provided.

ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY

A Meritor Wabco™ ABS brake system **three (3) year** limited warranty shall be provided.

TEN (10) YEAR STRUCTURAL INTEGRITY

The new cab shall be provided with a **ten (10) year** material and workmanship limited warranty. The warranty shall cover such portions of the cab built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

Each new piece of apparatus shall be provided with a **ten (10) year** pro-rated paint and corrosion limited warranty on the apparatus cab. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

CAMERA SYSTEM WARRANTY

A fifty-four (54) month warranty shall be provided for the camera system.

COMPARTMENT LIGHT WARRANTY

A ten (10) year material and workmanship limited warranty shall be provided for the 12-volt DC LED strip lights. The warranty shall cover the LED strip lights to be free from defects in material and workmanship that would arise under normal use.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

TRANSMISSION WARRANTY

The transmission shall have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty is to be provided by Allison Transmission and not the apparatus builder.

TRANSMISSION COOLER WARRANTY

The transmission cooler shall carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty shall also be in effect for the first three (3) years of the warranty coverage and shall not exceed \$10,000 per occurrence. A copy of the warranty certificate shall be submitted with the bid package.

WATER TANK WARRANTY

The UPF poly water tank shall be provided with a lifetime material and workmanship limited warranty.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

TEN (10) YEAR STRUCTURAL INTEGRITY

Each new piece of apparatus shall be provided with a **ten (10) year** material and workmanship limited warranty on the apparatus body. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY

An AMDOR roll-up door limited warranty shall be provided. The roll-up door shall be warranted against manufacturing defects for a period of **ten (10) years**. A **five (5) year** limited warranty shall be provided on painted roll up doors.

A copy of the warranty certificate shall be submitted with the bid package.

PUMP WARRANTY

The Waterous pump shall be provided with a Seven (7) year material and workmanship limited warranty.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

TEN (10) YEAR PUMP PLUMBING WARRANTY

The stainless-steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of **ten (10) years or 100,000 miles**. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten years from the date of delivery.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

FOAM SYSTEM WARRANTY

A **one (1) year** material and workmanship limited warranty shall be provided on the foam system. A **five (5) year** material and workmanship limited warranty shall be provided on the foam system control head.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

Each new piece of apparatus shall be provided with a **ten (10) year** pro-rated paint and corrosion limited warranty on the apparatus body. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

THREE (3) YEAR MATERIAL AND WORKMANSHIP

The gold leaf lamination shall be provided with a **three (3) year** material and workmanship limited warranty. The warranty shall cover the gold leaf lamination as being free from defects in material and workmanship that would arise under normal use and service.

3689 A copy of the warranty certificate shall be submitted with the bid package (no exception).

3690 **VEHICLE STABILITY CERTIFICATION**

3691 The fire apparatus manufacturer shall provide a certification stating the apparatus complies with
3692 NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification shall be provided
3693 at the time of bid.

3694 **ENGINE INSTALLATION CERTIFICATION**

3695 The fire apparatus manufacturer shall provide a certification, along with a letter from the engine
3696 manufacturer stating they approve of the engine installation in the bidder's chassis. The
3697 certification shall be provided at the time of delivery.

3698 **POWER STEERING CERTIFICATION**

3699 The fire apparatus manufacturer shall provide a certification stating the power steering system as
3700 installed meets the requirements of the component supplier. The certification shall be provided
3701 at the time of bid.

3702 **CAB INTEGRITY CERTIFICATION**

3703 The fire apparatus manufacturer shall provide a cab crash test certification with this proposal.
3704 The certification shall state that a specimen representing the substantial structural configuration
3705 of the cab has been tested and certified by an independent third-party test facility. Testing events
3706 shall be documented with photographs, real-time and high-speed video, vehicle accelerometers,
3707 cart accelerometers, and a laser speed trap. The fire apparatus manufacturer shall provide a state
3708 licensed professional engineer to witness and certify all testing events. Testing shall meet or
3709 exceed the requirements below:

- 3710
- European Occupant Protection Standard ECE Regulation No.29.
 - 3711 • SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
 - 3712 • SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

3713 **Roof Crush**

3714 The cab shall be subjected to a roof crush force of 22,500 lb. This value meets the ECE 29
3715 criteria and is equivalent to the front axle rating up to a maximum of ten (10) metric tons.

3716 **Side Impact**

3717 The same cab shall be subjected to dynamic preload where a 13,275-lb moving barrier is
3718 slammed into the side of the cab at 5.50 mph, striking with an impact of 13,000 ft-lb of force.
3719 This test is part of the SAE J2422 test procedure and more closely represents the forces a cab
3720 shall see in a rollover incident.

3721 **Frontal Impact**

3722 The same cab shall withstand a frontal impact of 32,600 ft-lb of force using a moving barrier in
3723 accordance with SAE J2420.

Additional Frontal Impact

The same cab shall withstand a frontal impact of 65,200 ft-lb of force using a moving barrier.
(Twice the force required by SAE J2420)

The same cab shall withstand all tests without any measurable intrusion into the survival space of the occupant area.

There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of bid.

CAB DOOR DURABILITY CERTIFICATION

Robust cab doors help protect occupants. Cab doors shall survive a 200,000-cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder shall certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.

WINDSHIELD WIPER DURABILITY CERTIFICATION

Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers shall survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 *Windshield Wiper Systems - Trucks, Buses, and Multipurpose Vehicles*. The bidder shall certify that the wiper system design has been tested and that the wiper system has met these criteria.

SEAT BELT ANCHOR STRENGTH

Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design shall withstand 3000 lb. of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder shall certify that each anchor design was pull tested to the required force and met the appropriate criteria.

SEAT MOUNTING STRENGTH

Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design shall be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder shall certify, at time of delivery, that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

PERFORMANCE CERTIFICATIONS**Cab Air Conditioning**

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system shall cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to

3758 an average of 78 degrees Fahrenheit in 30 minutes. The bidder shall certify that a substantially
 3759 similar cab has been tested and has met these criteria.

3760 **Cab Defroster**

3761 Visibility during inclement weather is essential to safe apparatus performance. The defroster
 3762 system shall clear the required windshield zones in accordance with SAE J381 Windshield
 3763 Defrosting Systems Test Procedure and Performance Requirements - Trucks, Buses, And
 3764 Multipurpose Vehicles. The bidder shall certify that the defrost system design has been tested in
 3765 a cold chamber and passes the SAE J381 criteria.

3766 **Cab Auxiliary Heater**

3767 Good cab heat performance and regulation provides a more effective working environment for
 3768 personnel, whether in-transit, or at a scene. An auxiliary cab heater shall warm the cab 77
 3769 degrees Fahrenheit from a cold soak, within 30 minutes when tested using the coolant supply
 3770 methods found in SAE J381. The bidder shall certify, at time of delivery, that a substantially
 3771 similar cab has been tested and has met these criteria.

3772 **AMP DRAW REPORT**

3773 The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected
 3774 amp draws of the entire vehicle's electrical system.

3775 The manufacturer of the apparatus shall provide the following:

- 3776 • Documentation of the electrical system performance tests.
- 3777 • A written load analysis, which shall include the following:
- 3778 • The nameplate rating of the alternator.
- 3779 • The alternator rating under the conditions specified per:
- 3780 • Applicable NFPA 1901 or 1906 (Current Edition).
- 3781 • The minimum continuous load of each component that is specified per:
- 3782 • Applicable NFPA 1901 or 1906 (Current Edition).
- 3783 • Additional loads that, when added to the minimum continuous load, determine the total
- 3784 connected load.
- 3785 • Each individual intermittent load.

3786 All the above listed items shall be provided by the bidder per the applicable NFPA 1901 or 1906
 3787 (Current Edition).

Prevailing Wage Rate Schedule

The successful vendors shall meet the requirements of this section as required by state law. If this section does not include information with respect to a location, project type, PRC# or effective dates, it has been determined that there are no prevailing wage requirements for this offering.

The successful vendor shall pay not less than the prevailing wage rate established by the New York State Department of Labor. The Wage Rate Schedule, as prepared by the Department of Labor, hereby becomes part of the contract/agreement.

Prevailing Wage Rate Schedule
 Location: XXXXX
 Project Type: XXXXX
 PRC#: XXXXX
 Effective Dates: XXXXX

A unique Prevailing Wage Case Number (PRC#) has been assigned to the schedule for this project.

The current schedule(s) of the prevailing rates and prevailing hourly supplements for the project referenced above may be accessed at the New York State Department of Labor website (www.labor.state.ny.us). Updated PDF copies of the schedule can be accessed by entering the assigned PRC# at the proper location on the website. Rates can also be obtained by contacting the Department of Labor at 585-258-4505.

If you do not have internet access, you may contact the City’s Purchasing Division at 716-286-4371 to request a copy of the prevailing rate schedule for this project.

The successful vendor will present a certified payroll report at the time of each billing to the City for work performed for this project, or no payment will be made until such report is received.

VENDOR’S CERTIFICATION & ASSIGNMENT OF CLAIM

THIS FORM MUST BE COMPLETED IN INK, BE TYPED OR BE COMPUTER GENERATED, BE CLEARLY LEGIBLE AND BE SIGNED AND DATED WITH EITHER BLUE OR BLACK INK. FAILURE TO DO THIS MAY RESULT IN REJECTION.

I/We, the undersigned, herewith propose and agree to furnish to the City any one or all of the items upon which we have submitted, for the prices indicated herein, in accordance with the instructions, General Conditions and Specific Terms, Conditions and Specifications and any other related formal documents.

The undersigned individual certifies to having read these Instructions, General Conditions, Specific Terms, Conditions and Specifications and any other related formal documents and offers to furnish the articles specified to the City in exact accordance with same at the prices herein stated.

Vendor hereby assigns to the City and the State of New York any and all of its claim(s) for overcharges associated with this contract/agreement which arise under the antitrust laws of the United States, 15 U.S.C. Section 1, et seq. and the antitrust laws of the State of New York, G.B.L. Section 340, et seq.

VENDOR NAME

ADDRESS

CITY, STATE, ZIP

TELEPHONE NUMBER

EMAIL ADDRESS

NAME & TITLE OF AUTHORIZED CONTACT

AUTHORIZED SIGNATURE

DATE

AFFIDAVIT OF NON-COLLUSIVE SUBMISSION CERTIFICATION

I hereby attest and certify that I am the person responsible within my firm for the final decision as to price(s) and amount of this submission, or, if not, that I have written authorization, enclosed herewith, from that person to make the statements set out below on his or her behalf and on behalf of my firm. I further attest and certify that:

1. The price(s) and amount(s) of this submission have been arrived at independently, without consultation, communication or agreement for the purpose of restricting competition with any other contractor, vendor, bidder, or potential bidder.
2. Neither the price(s) nor the amount(s) of this submission have been disclosed to any other vendor, firm or person who is submitting or potentially submitting on this project and will not so be disclosed prior to submission opening.
3. No attempt has been made or will be made to solicit, cause or induce any vendor, firm or person to refrain from submitting on this project, or to submit a higher price than the submission of this firm, or any intentionally high or non-competitive submission or other form of complementary submission.
4. The submission of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any vendor, firm or person to submit a complementary submission.
5. My firm has not offered or entered into a subcontract or agreement regarding the purchase of materials or services from any vendor, firm or person, or offered, promised or paid cash or anything of value to any vendor, firm or person, whether in connection with this or any other project in consideration for an agreement or promise by any vendor, firm or person to refrain from submitting or to submit a complementary submission on this project.
6. My firm has not accepted or been promised any subcontract or agreement regarding the sale of materials or services to any vendor, firm or person, and has not been promised or paid cash or anything of value by any vendor, firm or person, whether in connection with this or any other project, in consideration for my firm's submitting a complementary submission, or agreeing to do so, on this project.
7. I have made a diligent inquiry of all members, officers, employees and agents of my firm with responsibilities relating to the preparation, approval or submission of my firm's submission on this project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, act or other conduct inconsistent with any of the statements and representations made.

**SUBMISSION IS NOT ACCEPTABLE WITHOUT THE ABOVE AFFIDAVIT
SIGNED AND CERTIFIED BY A NOTARY PUBLIC**

VENDOR NAME	TELEPHONE NUMBER
ADDRESS	CITY, STATE, ZIP
AUTHORIZED SIGNATURE	

Sworn to before me this ____ day of _____, 20____

Notary Public

CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT

As a result of the Iran Divestment Act of 2012 (the “Act”), Chapter 1 of the 2012 Laws of New York, a new provision has been added to State Finance Law (SFL) § 165-a and New York General Municipal Law § 103-g. both effective April 12, 2012. Under the Act, the Commissioner of the office of General Services (OGS) will be developing a list of “persons” who are engaged in “investment activities in Iran” (both are defined terms in the law) (the “Prohibited Entities List”).

Pursuant to SFL § 165-a(3)(b), the initial list is expected to be issued no later than 120 days after the Act’s effective date at which time it will be posted on the OGS website.

By making a submission in response to this offering or by assuming the responsibility of an contract/agreement hereunder, each Vendor/Bidder/Contractor, any person signing on behalf of any Vendor/Bidder/Contractor and any assignee or subcontractor and, in the case of a joint bid, each party thereto, certifies, under penalty of perjury, that once the Prohibited Entities List is posted on the OGS website that to the best of its knowledge and belief that each Vendor/Bidder/Contractor and any subcontractor or assignee is not identified on the Prohibited Entities List created pursuant to SFL § 165-a(3)(b).

Additionally, Vendor/Bidder/Contractor is advised that once the Prohibited Entities List is posted on the OGS Website, any Vendor/Bidder/Contractor seeking to renew or extend a Contract or assume the responsibility of a Contract awarded in response to this offering must certify at the time the Contract is renewed, extended, or assigned that it is not included on the Prohibited Entities List.

During the term of the agreement or contract, should the City receive information that a Vendor/Bidder/Contractor is in violation of the above-referenced certification, the City will offer the person, vendor, or entity an opportunity to respond. If the person, vendor, or entity fails to demonstrate that he/she/it has ceased engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then the City shall take such action as may be appropriate including, but not limited to, imposing sanctions, seeking compliance, recovering damages or declaring the Vendor/Bidder/Contractor in default.

The City reserves the right to reject any bid or request for assignment for a Vendor/Bidder/Contractor that appears on the Prohibited Entities List prior to the award of a contract and to pursue a responsibility review with respect to any Vendor/Bidder/Contractor that is awarded a contract and subsequently appears on the Prohibited Entities List.

I, _____, being duly sworn, depose and say that I am the _____ of, _____ the vendor making this submission and that neither Vendor/Bidder/Contractor nor any proposed subcontractor is identified on the Prohibited Entities List.

Authorized Signature

Sworn to before me this ____ day of _____, 20____

Notary Public

NON-SUBMISSION CERTIFICATE

Instructions

- 1. Place an X on the appropriate line(s) below.
- 2. Complete and return ONLY this page of the package.
- 3. Make sure to place your submission number on your envelope and return it to the Purchasing Division NOTE: It is required that you indicate your reason for not making a submission.

_____ We are not making a submission.

_____ We request that you remove our name from the mailing list for this offering only.

_____ We request that you remove our name from the mailing list for all future offerings made by the City.

VENDOR NAME: _____

ADDRESS: _____

CITY, STATE, and ZIP CODE: _____

REASON FOR NOT MAKING A SUBMISSION:

SIGNATURE: _____

**INSTRUCTIONS FOR CITY OF NIAGARA FALLS STANDARD INSURANCE
CERTIFICATE**

Standard Insurance Requirements apply to the following classifications:

- Construction and Maintenance
- Purchase of, or lease of merchandise or equipment Professional Services
- Property Leased to others or Use of Facilities or grounds Concessionaire Services
- Livery Services
- All Purpose Public Entity Contracts

The Provider of any of the above classifications shall obtain, at his own costs and expense, the following insurance coverage with insurance companies licensed in the State of New York with a Best Rating of at least B+ and shall provide a Certificate of Insurance as evidence of such coverage to the City of Niagara Falls before commencement of work and/or lease or delivery of merchandise or equipment.

Certificate should be delivered to the City of Niagara Falls, New York, 745 Main Street, Rom 214, Niagara Falls, New York 14301 and should reference the contract, bid, quote, RFP or operation being performed.

Prior to non-renewal, cancellation of insurance policies, or material change, at least 30 days advance written notice shall be given to the Certificate Holder.

All Certificates of Insurance shall be approved by the Risk Management Department prior to the inception of any work. Minimum coverage with limits and provisions are as follows:

A. Comprehensive General Liability: With a minimum combined single limit of liability for Bodily Injury and Property Damage of \$1,500,000.00 per occurrence and \$3,000,000.00 annual aggregate. The coverage shall include:

- Premises and Operations
- Products and Completed Operations
- No exclusion for X C U coverage (explosion, collapse and underground)
- Independent Contractors
- Broad Form Property Damage
- Contractual Liability
- Fire Legal Liability (Covered by a standalone limit of \$1,000,000)
- Personal Injury Liability (Cov. A, B and C)
- Liquor Liability (if alcoholic beverages are to be dispensed under NYS License.)
- If the work to be performed is undertaken pursuant to a home improvement contract and a City right-of-way permit is required only by reason of the installation, repair or

replacement of a driveway, apron, or sidewalk within the City right-of-way, then the limits of liability for comprehensive general liability set forth in this section shall be \$1,000,000 per occurrence and \$2,000,000 annual aggregate.

The City of Niagara Falls shall be named as an Additional Insured on the General Liability Policy with the following provisions:

1. The insurance company or companies issuing the policies shall have no recourse against the City of Niagara Falls for payment of any premiums or for assessments under any form of policy.
2. The insurance shall apply separately to each insured (except with respect to the limit of liability).

B. Auto Liability: (if licensed vehicles are to be used in the operation) With a combined single limit for Bodily Injury and Property Damage of \$1,000,000.00 each occurrence, the coverage shall include Owned, Hired and Non-owned autos (Symbol 1 should be designated for Liability Coverage on Business Auto Policy).

C. Excess Umbrella Liability: If General Liability and/or auto limits are lower than required in the above sections, Umbrella Liability or Excess Liability to the required limit is acceptable.

D. Owners Protective Liability: (on contracts for construction which exceed a cost of \$100,000) With a minimum limit of \$1,500,000.00 each occurrence and \$3,000,000.00 aggregate. Named insured shall be the City of Niagara Falls, New York.

E. Professional Liability: If the contract includes professional services (engineers, architects, etc.) contractor will carry professional liability insurance with a minimum limit of one million dollars (\$1,000,000.00).

F. Property Insurance: (if applicable) Contractor shall purchase and maintain property insurance upon the work at or off the site to 100% of the contract completed value. This insurance shall include the interest of the Owner, Contractor, and Subcontractors in the work; shall insure against the perils of fire and extended coverage; shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage. All such insurance required by this paragraph shall remain in effect until the work is completed and accepted by the Owner.

G. Statutory Workers' Compensation and Employers Liability: All contractors doing business with or vendors entering upon City of Niagara Falls property shall carry the above insurance, in compliance with the Workers' Compensation Law of the State of New York.

H. Performance and Payment Bond: (if specified in bid request) A performance and payment bond shall be issued by a Surety company who is licensed by the Insurance Department of the State of New York in favor of the City of Niagara Falls in the amount of not less than

\$150,000.00 or 10% of the total amount (whichever is higher) and shall be delivered before commencement of lease or assumption of operations under contract.

**NOTE: IF THE CONTRACT IS FOR PROFESSIONAL SERVICES ONLY,
(ENGINEERS, ARCHITECTS, ETC.,) PARAGRAPHS D, F AND H WILL NOT APPLY.**

Revised 02-16-2018