

Provide **Self Contained Breathing Apparatus and Equipment in the quantities noted.** All items provided shall be compliant to NFPA 1981 Standard on Open-Circuit Self Contained Breathing Apparatus (SCBA) for Emergency Services 2013 Edition.

**The attached performance requirements are in the opinion of the Town to be the ideal SCBA. These requirements are determined by the SCBA selection committee. The offeror of SCBA's to the Town shall describe in detail the 8 subassemblies, training, warranty authorization and all relevant matters identified in this RFP and their compliance and deviations with each statement below.**

### **General Self-Contained Breathing Apparatus Requirements**

The purpose of this bid specification is to establish the minimum requirements for an open-circuit self-contained breathing apparatus (SCBA). The SCBA shall consist of the following major sub-assemblies: (1) full face-piece assembly; (2) a removable, face-piece-mounted, positive pressure breathing regulator with air-saver switch; (3) an automatic dual path redundant pressure reducing regulator; (4) end-of-service time indicators; (5) voice amplifier; (6) PASS Device; (7) a harness and back frame assembly for supporting the equipment on the body of the wearer, a shoulder strap mounted, remote gauge indicating cylinder pressure; (8) a rapid intervention crew/ universal air connection (RIC/UAC); and (9) cylinder and valve assembly for storing breathing air under pressure; (10) personal accountability system; and (11) personnel tracker/locator.

#### (1) Full face-piece assembly

The Town desires face pieces to be constructed of lightweight material; they shall be available in small through large sizes.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ **Explain Deviation from Specification Here**

Head harness shall be 4 point adjustable or equivalent. Nose cups shall be removable and come in sizes small through large.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ **Explain Deviation from Specification Here**

Lens shall be a universal size to fit all sizes of mask to reduce inventory and provide the widest effective field of view.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ **Explain Deviation from Specification Here**

A flame resistant neck strap shall also be included.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ **Explain Deviation from Specification Here**

Heads Up Display shall be plainly visible from inside the face piece.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ **Explain Deviation from Specification Here**

Face piece shall be capable of accepting eyeglass inserts.

**Complies with Specification**

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Yes \_\_\_\_\_ No \_\_\_ **Explain Deviation from Specification Here**

Face piece shall be designed so that no cross contamination of the regulator occurs.

**Complies with Specification**

Yes \_\_\_\_\_ No \_\_\_ **Explain Deviation from Specification Here**

Face piece shall include a speaking diaphragm and exhalation valve and a RFID chip for asset and maintenance tracking.

**Complies with Specification**

Yes \_\_\_\_\_ No \_\_\_ **Explain Deviation from Specification Here**

(2) Removable, face-piece-mounted, positive pressure breathing regulator with air-saver switch; Positive Pressure Breathing regulator (Second stage)

The Town desires a Mask-Mounted Regulator (MMR) that is Push-to-Connect design. When doffing regulator the MMR shall simultaneously stop air flow and release regulator.

**Complies with Specification**

Yes \_\_\_\_\_ No \_\_\_ **Explain Deviation from Specification Here**

The Town desires that the MMR house the microphone and HUD system.

**Complies with Specification**

Yes \_\_\_\_\_ No \_\_\_ **Explain Deviation from Specification Here**

MMR shall be equipped with variable flow bypass. MMR shall be able to be mounted on either side of harness at the direction of the Town

**Complies with Specification**

Yes \_\_\_\_\_ No \_\_\_ **Explain Deviation from Specification Here**

MMR shall be equipped with positive protection Tetraplex Shield membrane that covers diaphragm, preventing permeation of CBRN agents.

**Complies with Specification**

Yes \_\_\_\_\_ No \_\_\_ **Explain Deviation from Specification Here**

MMR shall have optional RFID chip for asset and maintenance tracking.

**Complies with Specification**

Yes \_\_\_\_\_ No \_\_\_ **Explain Deviation from Specification Here**

The Town desires the most simplistic MMR design that minimizes necessary parts and are easily replaceable without special tools.

(3) Automatic dual path redundant pressure reducing regulator (FSR)

The Town desires a first stage regulator (FSR) assembly that is constructed with a minimum of parts and requires no special tools for maintenance and repair.

**Complies with Specification**

Yes \_\_\_\_\_ No \_\_\_ **Explain Deviation from Specification Here**

The FSR shall incorporate downstream valve to ensure fail-safe design when in open position.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

The FSR shall incorporate bell alarm mechanism and be air-actuated, continuously ringing audible warning alarm, automatically operating when supply cylinder air pressure reaches approximately 35% of rated service life.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

The Bell alarm mechanism shall cover multiple levels of frequencies to cover all hearing levels. The Bell alarm mechanism shall be user-accessible while wearing SCBA.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

The FSR shall have a maximum flow for ease of breathing the Town anticipates a flow of 700 liters per minute at full pressure.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

Pressure reducer shall have two options for cylinder connection type: threaded or quick-connect. Quick-connect connection shall not be removable from cylinder while under pressure.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

Pressure reducer shall have two options for cylinder connection location: remote connection or direct connection.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

Pressure reducer shall be capable of converting from threaded to quick-connect or vice versa.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here.**

Pressure reducer body shall be constructed of high-strength aluminum alloy and anodized with Teflon hard coat to minimize corrosion and wear of internal and external components.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

Pressure reducer shall be sealed system that does not allow moisture to enter valve components. Pressure reducer shall have two accessory ports, one medium pressure and one high pressure.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

(4) HUD/End-of-service time indicators

The Town desires Heads-Up Display (HUD) System and End of Service Indicators (EOSTI) be integrated within the MMR to reduce snag hazards and to not obstruct the field of view of the face piece.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

The HUD shall be powered by a reliable means.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

HUD System shall be designed so as not to cross connect to other firefighters SCBA.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

HUD System shall be immune to radio frequency interference (RFI) and must function properly in close proximity to fire service hand-held radios.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

HUD system shall provide user with remaining cylinder air volume, available in four increments through series of four colored LEDs:

- o Four green lights 76 to 100% cylinder volume
- o Three green lights 51 to 75% cylinder volume
- o Two flashing amber lights 36 to 50% cylinder volume
- o One flashing red light 0 to 35% cylinder volume

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

HUD status indicators shall be icon-based and display battery life warning, PASS alarms, EVACUATE indicator, and secondary alarm indicator.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

HUD shall incorporate photoelectric sensor that senses ambient light conditions, automatically adjusting display to one of multiple pre-programmed light intensities.

Buddy lights shall be visible from outside of firefighter's facepiece.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

HUD system shall allow user to select from four modes of operation:

- 1) Continuous pressure mode that shall always have pressure LEDs on.
- 2) Intermittent pressure mode that shall turn on first three increments when reached for 20 seconds.
- 3) Oscillating pressure mode that shall brighten and dim LEDs every 20 seconds.
- 4) Mixed pressure mode that shall turn on first two increments when reached for 20 seconds and last two increments are in continuous mode.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

HUD shall be field-removable and replaceable without use of special tools.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

(5) Voice Amplifier

The Town intends to purchase fully compliant state of the art Voice Amplifiers. It shall be integrated into the MMR with a remote speaker location.

The voice amplifier shall not cross connect to another user's remote speaker location.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

(6) PASS Device

The Town intends to purchase fully compliant state of the art PASS Devices.

They shall include an easily replaceable battery or power module.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

The Town desires this module to be the central power system for the SCBA in as much as is possible. The Town expects a useful battery service life of 4 to 6 months. Battery life or condition shall be visible to the user.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

PASS shall include an analog and digital display showing cylinder pressure and be easily viewable to the user. Digital display shall be color coordinated with the HUD.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

PASS shall be equipped with dual reset buttons.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

PASS shall be capable of being reprogrammed to fire department standard operating procedures (SOP). Using PC software program, configuration tag can be created and tagged on each device needed. Reprogramming options are as follows:

- 1) Medium pressure alarm.
- 2) Pressure drop alarm.
- 3) Primary temperature alarm.
- 4) Secondary temperature alarm.
- 5) Audible low pressure alarm

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

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PASS device shall be equipped with buddy lights on firefighter's front and back and viewable from 360° view; two buddy lights on front of user and four buddy lights in back of user.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

PASS device shall have colored buddy lights: green (pressure above 50% and no alarms), yellow (pressure between 36 and 50%) or red (below 36% or alarms are active).

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

Power module shall be equipped with dual sound emitters; sound emitters shall perform at minimum 100 dBa in room temperature.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

PASS device shall be capable of storing up to 25 hours of use information in event log form that are generated each time SCBA is pressurized. Event logs must indicate on/off cycles, alarms, alarm reset, and tagging events.

PASS device shall be capable of storing periodic logs. Periodic logs must indicate cylinder pressure for each SCBA pressurization stored at 15-second intervals.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

PASS device's event and periodic logs shall provide ability to download to personal computer for maintenance records or for use in incident investigations.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

PASS device shall be immune to radio frequency interference (RFI) and must function properly in close proximity of fire service hand-held radios.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

PASS device shall have optional time-remaining display. Time remaining function must update calculations every 30 seconds based upon user's previous three minutes of air consumption. Initial calculation will appear after three minutes. Calculations can be made to zero pressure, low pressure alarm or medium pressure alarm.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

PASS device shall employ gasket perimeter seal to provide highest protection level against water ingress, while providing ability to upgrade or repair electronics.

PASS device shall be capable of electronically storing user's name into memory via ID tag.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

PASS device shall be removable with no more than two screws.

Control module shall have service mode that provides ability to see number of hours used, connect to PC and firmware versions.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ Explain Deviation from Specification Here

Control module shall incorporate rubber boot for added protection and is to be replaceable.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ Explain Deviation from Specification Here

Power and Control Modules shall have optional RFID chip for asset and maintenance tracking.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ Explain Deviation from Specification Here

(7) **Harness and back frame assembly for supporting the equipment on the body of the wearer**

The Town desires an ergonomic back pack frame and strap assembly that is easily adjustable to the wide array of sizes of personnel.

Shoulder harness shall have separate left and right pads for easier and less costly replacement.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ Explain Deviation from Specification Here

Shoulder harness shall have retro-reflective markings for better visibility within low light conditions. Shoulder harness shall have localized friction pads on shoulders to prevent slippage.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ Explain Deviation from Specification Here

Shoulder harness shall be serviceable tunnel design to easily remove and replace components. Shoulder harness shall retain color stability up to 600 degrees Fahrenheit.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ Explain Deviation from Specification Here

Shoulder harness shall be constructed of Kevlar webbing and include a horizontal chest strap. Shoulder harness shall include an accessory attachment point available for face piece or pouch

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ Explain Deviation from Specification Here

Waist pad shall be an Adjustable swiveling design; standard pad attached to metal bracket that has three positions and automatically centers.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ Explain Deviation from Specification Here

Adjustable swiveling waist pad shall be one-handed operation and can be performed while on user's back. Back plate shall have two side handles and one top handle that are accessible with gloved hand. Back plate side handles shall be capable of 500 lbs. of force.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ Explain Deviation from Specification Here

Back plate top handle shall be capable of 1000 lbs. of force.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

Back plate cylinder band shall be constructed of metal.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

Waist pad shall be of rigid construction to allow for easy donning and support. Waist straps shall be double-pull forward design. Harness design shall have regulator keeper for storage that can be attached to waist strap or chest strap. Regulator keeper shall allow regulator to be connected at any angle.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

(8) Rapid intervention crew/ universal air connection (RIC/UAC) and trans fill hose.

The Town desires a Rapid intervention crew/ universal air connection (RIC/UAC) connection for each SCBA.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

This connection shall refill within immediately dangerous to life or health (IDLH) atmospheres. It shall be capable of trans filling between two SCBA wearers (connection allows for donation and receipt of air), and providing emergency breathing system (EBS) while maintaining NIOSH approvals.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

It shall be capable of quickly refilling (approximately one-minute duration) SCBA cylinder from mobile compressor, cascade system or RIT pack and extending wearer's air supply over longer duration when remote cascade system or other compressed gas source is located within remote area.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

The primary UAC shall be illuminated when supply pressure reaches Low Pressure Warning Alarm or can be configured to optional medium pressure warning alarm. SCBA shall have secondary options for UAC to be mounted on user's waist. Power module shall be capable of illuminating UAC fitting when supply cylinder reaches 35% of rated service time.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

Each SCBA shall be equipped with a transfill hose capable of filling the cylinder, while being worn, from another cylinder. The hose shall have female couplings that connect in an airtight manner to the UAC. A female coupling shall be provided on each end of the transfill hose. Dust-tight and smoke-tight rubber or similar caps shall be provided for each female coupling. A harness-mounted carrying pouch or other positive-retention method shall be provided for the transfill hose. The retention method shall prevent accidental deployment or loss of the transfill

hose. The transfill hose and the female coupling caps shall be readily accessible and shall be easily operated by a firefighter wearing structural firefighting gloves. The hose shall be heat-resistant to ensure operability in interior firefighting conditions.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ **Explain Deviation from Specification Here**

**OPTIONAL – Buddy Breathing System**

A buddy breathing system may be provided as an option. If provided, the buddy breathing system shall be in addition to the transfill/UAC hose and fittings.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ **Explain Deviation from Specification Here**

The buddy breathing system shall operate in a manner that provides a direct hookup between the donor and receiver SCBA without interrupting the air supply of the donor SCBA or requiring either firefighter to break their mask seal or otherwise operate their SCBA in an unsafe manner.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ **Explain Deviation from Specification Here**

The buddy breathing system shall be available on the opposite side of the SCBA as the UAC.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ **Explain Deviation from Specification Here**

(9) Cylinder and valve assembly for storing breathing air under pressure.

Cylinder shall be constructed of deep-drawn, seamless aluminum liner that is fully wound over entire surface (except for thick neck area) with high-strength carbon fiber filaments impregnated with epoxy resin. Cylinder shall be 4500 or 5500 psig 45 minute design and duration. Cylinder shall contain cylinder valve that shall incorporate pressure gauge to indicate cylinder pressure at all times. Pressure gauge face shall be luminescent. Hand wheel shall be placed at 90° angle from cylinder axis. Cylinder valve shall be available in two options: threaded or quick connect. Cylinder valve shall incorporate flow control insert to limit air flow over hand wheel's first half-rotation, minimizing propulsion thrust in event that cylinder is mishandled. Cylinder valve shall incorporate CGA thread that can be converted to quick-connect cylinder without special tools.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_ **Explain Deviation from Specification Here**

(10) Personnel Accountability System

The Town desires an integral personnel accountability system within each SCBA. This accountability system shall utilize Town provided RFID tags. The system shall assign a firefighter to an SCBA. The SCBA shall be programmable to transmit an apparatus riding position and name to a central location presumed to be the incident commander. The system shall be capable of showing each users cylinder pressure, time on scene, PASS alarm status, and record all relevant incident data. The system shall be capable of acknowledging PASS activations, transmitting evacuation messages and confirmations. The Town desires to purchase (3) complete Personnel Accountability Systems; Please respond to this request in the form of Executive

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Summary regarding the capabilities, limitations, recurring costs and necessary components relating to your Personnel Accountability System.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

(11) Personnel Tracker/ Locator

The Town desires a geographical SCBA locator for the purpose of located downed and distressed firefighters. The System shall have a distress transmitter integrated into the SCBA and a hand held or otherwise portable receiver. The Town desires to purchase up to 6 Personnel Tracker Receivers. Please respond to this request in the form of Executive Summary regarding the capabilities, limitations, recurring costs and necessary components relating to your Pack Tracker/ Locator.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

(12) Warranty

The Town desires a comprehensive and complete, all inclusive warranty for all SCBA components, cylinders, face pieces, interactive, diagnostic, and repair software and hardware for a minimum of 10 years from acceptance. Please respond to this request in the form of Executive Summary regarding the specific warranty period, its inclusions, exclusions and any requirements to maintain the warranty.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

(13) Maintenance

The Town presently performs routine maintenance, performance flow testing, and emergency repair to SCBA's and intends to perform the same on the SCBA purchased from this RFP. Please respond to this request in the form of Executive Summary regarding necessary tools, and equipment such as software and hardware, the process for securing parts and components and the process for labor reimbursement for warranty repairs and all cost associated with certification and purchase of items to fully and comprehensively act as a recognized repair and warranty center for the purpose of servicing and repairing Town owned SCBA's and accessories.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

(13) User and Maintenance Training

The Town requests end user and maintenance/repair training for its personnel. Approximately 125 Fire Rescue personnel will require user training, and approximately 12 personnel will require maintenance and repair training. Please respond to this request in the form of Executive Summary regarding the subject matter, time required, and special needs required for providing end user and maintenance/repair training. Please describe required recurring training for the subject matter, required cost and location of this training.

**Complies with Specification**

Yes \_\_\_\_\_

No \_\_\_\_ **Explain Deviation from Specification Here**

