Virginia Association of Counties

ACHIEVEMENT AWARDS

APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 2, 2017.** Please include this application form with electronic entry.

PROGRAM INFORMATION

County: County of Henrico

Program Title: Fire Apparatus Diesel Particulate Filter Reprocessing

Program Category: Transportation

CONTACT INFORMATION

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Title: Management Specialist

Department: County Manager's Office

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SIGNATURE OF COUNTY ADMINISTRATOR OR CHIEF ADMINISTRATIVE OFFICER

Name: John A. Vithoulkas

Title: County Manager

Signature:

1. Program Overview

Our ambulance fleet requires the diesel particulate filtration systems to be serviced on an annual basis. These systems exist to help ensure compliance with the latest environmental regulations related to limiting exhaust emissions, especially from diesel engines. With each hour of operation of the vehicle, soot and exhaust particulate collect on the filter media. As this accumulates, the efficiency of engine operation and the effectiveness of the filtration process can be compromised, requiring cleaning and maintenance.

The local dealer can perform this service; however, this comes at a cost. Each diesel particulate exhaust service cleaning costs approximately $1,000. Additionally, the unit is unavailable for official emergency response use for two days. An alternative method to meet these environmental regulations was needed to ensure stewardship of our maintenance funds and to get these units back into action for the safety of our community.

The Fire Shop's objective was to reduce the out-of-service time and potentially save money by performing this service in house with a special machine. After researching several machines, we found a new "on-vehicle" cleaning system made by BG Products. This machine would allow the filter assembly to remain on the ambulance instead of having to remove it, saving significant time and labor costs.

In cooperation with our local distributor, we conducted a test at our facility. During this test, we performed a before-and-after evaluation on two separate ambulances and could both visualize the difference in the DPF and see noticeable improvements in how the vehicle ran and operated. After purchasing this device, it has been implemented to be used on all annual services of our ambulances that are equipped with these filters. This directly impacts ten out of our current fifteen front-line ambulances.

2. Problem/Challenge/Situation Faced by Locality

Our ambulance fleet requires the diesel particulate filtration systems to be serviced on an annual basis. These systems exist to help ensure compliance with the latest environmental regulations related to limiting exhaust emissions, especially from diesel engines. With each hour of operation of the vehicle, soot and exhaust particulate collect on the filter media. As this accumulates, the efficiency of engine operation and the effectiveness of the filtration process can be compromised, requiring cleaning and maintenance.

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3. **How Program Fulfilled Awards Criteria**

This program showcases a joint effort between the Fire Shop, Central Automotive Shop, and an outside vendor to save time and money on our equipment. While the fiscal savings are an excellent benefit, the amount of time that we reduce our ambulance fleet being out of service is the real success for our community. Accounting for the 24-hour service that our ambulances provide, we save approximately 470 hours annually that directly go to allowing our ambulances to provide service to our citizens.

4. How Program Was Carried Out

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5. Financing and Staffing

In addition to economic pressure, good stewardship requires that the department be responsible in managing available resources. This includes both direct expenditures and indirect costs associated with apparatus maintenance. With this new process, we lowered costs and maximize in-service time for our fleet.

The BG 5000's initial cost was $4,900. Each service costs $220 in consumable cleaning products and requires a one-hour time investment of the CAM Technician at the rate of $53.00. This gives us an annual operating cost of $2,730 for the current fleet of ten ambulances, as compared with the approximate annual expense of $10,000, previously paid to local dealers.

The comparative cost analysis for direct costs illustrates that the capital investments associated with this program pays for itself after the first seven uses, or approximately six to eight months. We forecast a cumulative savings of just over $10,000 after the second year of full operation, not to mention the drastic decrease in apparatus downtime and expenses associated with transporting the units to the outside vendors.

6. Program Results

Since we have started this program, only one DPF-related cleaning or repair service has been performed by a local dealer. The services are currently being performed at the annually-scheduled maintenance service for the ambulances. We have seen that this service can be done at the Fire Shop in one hour instead of having the unit at the dealer for a minimum of two days. This time savings alone is worth the cost of the machine, but we are also realizing a substantial annual cost savings.

7. Brief Summary

In 2016, the Henrico County Division of Fire Apparatus Shop began to explore how to reduce downtime and save repair expenses on annual vehicle servicing. One avenue explored was to decrease the amount of time units spent at commercial vendors for repairs and services. The Fire Shop decided to experiment with an aftermarket cleaner of the diesel particulate filter (DPF) systems on our ambulance fleet. After a test of this system, it was decided to purchase this machine and perform this service in house on all of our ambulances. Since that time, only one vehicle has been sent to a local dealer for DPF service; previously, approximately ten trips a year were made to the local dealer. This has resulted in a significant cost savings and reduction in out-of-service downtime for maintenance.