Project Number: 18-PFD-1
Exhaust Fume Removal System
Project Site: Plympton Fire Department/Station, 3 Palmer Road, Plympton, MA 02367

ADDENDUM ONE

General Description:
The selected Contractor must purchase and install a complete exhaust fume removal system at the Plympton Fire Station (built circa 1974), including any required electrical control panels, filters, blowers, sensing devices, duct work, door brackets, door switches, rails, high visibility hoses, and anything else as necessary to affect an appropriate installation, as described herein, including all miscellaneous items incidental to the work. Contractors may visit the Plympton Fire Station Monday through Friday between 8:00 a.m. and 4:00 p.m. should they want to view the building. No appointment is required, please check in at their office located at the front of the building.

General Specifications include:
There are three (3) bays that are two (2) vehicles deep = six (6) vehicles.

System may be a direct source capture **or** filtration (hose free) system, must be designed to work for fire apparatus with under carriage exhaust that operate in back-in mode. Responses shall be for a complete system installation, turn key ready.

If Direct Source Capture System:
The contractor shall modify tail pipes as required to accommodate tail pipe nozzle supplied with direct source capture emergency vehicle exhaust system and shall provide and install a pneumatic nozzle type source capture emergency vehicle exhaust fume removal system for six (6) fire vehicles/apparatus. The six (6) systems shall use a pneumatic sliding balancer track type.

Contractor shall provide and install automatic start control panel (UL listed), exhaust blower(s) and air filtration system(s) to reduce the diesel exhaust particulate from the exhaust blower discharge. As the vehicles leave the fire station, the flexible 4" or 5" diameter high visibility exhaust hose equipped with a pneumatic nozzle shall move towards the exit door along the ceiling mounted aluminum track, the traveling trolley shall glide along the tack with a spring coiled balancer that supports the hose. The balancer must keep the exhaust hose away from the exiting apparatus. Mounted to the aluminum track shall be an uncoupling release valve that automatically releases compressed air from the pneumatic nozzle allow a smooth uncoupling of the nozzle at the threshold of the exit door regardless of the speed the vehicle may exit the building.

Upon return to the fire station, the flexible exhaust hose equipped with a pneumatic nozzle is attached to the vehicle's exhaust tail pipe and inflated with a manual control by an operator standing in an upright vertical position at the entrance door. When the pneumatic nozzle is attached to the vehicles exhaust tailpipe, the exhaust blower will automatically start to ensure total collection of exhaust gases prior to vehicle entering the building. The vehicle can then be positioned in its designated parking position.

The track must be extruded aluminum to resist corrosion with channel to accept ball bearing rollers of the travelling trolley, rubber impact end stops are to be mounted on each end of the track, the travelling trolley shall be galvanized steel assembly with upper ball bearing wheels to fit inside track extrusion and lower ball

bearing wheel to fit on outside of track extrusion to prevent rocking or shifting of the trolley as it moves along full length of track.

Flexible high visibility hose shall not exceed 5" in diameter for each of handling and to minimize space requirements on the apparatus floor. Wire helix must be bound and protected in lamination to further protect hose, hose with exposed wire helix is not acceptable for safety reasons, hose shall be rated for 400 degrees Fahrenheit continuous, 500 degrees Fahrenheit intermittent temperature to ensure the exhaust fumes do not deteriorate the hose and/or leak. Pneumatic nozzle to connect to the vehicles' tailpipes shall be constructed of high temperature synthetic rubber and designed to inflate and deflate.

Two (2) different size pneumatic nozzles must be available, 6.25" and 8" to accommodate new tailpipe sizes of fire apparatus/vehicles. **Pneumatic nozzle must be tested for effectiveness to capture the exhaust fumes by an independent testing agency and a copy of the test report must be included with the response.**

The transition from the nozzle to the flexible hose shall be completely seam-welded construction to prevent leaks of fumes, spot welded construction is not acceptable. The Transition is to keep the hose from sagging and excessive fatigue, transition shall have a metal debris screen to prevent foreign material from damaging the flexible hose or exhaust blower. The transition shall be chrome plated for durability.

The spring balancer that supports the hose assembly must be enclosed type with stainless steel cable. Manual inflation/deflation valve shall be sliding type with push button for manual inflation of the nozzle. The valve is to incorporate handle that the operator can easily operate form a standing position to connect the nozzle to the tailpipe of the apparatus.

The automatic start control panel shall contain the motor starter, overload, solid-state circuit card with timer adjustments from 30 to 360 seconds, fused low voltage transformer, in a NEMA 12 rated key lock electrical enclosure. Soft touch AUTO START-STOP-MANUAL RUN membrane controls shall be on the face of the control panel. Control panel must have system indicator LED lights on the soft touch membrane control, including for Auto Start, Fan On, Stop, Manual Run and No Airflow Alarm. The low voltage sensors shall signal the start of the exhaust blower. Control panel must not utilize or produce electrical frequency transmission because it may interfere with communications equipment. Controls that require electrical or pneumatic devices installed on the vehicle to active the exhaust blower are not permitted, as these after-market devices may cause interference with original equipment and a delay in response time.

The exhaust blower shall be 7.5HP 208-240 Volt, single phase, 3450 RPM TEFC direct drive type motor, designed to deliver 2500CFM at 8.2 inches E.S.P. The inlet shall be 9 13/16" diameter and the outlet shall be 10" diameter. Construction shall be class B spark resistance with powder coated steel housing and aluminum wheel with shaft seals.

An air filtration system shall be designed to reduce the diesel exhaust particulate (soot) from the exhaust blower discharge. The cabinet shall be 20-gauge galvanized steel and shall provide easy access to filter inside, shall be supplied with a micro fiberglass bag filter 20" x 20" x 36" deep.

Duct work to connect the exhaust blower to the hose assembly or multiple hose assemblies must be round industrial spiral duct, defined in SMACNA industrial duct construction to prevent deflection under use. Duct work to be of the taper design to maintain constant velocities without the need for dampers to balance the system. All joints must conform to SMACNA's Class 3 leakage standards to provide a positive leak proof seal.

The size and gauge of duct work shall be in accordance with the manufacturer's specifications to ensure the proper operation for the specific exhaust removal systems being quoted that meets the above characteristics and complies with applicable industry standards and local, state and federal regulations.

If Air Filtration (Hose Free) System:
-**Three (3)** ceiling mounted re-circulating air filtration systems with vertical air flow design.

-**Three (3)** four stage filtration systems, each including a pre-filter (3-ply polyester construction), main media filter ("HEPA MAX 3000" or equivalent, high efficiency particulate air filter, tested for 0.3 micrometer sized particles to yield a minim efficiency of up to 95%), and gas-phase extractor (blended gas phase extractor, "MULTISORB 3000" or equivalent, 50/50 respirator grade with activated carbon granules for removal of high weight molecular gases within diesel exhaust and with potassium permanganate for removal of light weight molecular gases)

-**One (1)** Cabinet with welded steel construction, four adjustable airflow grills, powder coat paint finish, two hinged access panels, one to the filter bank and the other to the motor blower unit, a magnehelic static pressure gauge to allow user to visually check status of the filter bank, quick latch filter compartment.

-All required electrical components (at least ¾ H.P., 1725 RPM, 13.6 F.L. AMP, 115 Volt Single Phase Electric Motor, must be UL Listed with thermal protection and resilient mount)

-All required blower(s), control panel(s), required activation switches/sensing devices.

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Complete installation and demonstration of how to utilize the equipment is included as part of this Scope of Work. The Town will be responsible for obtaining any necessary permits. For informational purposes, the Fire Station has three (3) bays that are each two (2) vehicles deep.

SUBMITTALS:

1. Shop drawings and manufacturer's literature.

The selected Contractor shall be licensed and insured, provide a 50% payment bond IF the contract is greater than $25,000, shall possess any required OSHA training, shall adhere to the attached Massachusetts Prevailing Wage Rates and shall follow all of the applicable provisions of M.G.L. c. 149.

Responses are due by 10:00 a.m. on Wednesday, October 10, 2018. Contractors may utilize their own price proposal format. Please submit to the following location:

Plympton Town House
Attn: Town Administrator's Office
5 Palmer Road
Plympton, MA 02367