OFFICES OF THE COUNTY EXECUTIVE

Douglas M. Duncan
County Executive

Bruce Romer
Chief Administrative Officer

MEMORANDUM

April 7, 2004

TO: Steven A. Silverman, President
Montgomery County Council

FROM: Bruce Romer
Chief Administrative Officer

SUBJECT: Fire and Rescue Apparatus Management Plan

In response to the Office of Legislative Oversight's (OLO) recent report, dated January 27, 2004, on the inspection, maintenance and repair of fire and rescue service vehicles, County Council in a memorandum, dated February 10, 2004, requested that the CAO provide a comprehensive, multi-year plan for improving Montgomery County Fire and Rescue Service's (MCFRS) apparatus management practices on or about April 1, 2004.

I am pleased to submit the MCFRS Apparatus Management Plan. The Plan is comprehensive in responding to the issues found in the OLO report and sets forth the tasks that need to be accomplished to achieve "best practices" in fleet maintenance mentioned in the OLO report and your memorandum of February 10, 2004.

Background

The report provides a brief summary of the OLO report and its findings. Among the major problems OLO noted were that the MCFRS fleet: routinely failed to meet the daily count for mission critical apparatus; does not meet the standards of readiness and capability to meet surge demand if needed; is an aging fleet of vehicles that is serving a rapidly increasing demand for services in a growing community; is served by a decentralized maintenance structure that is entrepreneurial in maintaining its assigned apparatus but lacks standardization of reporting, preventive maintenance, inspections and testing resulting in uneven performance and outcomes; is served by various arrangements including vendor and LFRD-employed mechanics working in cramped and obsolete facilities; and is in need of an apparatus replacement schedule which is implemented on a regular basis. While MCFRS policies refer to vehicle performance standards, there has

been no MCFRS staff assigned to focus on vehicle inspection, maintenance, repair and readiness across the MCFRS fleet until an Assistant Fire/Rescue Chief was assigned to address these issues in May 2003. Significant progress has been made as a result of centralizing some authority and oversight on improving apparatus performance and readiness.

Executive Summary

The MCFRS Apparatus Management Plan addresses the need for centralized authority and accountability. The County Executive's recommended budget includes the establishment of the Assistant Fire/Rescue Chief for apparatus to provide focus, management and direction to fire and rescue fleet maintenance. This authority is to be reinforced with the recommendation that funding for LFRD vehicle management be consolidated and controlled by the Assistant Chief. Consideration and further analysis is recommended for the planned transition of LFRD mechanics to County employment to work in a consolidated MCFRS fleet organizational structure. Additional technical and support staff for MCFRS apparatus maintenance may be necessary as tasks involving replacement apparatus and equipment, vocational equipment testing and inspections, apparatus maintenance records management, regular vehicle condition and defect reports, regularly scheduled preventive maintenance and inspections, component and routine parts supplies and inventory, and facility improvements are implemented.

The Plan provides a discussion of the major components of best fleet management practices. Each of the components is discussed in detail, which includes a summary of the tasks to be accomplished and a recommended time frame. At the conclusion of each major component, the tasks are summarized in a generalized sequence of near term tasks (i.e. FY05), short term tasks (i.e. FY06) and long term tasks (FY07-10).

The major components discussed in this report include: Personnel; Information Technology-Apparatus Records Management System; Apparatus Replacement; Preventive and Predictive Maintenance; Driver Training Enhancements; Parts Inventory; Facilities; Facility Environmental Management Systems – ISO 14001; Fuel Management; Tools, Equipment and Appliances for Apparatus; Vocational Component Testing; Shop Tools and Equipment; Small Tools and Self-Contained Breathing Apparatus (SCBA) Maintenance; and Light Duty Vehicle Maintenance and Repair.

In addition, the report was discussed and reviewed with the Department of Public Works and Transportation, Division of Fleet Management Services. Included in the report are opportunities for coordination and integration with Division of Fleet Management Services.

The Section, Implementation Plan for Best Practices provides a summary of the tasks outlined and provide recommendations for implementation. The intent of utilizing time frames for implementation was to provide sequence to the tasks outlined in order to build a foundation or capacity to undertake subsequent and related tasks. The time frames utilized should be viewed in the context of near term actions, for which FY05 was used as a point of reference, short term actions, for which FY06 was used as a point of reference and long term actions, for which FY07-10 were used as point of reference.

County Council requested that the report address strategies commonly used to maintain vehicles in top operating condition. The 10 strategies noted have been expanded to 12, as a result of preparing this report. Attached to this transmittal memorandum is a listing of the 12 strategies (see attachment, **Recommended Improvement Strategies**). For each strategy, this report arrays the related tasks obtained from the implementation plan for best practices. The purpose of the attached recommended improvement strategies is to indicate how each strategy is being addressed.

Council also requested that "order of magnitude" estimates of the resources required for implementation also be provided. The section, Projected Resource Requirements, provides macro estimates of the projected resource needs. This report focuses principally on the development of a comprehensive list of tasks that must be accomplished to improve the operational readiness of the fire and rescue fleet. Recommendations are provided on the sequence of these tasks in terms of near term (i.e. FY05), short term (i.e. FY06) and long term (FY07-10); however, the near term, short term and long term tasks are not prioritized within each of the timeframes. While this report provides a comprehensive list of tasks to be accomplished to address the need, it is understood that the ability to implement certain tasks will be subject to available resources and priorities established.

The tasks outlined in this report should be considered dynamic and are to be revisited and updated on a regular basis depending upon the priorities established for implementation and the availability of resources to complete certain tasks. The listing of tasks for the near term and short term is to provide further opportunity to develop strategies for implementation based upon priorities and resources in terms of staff, technical expertise, administrative and maintenance capacity and funding availability within each budget cycle.

The near term tasks, if all were completed in FY05, are projected to cost about $2.2 million. This includes addressing the issues of apparatus inspections and vocation

component testing, COMAR inspections, repair and maintenance, placing an order for replacement apparatus, MCFRS fleet management staff and/or equivalent contract services, and the use of a fleet maintenance consultant to assist with policy formulation, implementation and technical analysis. The tasks also include placing an order for replacement of backlogged apparatus under a lease-purchase arrangement, the first payment of which will not be due until FY06.

The short term tasks, if all were completed in FY06, are projected to require approximately $8.9 million. This includes the payment of accumulated lease payments for replacement apparatus, tools and equipment for apparatus to be received in FY 05 and FY06, as well as ready reserve apparatus, and other apparatus management activities. When an order is placed in FY06 for the vehicles that are scheduled for replacement as well as those in backlog under lease purchase arrangement, the first lease payments for these vehicles will be made in FY07.

Appendix A of the report provides the order of magnitude estimates of the resources needed to implement certain tasks outlined in this report.

Conclusion

The County Executive will be forwarding an amended FY05 budget reflecting priorities for implementation and identifying the resources required for implementation.

MCFRS staff would be pleased to provide a summary presentation of the MCFRS Apparatus Management Report to Council. If you have any questions about the report or need further discussion, please do not hesitate to contact me.

Attachments:
Recommended Improvement Strategies
MCFRS Apparatus Management Plan

cc: Gordon Aoyagi, Fire Administrator
Karen Orlansky, Office of Legislative Oversight
Michael Knapp, Fire and Rescue Lead, Public Safety Committee

Recommended Improvement Strategies

1. *System of centralized accountability for making the maintenance organization, business processes and performance standards meet current and projected MCFRS apparatus and service needs.*

   FY05

   - Centralize authority for direction, planning and management of MCFRS under Assistant Chief for Apparatus Management
   - Consolidate LFRD apparatus budgets into a single place managed by the Assistant Chief
   - Analyze transition of LFRD employed mechanics to County employment in the future
   - Provide additional training and certifications for apparatus mechanics

   FY06

   - Develop business processes to sustain readiness of frontline, ready reserve and backup reserve units
   - Plan and implement the consolidation of apparatus maintenance, tools and equipment into a single organizational code to be managed by the Assistant Chief for Apparatus Maintenance
   - Finalize and implement organizational and technical staff requirements to implement a comprehensive MCFRS fleet management program
   - Hire and transition personnel as appropriate

2. *Safety and performance standards for vehicles and equipment*

   FY05

   - Develop and implement daily vehicle condition reports and procedures for declaring vehicles out of service
   - Survey and complete inventory of tools and specialized equipment for apparatus maintenance
   - Develop and adopt policy for uniform standards for inspections and testing of fire apparatus
   - Develop and adopt policy for hose and ground ladder testing

   FY06

   - Test and inspect vocational equipment, hose, nozzles, appliances, ladders and other portable fire fighting equipment
   - Establish uniform standards and specification for inspection, testing, maintenance, and repair of all SCBA

Recommended Improvement Strategies

3. *Standards and procedures for daily vehicle inspections, reporting defects and determining and expeditiously resolving problems for vehicles declared as out of service.*

FY05

- Develop and implement policy for regular daily condition reports and procedures for declaring vehicles out of service
- Train drivers and unit officers on maintenance operations and regular and accurate apparatus condition reports

4. *Effective safety and training program, including driver training and certification.*

FY05

- Develop and plan driver training program for certification/recertification program
- Provide continued training for mechanic certification and technical competence

FY06

- Implement Driver Training Academy for driver certification and recertification

5. *An effective preventive maintenance program with ready access to reserve vehicles so service delivery is not disrupted.*

FY05

- Develop regularly scheduled levels for apparatus preventive maintenance, including reporting requirements
- Increase budgeted amount for fleet maintenance and repairs to reflect actual business volume, condition and age of the fleet, and increased travel distances incurred

FY06

- Evaluate and make continuous improvements to preventive maintenance scheduling and reporting
- Evaluate the consolidation of all MCFRS light duty vehicles into a single preventive maintenance and servicing center

6. *On going and comprehensive testing and inspection program for vehicle and equipment compliance with uniform standards and to improve reliability and readiness.*

FY05

- Develop and adopt policies to implement uniform standards for apparatus testing, inspections, and maintenance

Recommended Improvement Strategies

7. *A management information system that provides accurate, timely and uniform reporting of vehicle maintenance and condition to support system wide fleet management*

FY05

- Plan and implement apparatus maintenance records management system for apparatus maintenance and reporting protocols

FY06

- Evaluate and monitor application of apparatus records management software to analyze maintenance data.
- Analyze data for trends and maintenance issues
- Analyze and evaluate options for fuel monitoring and distribution
- Plan implementation of fuel monitoring system

FY07

- Implement uniform fuel monitoring and distribution system

8. *Cost effective inventory management system to improve reliability and reduce down time.*

FY05

- Analyze and establish inventory for certain component parts
- Conduct inventory of parts used and plan for future centralization of apparatus parts

FY06

- Analyze integration of inventory management software with apparatus condition and defect reporting in an apparatus records management system
- Analyze and develop plan to meet the need for portable tools management including inventory and maintenance to assure readiness and adequate supply

Recommended Improvement Strategies

9. A fleet that provides for ready reserve vehicles to assure continuity of service delivery or to respond to surge requirements in the event of a disaster.

FY05

- Adopt policy establishing ratio for ready reserve units
- Based on policy, order equipment for the ready reserve units

FY06

- Develop and implement equipment purchases to outfit and equip ready reserve units with the required tools and equipment to be placed into service immediately if needed
- Develop system of inventory and control of equipment on ready reserve units

10. A vehicle replacement/rehabilitation schedule.

FY05

- Review, update and revise apparatus replacement plan
- Develop and adopt revised policy for replacement schedule
- Place order to lease-purchase backlogged units, including equipment, tools and appliances so units can be placed immediately into service

FY06

- Review, update, and revise apparatus replacement plan reflecting prior year purchases

FY07 – 10

- Maintain and update fleet replacement plan reflecting prior year apparatus purchases

Recommended Improvement Strategies

11. Provide cost efficient facilities with appropriate capacity to accomplish the fleet maintenance requirements and functions to operate and sustain emergency response fire and rescue service delivery for current and projected needs of the County.

FY05

- Analyze need and develop plan for centralized inventory for certain component parts
- Analyze and recommend strategy for parts inventory and management – centralized, distributed, or vendor-controlled
- Develop and complete an inventory of tools and specialized equipment needed to maintain fleet
- Develop scope and start facility planning for maintenance facilities to replace obsolete and aging facilities.
- Amend the CIP to reflect apparatus maintenance facilities for current and projected needs
- Address the need for leased space to transfer RVFD fleet maintenance functions to the County.

FY06

- Address warehouse space requirements for storage and distribution of frequently used parts
- Assess, evaluate, and plan the implementation of ISO 14001 – Environmental Management Systems for all fire and rescue facilities
- Achieve compliance and work towards certification.

Recommended Improvement Strategies

12. Adopt MCFRS policy

FY05

- Adopt uniform reporting procedures for apparatus maintenance to implement *Firehouse* apparatus maintenance reporting system, including requirements for reporting of apparatus condition and defects, scheduled preventive maintenance, maintenance history and other maintenance information
- Adopt policy for apparatus replacement schedule (10-12 year replacement cycle consistent with national standards)
- Adopt policy for establishing ratio for ready reserve and backup reserve units
- Adopt policy for vehicle condition and defect reports; procedures for declaring vehicles out of service
- Adopt policies regarding driver certification and recertification requirements
- Adopt policies to implement standard and regularly scheduled levels of preventive maintenance and reporting requirements for apparatus consistent with national standards
- Adopt policy establishing centralized inventory for certain component parts
- Revise and adopt amended Master Plan that reflects the potential for centralized facility for parts inventory
- Revise and adopt amended Master Plan that includes the need for additional maintenance facilities, and potentially centralized facilities
- Adopt policies to standardize testing and inspection requirements for apparatus consistent with national standards, including standards for pumps, hose, aerial ladders, and ground ladders

MONTGOMERY COUNTY FIRE AND RESCUE SERVICE
APPARATUS MANAGEMENT PLAN

April 2004

Assistant Chief Steve Lohr
Apparatus Program Manager Steve Lamphier
Fire Administrator Gordon A. Aoyagi

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MCFRS APPARATUS MANAGEMENT PLAN

BACKGROUND - SUMMARY OF OLO REPORT

In response to a request from the County Council's Public Safety Committee, the Office of Legislative Oversight conducted a study on the organizational structure, maintenance processes and condition of the MCFRS fleet. The findings and recommendations of this study are contained in the OLO's *"Study of the Inspection, Maintenance, and Repair of Fire and Rescue Service Vehicles"* dated January 27, 2004. The OLO recommends that County Council aim to achieve the following goals:

- A safe and dependable fleet of fire and rescue vehicles and equipment that meets the Council's standard of vehicle readiness; and
- A cost effective system of inspection, maintenance, and repair that keeps all fire and rescue vehicles and equipment in top running order.

As of December 1, 2003, the MCFRS fleet included 424 vehicles: 174 primary units, 45 specialty vehicles, and 205 support vehicles. The County government owns 72% (305 vehicles) and Local Fire and Rescue Departments (LFRD) own the remaining 28% (119 vehicles). Primary units include engines, ambulances, ladder trucks, and rescue squads. Specialty units include brush trucks, hazmat units, collapse rescue team vehicles, air units, decontamination units, water rescue team vehicles and other specialty vehicles. Support vehicles include sedans, SUV's, cargo vans and other light duty vehicles.

The County provides most of the funding for fleet maintenance and operations for MCFRS. The LFRD's are responsible for maintenance of vehicles that assigned to their respective fire and rescue stations which total 319 vehicles (approximately 75% of the fleet). The Division of Fire and Rescue Services (DFRS) is responsible for maintaining the balance of the fleet (largely support vehicles) which is maintained at one of the County's central fleet maintenance facilities or through vendors.

When a unit is assigned to an LFRD, a Memorandum of Understanding (MOU) is executed between MCFRS and the LFRD. While the MOU refers to preventive maintenance and vehicle performance standards, there was no DFRS staff assigned to focus on vehicle inspection, maintenance and repair across the MCFRS fleet until recently. In May 2003, an Assistant Fire/Rescue Chief was assigned responsibility to focus on system wide vehicle readiness. Working with the MCFRS apparatus program manager, the Assistant Chief focuses on inspections, maintenance, repair, and the transfer of units to meet daily service requirements Significant progress has been made since May 2003 in terms of vehicle readiness as well as maintenance issues that needed to be addressed.

OLO reviewed the fire and rescue vehicle maintenance practices of six jurisdictions in the region. All six have some form of centralized maintenance functions, have one person charged with overall responsibility and authority for fire and rescue vehicle maintenance, maintain a centralized vehicle maintenance cost data base to track key vehicle management information, and have adopted uniform standards that describe the work required for each preventive maintenance service. The OLO study recommended the

establishment of the Assistant Fire/Rescue Chief for Apparatus Management to provide focus and accountability for fleet maintenance and readiness.

OLO found that some aspects of the MCFRS' current approach to vehicle maintenance works well. The decentralized structure enables the LFRD's to establish entrepreneurial business arrangements for vehicle maintenance and repair. Six in-house shops are conveniently situated to serve the fleet; their locations within the station afford frequent opportunities for communication and coordination between vehicle users and maintenance.

However, OLO found that other aspects of the MCFRS fleet maintenance program are not working well and provide an impetus for change. Routine problems are encountered in meeting the daily count for certain frontline units; substantial time and effort are expended to transfer and deploy units to meet service requirements with available apparatus.

The MCFRS fleet is aging while MCFRS call load continues to grow at a higher rate than the population growth. The average age of frontline vehicles is eight years; the average age of specialty vehicles is 15 years; the average age of support vehicles is six years. New fire stations have not been built to keep pace with the pattern of development resulting in fire and rescue units traveling farther and responding to more incidents. The result is increased mileage for many vehicles placing increased demand on maintenance.

Funding has not been sustained for regular replacement of the fleet. MCFRS' current replacement plan calls for the replacement of 21 vehicles in FY04 at an estimated cost of $7.17 million. For FY05, the plan calls for the replacement of 20 more vehicles at an estimated cost of about $10.7 million. The approved FY04 operating budget includes lease payments for five (5) replacement EMS units and four (4) replacement aerial ladder trucks.

The results of recent pump tests and safety inspections indicate that the maintenance programs in place are not meeting standards of readiness. The structure for MCFRS maintenance has mitigated against the development of a consistent maintenance strategy for apparatus, a reliable process for daily vehicle inspections and defect reporting, a standardized approach to vehicle maintenance records reporting system and a system for identifying and correcting apparatus problems.

The condition of the MCFRS' maintenance program is not a new issue. There have been 10 different reports produced since 1976 providing recommendations for improving how fire and rescue vehicles are maintained and repaired. Few of the recommendations have been implemented. The time has come to address the long acknowledged but unmet needs to strengthen this important function.

There are six in-house maintenance and repair shops. Mechanics are employees of the LFRD where the maintenance shops are located. These six shops provide maintenance for 11 of the LFRDs. The eight remaining LFRD's utilize one or more vendors to service

the vehicles. Either a volunteer or a career fire fighter serves as primary liaison with the vendor at these eight locations.

Of the six in-house maintenance shops, two were built in the mid-1970's; four were built in the mid to late 1960's. Three shops have one bay; three shops have two bays. The nine bays can accommodate about 10 to 14 vehicles at one time depending upon the size of the apparatus. In two of the two bay shops, the first vehicle is locked in until the second vehicle is moved or repaired. The bays are considered small, constrained and inefficient by current maintenance standards for heavy equipment. While all six can accommodate the range of vehicles to be maintained, many are limited in the use of lifts and tilt cab vehicles. *(The remainder of this document will refer to five (5) LFRD shops. The sixth shop is operated by the Bethesda-Chevy Chase Rescue Squad, which is operated semi-independently from the remaining five (5) shops.)*

County Council has requested that the Chief Administrative Officer provide a multi-year plan to improve MCFRS' vehicle maintenance program. The plan is to include tasks to be accomplished; time frames; needed resources and recommendations for the interval for reporting of progress on making the improvements. The report includes the following strategies, commonly used to maintain vehicles in top operating condition, with appropriate additions submitted by the CAO:

- System of centralized accountability for making the maintenance organization, business processes and performance standards meet current and projected MCFRS apparatus and service needs.
- Safety and performance standards for vehicles and equipment.
- Standards and procedures for daily vehicle inspections, reporting defects and determining and expeditiously resolving problems for vehicles declared as out of service.
- Effective safety and training program, including driver training and certification.
- An effective preventive maintenance program with ready access to standby frontline and reserve vehicles so service delivery is not disrupted.
- On going and comprehensive testing and inspection program for vehicle and equipment compliance with uniform standards to improve reliability and readiness.
- A management information system that provides accurate, timely and uniform reporting of vehicle maintenance and condition to support system wide fleet management
- Cost effective inventory management system to improve efficiency and reliability and to reduce down time related to part availability.
- A fleet that provides for standby frontline vehicles, that are fully equipped, to assure continuity of service delivery or to respond to surge requirements in the event of a disaster.
- A cost effective vehicle replacement/rehabilitation schedule that reflects the duty cycle of the apparatus.

- Provide cost efficient facilities with appropriate capacity to accomplish the fleet management maintenance requirements and functions to operate and sustain emergency response fire and rescue service delivery for current and projected needs of the County.

MCFRS APPARATUS MANAGEMENT PLAN

INTRODUCTION

We recognize the importance and urgency of the problems identified within the report. This multi-year strategic plan is designed to facilitate improvements in MCFRS vehicle management practices that will mark steady progress consistent with available resources. The plan reflects immediate and long range needs that will result in a cost-effective commitment of resources to enable the MCFRS to overcome the major deficiencies identified in the OLO study. In the short term, additional funding will be required to operate and maintain the current aging fleet whose mileage and duty cycle continues to increase with higher call volume. To address current and future needs, investment in infrastructure will be needed in the form of additional personnel; training; vehicles for front line, ready reserve, and backup reserve; facilities for maintenance and storage of apparatus; portable fire-fighting equipment for apparatus readiness; vehicle management systems; and spare parts.

This MCFRS Apparatus Management Plan focuses upon the benchmarks and milestones necessary to capitalize on the momentum of recent improvements while building an organizational structure and model maintenance program that meets the needs of the MCFRS service requirements both now and into the future.

The OLO study should be used as a reference, including background for current practices and conditions of the MCFRS fleet and maintenance activities, funding, replacement plan and status, focus group results, comparative information and findings and recommendations, to supplement this report. This MCFRS Apparatus Management Plan addresses the issues raised in the OLO study; however, efforts are made to not repeat information found within the study.

Implementation of the plan will solidify the organizational commitment necessary to operate a safe, dependable, and reliable fleet of fire-rescue vehicles. Utilizing a systems approach, new standards of performance, quality assurance, and centralized accountability are proposed for implementation. The plan applies best fleet management practices and leverages the benefits that accrue from existing infrastructure. To deliver upon this systems approach, the immediate and short term actions, programs, and initiatives are proposed to:

- Train and certify both drivers and mechanics;
- Implement comprehensive apparatus inspections of vehicles and testing of vocational equipment on a scheduled basis and correct any deficiencies found;
- Repair or replace worn or defective components in a timely manner;
- Equip newly purchased, ready reserve and back-up reserve apparatus;
- Service and repair vehicles through a programmed preventive maintenance schedule;
- Initiate planning for implementation of vehicle maintenance records management system; and

- Plan for and acquire the appropriate number of replacement apparatus to address the condition and age of the fleet including the necessary tools and equipment to place the new apparatus into service upon acceptance.

The format of this plan is as follows:

- Establish centralized authority and accountability for MCFRS apparatus maintenance and readiness via an Assistant Fire/Rescue Chief. This position is included in the County Executive's FY05 recommended operating budget.
- Provide best practices for fire apparatus fleet maintenance, including a general plan to address each of those practices.
- Apply the major best practice components to MCFRS.
- Address readiness issues regarding properly equipped apparatus, including tools, appliances and equipment.
- Develop and adoption of policies and standards.
- Summarize the Apparatus Management Plan including milestones for the tasks to be accomplished and projected time frames to complete these milestones.
- Summarize the recommended resources required to implement the plan projected for the period FY05-10.

MCFRS APPARATUS MANAGEMENT PLAN

CENTRALIZED AUTHORITY AND ACCOUNTABILITY

The County Executive's FY05 recommended operating budget includes the establishment of an Assistant Fire/Rescue Chief for Apparatus Management. This position is viewed as a key and critical action to establish centralized authority, consistent overall direction and management, accountability and responsibility for MCFRS fleet maintenance. Significant progress has been made to date in coordinating existing resources, identifying and resolving apparatus readiness, maintenance and transfer issues and planning for improved accountability, maintenance records and analysis, apparatus replacement and apparatus management systems

Under current law, the Fire and Rescue Commission must adopt policies proposed in previous paragraphs and establish policies that clearly delineate the authority of MCFRS' fleet management staff. In 2004 replacement dollars, the value of MCFRS rolling stock is estimated to be approximately $65,000,000, with an additional $27,000,000 in portable equipment carried on those vehicles. Absence of central authority to manage these important assets is shortsighted, does not protect public safety, and is not in the County's best interests. The extent of the implementation of such authority will be controversial. To be effective, the tasks identified throughout this plan must be completed in a uniform manner across the system. Furthermore, the MCFRS' fleet management staff must have the authority and control to manage the assets related to the management of the MCFRS fleet.

Currently many LFRD's often have to supplement vehicle management funds with funds from other line items. Additionally, many LFRD's have to request supplemental funding from the County for vehicle management. Consolidation of vehicle management funds into a single place helps to address both of these issues. Therefore, starting in FY 05, LFRD maintenance funds will be consolidated, with the exception of fuel, into one place. Funds will then be transferred to the LFRD's based upon performance, justification and accountability of each LFRD's maintenance program as it relates to the preventive maintenance standards set forth by the Fire and Rescue Commission. The Apparatus Chief and staff will distribute funds as requested by the LFRD's after verification of the work performed and adherence to standards. Generally, the LFRD's will still be able to maintain relationships with their vendors and will continue to manage their own funds.

Simply stated, the presence of more than one plan really means that there is no plan and, therefore, no real accountability.

MCFRS APPARATUS MANAGEMENT PLAN

BEST FLEET MANAGEMENT PRACTICES

The OLO reported its research on the best practices in fleet management indicating that a combination of strategies and resources are needed to effectively and efficiently purchase, maintain, repair and retire a fleet of vehicles. Consideration has been given to the best practices cited. Efforts have been made to include and incorporate many or all of the best practices in the development of best fleet management practices that apply to fire and rescue vehicles. Best fleet management practices must be developed and implemented based upon the known experiences and successes of other fleets, particularly fire-rescue fleets, to improve MCFRS apparatus management. These best practices must include but are not limited to the following:

- A vehicle management information and records system is needed to administer all aspects of fleet management and support cost benefit decision making regarding repair or replacement. The system should maintain apparatus history, including parts consumed, repairs, mechanic labor hours, preventive maintenance services, warranties, fuel usage, vocational component testing, inspections, defect reporting, life cycle operating history, etc. This records system should be integrated with an inventory control system. Consideration should be given to utilization of information technology to transmit and collect this information digitally.

- Sufficient fleet management staff are needed to:
  - perform technical, administrative and managerial duties to plan, manage and direct apparatus management activities, including discrete analysis of maintenance issues and cost history of individual and breed of apparatus;
  - identification of trends and performance of specific components or systems;
  - evaluating performance and life cycle history of apparatus and its current and changing, if applicable, duty cycle, in the development of new specifications for future apparatus; ensuring mechanical engineering and maintenance considerations are key elements of specification development;
  - preparation and contract management; administration of the technical specifications for apparatus procurements;
  - replace or repair decisions of major component parts as well as the apparatus;
  - coordination with parts and apparatus manufacturers regarding MCFRS and industry experience;
  - contract management for maintenance and servicing;
  - development and monitoring of apparatus and maintenance performance standards and measures;
  - coordination with LFRD's maintenance activities; planning and directing budget decisions for fleet management, repair and replacement;
  - maintaining the competences of mechanic staff for current and emerging fire and rescue apparatus technology;

  - evaluating and assessing the adequacies of facilities, diagnostic equipment and tools to perform cost effective maintenance and inspection activities;
  - planning and implementing cost effective and efficient business processes for fleet management;
  - ensuring systems are in place to inventory, acquire, operate and replace vocational equipment, hoses, appliances and tools for frontline and ready reserve units to ensure readiness and surge capacity;
  - plan for the future expansion of fire and rescue services, consistent with the MCFRS approved Capital Improvements Program and Fire and Rescue Master Plan to ensure appropriate and adequate maintenance capacity in terms of funding, personnel, training, maintenance equipment and tools and facilities, development and utilization of effective performance measures for fire and rescue apparatus management;
  - and perform other duties as necessary to enhance and improve apparatus management.

- An apparatus replacement schedule is needed that meets the needs of the MCFRS, maximizes preventive maintenance, minimizes out of service time, and assures that vehicles and equipment are retired before frequent and costly repairs are required.

- A uniform and scheduled program is needed for levels of preventive maintenance, including standardized reporting requirements, that meets or exceeds the minimum requirements of the original equipment manufacturers for the severe and unique duty cycle and vocational requirements of fire and rescue operations.

- Uniform driver standards are needed that include enhanced training and certification for safe vehicle operations and coordinated training for standardized apparatus and component inspection, including reports to demonstrate daily, weekly, monthly, and annual apparatus condition review activities performed by apparatus drivers and unit officers.

- Effective systems and inventory management functions are needed to identify and warehouse commonly used vehicle parts and swing units for major components to minimize downtime of apparatus. It should include planning and development of an appropriate and effective inventory management system and correlation of the inventory system with an apparatus records management system.

- Identification and warehousing of adequate tools, equipment, appliances and supplies necessary to operate frontline and standby frontline units to maintain an effective level of operational readiness at all times. MCFRS should move towards standardization of such equipment. Spares are also needed to replace damaged or worn pieces as well to equip reserve units if needed.

- Sufficient repair and storage capacity to cost effectively manage the growing vocational demands of the fire and rescue service including maintenance and repair of fire pumps and appliances, aerial ladders, self contained breathing apparatus (SCBA), hydraulic rescue tools, small motors, and electric and electronic components.

- Adopt policies, procedures and standards to ensure that all fleet management activities and apparatus maintenance meet all appropriate NFPA and industry standards and procedures, including ISO 14001, regarding environmental management systems for new and existing facilities, where applicable.

MCFRS APPARATUS MANAGEMENT PLAN

IMPLEMENTATION PLAN FOR BEST PRACTICES

The tasks outlined below are considered dynamic and are to be revisited on a regular basis to evaluate and assess conditions; and determine strategy and sequence consistent with available resources. Ultimately, full implementation of the following tasks are considered to be what is needed to make the improvements to MCFRS' current maintenance program and to achieve the objectives of standardized outcomes for readiness and reliability. Implementation, however, is subject to available resources. The tasks are listed, not necessarily in priority order, for implementation in a strategic manner to lay a foundation for subsequent years to achieve the best practices for apparatus management as discussed above.

FY05 Tasks

- Implement an apparatus records management system. Implementation includes installing computers in existing maintenance facilities and other LFRD facilities to facilitate convenient apparatus reporting; developing uniform daily and other mandatory periodic apparatus condition and defect reports for apparatus drivers and unit officers; training of drivers on implementation of apparatus condition and defect reports; establishing reporting procedures for reporting periodic inspections, scheduled levels of preventive maintenance, and repairs performed; training the mechanics and those LFRD's using contract maintenance to report required maintenance and apparatus information; developing standardized reporting requirements for apparatus condition and maintenance history; converting available existing data on apparatus to this data base; and hiring appropriate staff to support the application of this system, to monitor and analyze data and provide regular fleet management reports.

- Permanently establish the position of Assistant Fire/Rescue Chief for Apparatus, Tools, and Equipment. Hire the appropriate staff to support the Apparatus Chief.

- Review the current apparatus replacement schedule for FY06-10 and adjust as necessary to reflect current purchases. Place an order to lease purchase 29 units to address the backlog of replacement apparatus – four (4) aerial ladders, 15 engines, three (3) rescue squads, five (5) EMS units, and 2 specialty (hazardous materials) units, including purchase of tools, equipment and appliances for these 29 units so when the units are received they may be placed into service immediately.

- Consider alternative methods of funding replacement apparatus.

- Increase maintenance capacity within existing facilities using a model recommended by the fleet management consultant.

- Adopt standard for establishment of ready reserve apparatus for each front line service and purchase tools, equipment, and appliances to fully equip the ready reserve fleet to ensure operational readiness.

- Develop and adopt policy for requiring regular levels of in-station inspection and apparatus condition reporting, including identification of defects found, and standards and procedures for designating a unit out of service.

- Provide training of MCFRS drivers and unit officers to implement the reporting procedures via policy. Enhance current driver and unit officer training curriculum to include a greater emphasis on the mechanical issues and the importance of accurate and specific vehicle condition reports.

- Adopt and implement certification and recertification requirements for apparatus drivers to improve operational safety and to reduce collisions. Develop and implement training programs for all MCFRS drivers to attain the appropriate certification/recertification for safe apparatus operations. Regularly conduct root cause analyses of apparatus collisions to develop and implement behavioral based intervention strategies to mitigate severity and frequency of collisions.

- Develop standard preventive maintenance practices for various levels of scheduled maintenance based upon manufacturer's recommendations and NFPA 1915. Implement these practices and schedules as a policy.

- Purchase appropriate level of spare vocational component parts, some chassis components, two swing engines, and two swing transmissions to improve readiness of the fleet and reduce out of service time for component parts. Place these items into a centrally controlled inventory system and obtain appropriate in-house or competitive services to repair or replace items to maintain a constant inventory of such items.

- Develop a list of commonly used vehicle parts. Develop cost estimates for initial stock of parts and turnover of inventory. Develop plan and methodology for parts inventory control system which maintains status and inventory level of parts, frequency of parts utilization, preset ordering levels, parts identification system storage and correlations with apparatus work orders.

- Consolidate LFRD vehicle management funds, with the exception of fuel, into one organizational code that is managed by the Assistant Fire/Rescue Chief for Apparatus Maintenance. Develop reporting procedures from LFRD mechanics and maintenance coordinators to the Assistant Chief for the allocation of maintenance funds to meet the service needs of the system.

- Begin facility planning for future maintenance capacity requirements to address the inadequacies and obsolescence of existing in-house maintenance facilities. Develop maintenance system concepts to perform certain functions in a centrally-located facility or facilities that lead to improved efficiencies and cost effectiveness.

- Analyze the transition and transfer of LFRD-employed mechanics to County employment for FY06 to centralize and align fleet management direction.

- Complete an inventory of existing shop tools, supplies, and related equipment. Evaluate current and projected needs for tools and specialized equipment to maintain existing and newly purchased apparatus. Establish a shop tools and equipment budget line item to improve diagnostics and shop efficiency.

- Evaluate and assess level of training and certification of LFRD maintenance personnel. Continue to provide specialized and manufacturer sponsored training for obtaining required certifications for mechanics.

- Solicit and select a fleet management consultant to review the MCFRS Apparatus Management Plan, current practices and policies and make recommendations in terms of organizational structure, resource needs and action plan sequence and direction. A consultant would assist with benchmarking the MCFRS against comparable fire department fleet operations resulting in the development of a model maintenance program for the MCFRS.

- Utilize the consultant to assist on a task order basis for specific activities such as the development of appropriate draft fleet maintenance policies and standards.

- Increase the budget amount for fleet maintenance and fuel requested by the LFRD's. Fuel, parts and repair costs continue to rise. Additionally, the fire and rescue units are incurring higher mileage as incidents continue to grow and the pattern of development increases travel distance from existing stations. As the fleet ages, the costs for repair of component parts increase. Furthermore, the increased level of focus and attention on apparatus to meet inspection and vocational performance standards may also require additional funding.

- Develop and adopt policy for implementing standards for regular and periodic inspection of apparatus and testing of vocational components consistent with applicable national standards and industry practices. Repair and/or replace appropriate parts or components to make the vocational equipment operational ready.

- Ensure that the required public safety communications components for additional apparatus are purchased for installation in new equipment.

- Plan and relocate the Rockville VFD (RVFD) shop to a new facility. Analyze this opportunity to transfer the RVFD mechanics to County employment and determine if additional maintenance capacity and capability can be immediately provided through the hiring of additional mechanics for shift work to improve the reliability of the RVFD fleet but also to support other LFRD maintenance work with some centrally supported maintenance.

- Design and adopt standards for standard hose and ground ladder test programs.

FY06 Tasks

The FY06 Apparatus Management Plan is dependent upon the successful completion of FY05 tasks with appropriate resources and policy adoption. Requested funding includes additional staff to provide technical support and additional operating expenses for apparatus maintenance to address the maintenance repairs required. The tasks noted for FY06 and beyond are general in nature, and will be further developed and refined by staff with the assistance of a fleet maintenance consultant.

- Evaluate and monitor the application of the *apparatus records management* software for maintenance data. Analyze accumulated data for the purpose of meeting objectives to accumulate uniform information on apparatus condition, maintenance and operating history costs for trend analysis and maintenance issue identification.

- Update and manage the apparatus replacement schedule for FY07-11. Place into service apparatus ordered in FY05.

- Implement business processes to sustain readiness of front line, ready reserve, and backup reserve units including testing, inspections, preventive maintenance schedules, regular reports on vehicle conditions and defects and training for driver safety and mechanic certifications.

- Lease warehouse space for the storage of commonly used parts as identified in prior years. Establish software capable of maintaining this inventory. Access would be limited to the personnel in the lead mechanics positions. (The storage space may be available in the leased central facility described under the Facilities section of this document or located in other suitable facilities operated by the County).

- Implement the driver training academy with continuation into future fiscal years.

- Consolidate remaining LFRD apparatus maintenance, tools, and equipment budgets into one organizational code.

- Review and finalize organizational and technical staff requirements to implement a comprehensive MCFRS fleet management program. Hire and transition personnel as appropriate.

- Assume responsibility for the testing and replacement of all MCFRS-purchased hose, nozzles, appliances, ladders, and other portable fire fighting equipment on frontline, ready reserve, and backup reserve apparatus.

- Finalize and manage County bid specifications and procurements for uniform portable equipment acquisition for placement on replacement frontline apparatus, ready reserve and backup units.

- Establish uniform standards and specifications for the inspection, testing, maintenance and repair of all SCBA and support infrastructure. Complete centralized reporting and accountability for condition of SCBA and adequacy of SCBA inventory.

- Evaluate and make continuous improvements to the policy-dictated preventive maintenance schedule and procedures as well as required regular testing and inspections of apparatus in accordance with policies and NFPA standards. Adjust schedule and procedures as necessary to improve fleet condition and readiness. Allocate appropriate resources for maintenance and supplies that reflect the operating requirements and condition of the fire and rescue fleet.

- Assess the application and evaluate continuously the requirements of ISO 14001 certification and other applicable NFPA and industry standards. Determine organizational and business process improvements required to comply with the standards and present budget proposals for implementation.

- Evaluate fuel monitoring and distributions options and develop uniform fuel monitoring system for MCFRS.

- Implement standard hose and ground ladder testing programs.

- Plan and prepare maintenance facilities and capacity to support the operations of newly built fire stations consistent with the approved CIP.

- Evaluate options for light-duty vehicle maintenance and repair.

FY07-10 Tasks

Projections for FY07–10 tasks depend upon the completion of the FY05-06 tasks. Continued improvements in apparatus management relate to the availability of resources for implementation. The tasks outlined are general in nature and are subject to further and future refinement and modification with additional information and analysis.

- Maintain fleet replacement schedule and update fleet replacement plan to reflect apparatus purchases in prior years.

- Build apparatus fleet management staff and technical expertise to plan, manage, direct and be accountable for the fleet condition and its readiness consistent with industry practices for comparably sized fire and rescue fleets.

- Sustain testing, inspections, preventive maintenance schedules and equipment for frontline, ready reserve, and backup reserve units to meet readiness standards.

- Sustain and improve training and competencies for apparatus drivers, unit officers and mechanics.

- Allocate appropriate resources in the operating budget for fuel, parts and maintenance that reflects the operating needs and condition of the fleet and requirements for fire and rescue fleet readiness.

- Continue lease or use of available space for fire and rescue parts and equipment inventory warehousing. Consider expanding parts inventory to include additional spare parts that are not available on a "just-in-time" basis.

- If Firehouse is implemented, evaluate it as a fleet management tool. Compare it to other best of breed fleet management software. Determine integration of Firehouse apparatus records management system with other robust systems which integrate inventory controls, work or repair orders, pre set order points, etc.

- Continue to monitor the success of the policy-dictated preventive maintenance schedule and procedures. Adjust schedule and procedures as necessary.

- Continue to implement ISO 14001 environmental management system improvements to facilities. Adopt policies to comply with applicable NFPA and industry standards during FY07. Maintain ISO 14001 and other appropriate certifications through FY10.

- Design and implement standardized and automated fuel monitoring and distribution system.

- Continue to implement best practices and recommendations of consultant as deemed necessary by MCFRS.

- Refine apparatus maintenance and management performance measures to measure progress and effectiveness of the apparatus management program. .

MCFRS APPARATUS MANAGEMENT PLAN

MAJOR COMPONENTS OF BEST PRACTICES

Personnel

There are three levels of personnel that are required to continue and further build the MCFRS fleet management organization: managerial, technical, and administrative. The FY05 recommended budget includes the permanent addition of the Assistant Fire/Rescue Chief, Apparatus/Tools/Equipment to supervise and provide direction to the fleet maintenance coordinator. In addition, there are projected organizational needs to undertake the planning, analysis, technical support and guidance and to provide immediate maintenance capacity. Ideally, these resources would be in place early in this program to provide the necessary managerial, technical and administrative functions to direct the overall maintenance efforts in achieving the performance expected and consolidating a decentralized structure into a cohesive and coordinated system. Recommended additional personnel including: a supervisory (grade 23-25) heavy equipment coordinator for technical support and assistance, a grade 16 fiscal assistant for administrative support and preparation and analysis of maintenance data, and up to six (6) mechanics to provide maintenance capacity to address the needs of the fleet. Fulfillment of these positions will have a significant positive effect on MCFRS fleet management activities.

A heavy equipment coordinator will have medium and heavy-duty truck experience, preferably with fire apparatus experience, as well as diagnostic and supervisory skills. It is envisioned that this position will provide daily coordination of shop activities, assist with defect diagnosis, conduct quality assurance checks and inspections, evaluate repair or replace issues and make decisions, coordinate current maintenance issues with specification development for new apparatus, and ensure compliance with the testing, inspection and preventive maintenance standards set forth by the MCFRS.

A fiscal assistant will be responsible for data entry and reporting from apparatus management software as well as processing payment requests received from the LFRD's. It is envisioned that this position will work with both the managerial staff and the heavy equipment coordinator on a daily basis.

The third component involves the addition of immediate maintenance capacity in available facilities (or a single facility) through the addition of shift operations with additional mechanics. There are currently eleven mechanics employed by the five LFRD shops. Five of the eleven are classified as "Fire/Rescue Apparatus Repair Technicians" (grade 22) and the remaining six are classified as "Mechanics" (grade 17). There are varying levels of advanced training among the group. In addition, MCFRS provided additional training for pumps to certify some of the mechanics. All existing mechanics are trained in the basics and the MCFRS is pleased with their level of knowledge and their dedication to their job.

However, eleven mechanics do not appear to be sufficient to properly maintain the fleet given the operational responses (duty cycle) and fleet condition. Review of current work

activities reflect that the current staff is only able to react to emergency repairs and to work towards meeting the frontline service requirements. Preventive maintenance, regular servicing of apparatus and other proactive maintenance activities are not being routinely accomplished.

The most timely, cost effective method of increasing maintenance capacity is to hire or to obtain competitive services for additional heavy equipment qualified mechanics. Obtaining the services of up to six additional mechanics is recommended. Deployment of these additional mechanics will depend upon the number approved and the organizational structure in place to manage this additional capacity. The plan is to hire these mechanics as County employees, or obtain the same capacity with contract services, under the direct control and supervision of MCFRS fire and rescue apparatus management staff. If all six are approved, four of these mechanics will be deployed in pairs on evening shift at two of the five shop locations. The remaining two mechanics will be deployed to a leased facility to maintain the RVFD fleet and other apparatus, if maintenance capacity is available. It will be the primary duty of these mechanics to perform running repairs, scheduled preventative maintenance activities, other proactive maintenance activities and completing maintenance jobs through shift operations to reduce apparatus down time.

MCFRS envisions that LFRD-employed mechanics should be transferred to County employment, especially as new and more efficient facilities are leased or constructed to replace existing facilities. The five shops will continue to be used to store standby frontline and reserve units. There are, however, a number of issues to be worked through, including, but not limited to: supervision of the mechanics structure at multiple facilities, inclusion of the mechanics in the appropriate bargaining unit, employment transferability between the LFRD and the County, agreements with the LFRD's to continue to use shop facilities with County mechanics, and the potential of dual employment (i.e. the County and the LFRD). It is a task for FY05 to identify issues and develop a plan to implement the employment transfer.

Emergency vehicle repair training and certification are critical to maintaining the fleet in top operating condition. Such components include aerial and pump repairs as well as chassis and vocational electrical components. Training and certification for demonstrated competencies in the repair and operation of such components often vary by manufacturer of the equipment, thus creating a requirement for multiple training classes in one particular subject area. Many of these training sessions or classes are held outside of the Baltimore-Washington area. MCFRS is encouraged by the fact the some of LFRD-employed mechanics have taken a number of classes and received certifications during FY03 and FY04. The MCFRS Apparatus Management Plan recommends EVT certification as a job requirement for designated mechanic positions or for all of the mechanics to be obtained over time.

Personnel currently assigned to the five shops each possess some expertise in a particular subject area. It is envisioned that the MCFRS will start to better utilize these personnel with specific expertise as component part specialists or as consultants to other shops when specific problems arise. Examination of the development of specialty component

repair among the five shops will be another task for the fleet maintenance consultant to examine in determining how to improve efficiencies among existing facilities and personnel.

A fleet management consultant may provide further recommendations as to the structure of the MCFRS fleet management staff as it is expected that additional fleet management positions may be required over time. Studies performed by consultants will determine the need for the appropriate organizational structure for administrative, technical, and managerial functions. Funding for training for technical personnel is required.

Summary of Personnel Actions

- **FY05**
  - **Permanently establish the position of Assistant Fire/Rescue Chief for Apparatus to plan, manage and direct the MCFRS apparatus maintenance program.**
  - **Hire a heavy equipment coordinator to supervise and provide daily coordination among the in-house shops and other LFRD's using contract services, provide technical assistance, diagnose defects and provide recommendations regarding repair vs. replace decisions, and ensure compliance with MCFRS standards.**
  - **Hire a fiscal assistant or equivalent, to support, analyze, maintain and develop reports using the apparatus maintenance record management system, provide financial analysis support as needed, develop data base for component parts inventory, assist with business process design and implementation and process LFRD payment requests and other financial accountability requirements.**
  - **Hire up to six (6) mechanics or comparable vendor or competitive services to immediately increase shop capacity within existing facilities by operating shift operations in designated locations.**
  - **Provide appropriate training and certification opportunities for existing mechanics and fleet management staff to improve technical competence to maintain apparatus in an effective manner.**
  - **Address the transfer of RVFD mechanics to County employment for the operation of the apparatus maintenance program for RVFD assigned and owned apparatus in an available County facility or leased space.**
  - **Study the future transfer of employment of mechanics from the LFRD's to the County.**

- **Explore utilizing a fleet management consultant to assist with a personnel plan for the apparatus division.**

- **Evaluate the application of NFPA 1071, Standard for Emergency Vehicle Technicians Professional Qualifications; develop policies for implementation and identify resources required.**

- **FY06**
  - **Transfer employment of mechanics from the LFRD's to County employment subject to a detailed evaluation and identification of issues involved by the fleet management consultant in FY05 in assessing ways to improve accountability for maintenance performance.**

  - **Continue to build fleet management staff as required.**

Information Technology – Apparatus Records Management System

During FY04, there have been some accomplishments in the development of vehicle management information data bases. First and foremost, a web-based apparatus tracker has been developed and implemented to advise the operational chiefs and mechanics of the condition of apparatus, availability for deployment, schedule for maintenance and location. This application allows users to view and/or update each piece of apparatus as to its in-service or out-of-service status.

In addition, Fibernet connections for computer workstations are being placed in each of the five LFRD shops so that they will have access to County e-mail and will have access to future Internet based maintenance-related applications. Development of a countywide apparatus condition and defect reporting system is in process. Evaluation and analysis is required to integrate the proposed data from daily and other regular reporting of vehicle condition and defects into the apparatus maintenance records management system

In early FY05, it is anticipated that *Firehouse* software will be implemented at the station level for incident reporting. Approximately three months after implementation of the incident reporting software, it is anticipated that the apparatus maintenance module will be implemented to report apparatus management information. *Firehouse* records management system contains a robust apparatus maintenance module, including management information systems to record and track various vocational components unique to the fire service. The apparatus maintenance software also tracks labor and parts costs as well as component warranty information, preventive maintenance scheduling, and vehicle specification data. It has significant customization capability to meet any specific applications that are needed for MCFRS. This software has already been purchased for incident reporting, and the only anticipated cost for implementation will be the time and programming staff for customization, training, shop assistance and integration with other related apparatus maintenance data bases. Based upon its demonstrated capability, it is anticipated that the *Firehouse* apparatus maintenance

reporting module will enable the MCFRS to track critical vehicle data including the initial cost of vehicles, maintenance history, tracking of scheduled preventive maintenance performed or missed, analysis of scheduled and unscheduled repair costs, warranty claims, work orders, and inventory tracking. The *Firehouse* software applications are intended to serve as an immediate and interim system for apparatus reporting.

During the last quarter of FY04, MCFRS is also evaluating the potential of utilizing the capabilities of *FASTER* fleet management software that is used by the Division of Fleet Management Services. There are several evaluation factors including FASTER's application to the fire service, additional hardware and software costs, technical support, and implementation challenges. There is a possibility that the MCFRS may be able to implement *FASTER* on a more expedient schedule than *Firehouse*. There are two potential major advantages of using *FASTER*: (1) utilize the expertise of the Division of Fleet Management Services in using and applying vehicle maintenance and inventory management software and (2) eliminate the possibility that migration would not have to occur from *Firehouse* to *FASTER* (or a like product) at some later date. Note, however, that *Firehouse* will be used for the vocational component testing, i.e. pump, ladder, and hose test results as it is pre-programmed to meet NFPA standards.

The standardized apparatus maintenance reporting, its collection and analysis, will provide information on the best time to replace a vehicle and which manufacturer's vehicles or components thereof are most cost effective to operate. The evaluation of data will enable the MCFRS to procure vehicles and equipment that are reflective of our duty cycle needs. The vehicles and equipment should operate with less out of service time due to proper recommended maintenance levels. More importantly, vehicles and equipment may be retired at the most appropriate time in their predicted life cycle.

Should the maintenance module of *Firehouse* software be implemented in FY05 and used throughout FY06, its effectiveness will be evaluated. The evaluation will include a discussion of whether or not the use of this software should be continued into the future. If *Firehouse* software is not robust enough to meet our apparatus management requirements, a request will be submitted for fleet management software.

Starting in FY06, data gleaned from the capture of fleet management data will allow MCFRS to begin to identify performance measures, such as out of service time, preventive maintenance vs. unscheduled breakdowns, operating costs by apparatus type, mean time between mechanical failure, etc.

Summary of Information Technology – Apparatus Records Management System

- **FY04**
  - **Continue installation of workstations and County e-mail access at the five (5) LFRD shops.**
  - **Establish uniform defect reporting and uniform out of service criteria.**

  - **Evaluate the potential of utilizing the *FASTER* fleet management software in use by the Division of Fleet Management Services.**

- **FY05**
  - **Implement an apparatus records management system with access and reporting requirements applying to LFRD mechanics.**

  - **Should *Firehouse* be implemented as the apparatus records management system, evaluate its effectiveness and determine its continued use as a fleet management tool and determine its potential integration with other fleet management systems.**

- **FY06**
  - **Use data contained within *the apparatus records management software* for analysis of trends, support for budget requests, etc.**

Apparatus Replacement

An apparatus replacement plan for FY05-10 is attached (appendix B). This plan is based upon several factors including the suggested replacement guidelines of NFPA 1901-2003 edition, EMS unit replacement plan adopted by the Fire and Rescue Commission in November 2001, and some adjustments so that projected capital outlay requirements remains relatively flat or evened out in the out years of the six-year period. As discussed later in this strategic plan, apparatus replacement includes the cost of tools, equipment, and appliances that must be purchased in the same period that apparatus is approved for purchase.

The 2003 edition of NFPA 1901, Standard for Automotive Fire Apparatus, recommends adoption of a fleet replacement schedule based upon the age of apparatus standard and requires replacement of apparatus after twelve years of life. The proposed apparatus replacement plan reflects this suggestion. With the exception of tankers and some specialty units, full funding of the FY05-10 replacement plan will allow MCFRS to replace front-line apparatus when it reaches twelve years and in no case will apparatus serve in a reserve capacity longer than fifteen years. Additional analysis may be required to determine if a certain number of pumpers, aerials, and rescue squads that are subject to severe duty demands and rapid accumulated mileages need to be replaced on a more aggressive cycle.

The EMS unit replacement schedule reflects the referenced plan adopted by the Fire and Rescue Commission. This replacement plan is based upon call load. Front-line EMS units are replaced between 5 and 7 years depending on call load and accumulated mileage.

With the exception of specialty apparatus, recent apparatus procurement has generally been accomplished via multi-year master lease contracts, with a maximum of a 5-year

term. This allows for some fleet uniformity and standardization while introducing available fire apparatus technology.

The replacement plan includes both County-owned and LFRD-owned apparatus. The plan does not preclude any LFRD from purchasing replacement apparatus with non-County funding, although it is expected that most LFRD apparatus will be replaced on the same replacement cycle for frontline and ready reserve units. It is assumed that the LFRD's will follow the apparatus replacement guidelines adopted by the Fire and Rescue Commission.

During FY05, some alternative funding options for future apparatus replacement will be considered including lease-purchase programs, lease-turn in programs, outright purchase, the establishment of a revolving replacement fund, and alternate funding sources, i.e. grants, dedicated revenues from third party EMS billing, etc.

To assure regular replacement of apparatus, critical to the delivery of fire and rescue services, the Apparatus Management Plan recommends the establishment of a dedicated, separate funding source for the purchase of replacement apparatus. The number of replacement apparatus, purchased in any year, would be determined on the basis of available resources. Providing a dedicated funding source for apparatus replacement offers opportunity to undertake long range planning for apparatus needs and to even out fiscal demand on a yearly basis through a combination of replacement based upon age, replacement based upon the dynamics of unit activity, mileage, and overall vehicle condition, and rehabilitation of units as appropriate to extend the useful life of the apparatus. This approach will offer several benefits that include elimination of the recurrent high cost of the backlog for apparatus replacement and the opportunity to standardize apparatus breed for more efficient maintenance and repair of like vehicles.

The key factor in any fleet replacement program is to replace the vehicle prior to the need for significant repairs. An aggressive replacement plan will offer the additional benefit of obtaining residual value for a used piece of equipment other than salvage value. No aerial ladder manufacturer will warranty an aerial ladder system for greater than ten years. Presently, aerial ladders are being replaced between fifteen and twenty years. Having a regular fleet replacement program will avoid reliability issues and excessive out of service conditions that the MCFRS currently experiences.

It is also important to ensure that apparatus for new or expanded fire and rescue services is appropriately budgeted. Funding for an additional service must not only include personnel and the vehicle, but also additional operating costs (insurance, fuel, and maintenance), tools/appliances/equipment, and communication information technology.

A key component of the apparatus replacement program is the establishment of a ready reserve fleet. These ready reserve units must be equipped as if they are front line units which can be placed into immediate service should a vehicle be designated as out of service. This ready reserve capacity assures the continuity of fire and rescue service to the community without compromising response times. Furthermore, the ready reserve

units are immediately available for surge capacity if needed during an extended emergency.

The current apparatus replacement schedule and the OLO report note that there is a substantial backlog for replacement apparatus. The backlog from prior years' deferment of apparatus purchases and the FY05 replacement schedule indicates a need for 44 units to be purchased – 6 ladders, 22 engines, 6 brush trucks, 6 rescue squads, 4 EMS units and 2 specialty units.

Because of the condition of the fleet and the replacement backlog, it is recommended that an order be placed in FY05 for the lease purchase of 29 units – 15 engines, four (4) aerial ladders, three (3) rescue squads, five (5) EMS units and two (2) specialty units. In FY06, the annual lease payment for the above 29 units is estimated to be approximately $2.88 million annually for five years. To put these units into service immediately upon acceptance of the units will require the purchase and mounting of equipment, appliances, hoses and tools estimated at a cost of about $2 to 2.3 million. The balance of the back logged replacement units will be programmed for subsequent orders, FY06 and beyond, until the normal replacement cycle is achieved.

Support vehicles are included in the fleet. The support vehicles assigned to DFRS are included in the DPWT fleet maintenance program which include annual fees for fleet replacement. Support vehicles for LFRD personnel are budgeted for replacement based upon the age and scheduled replacement. The fleet maintenance consultant will be tasked with reviewing the replacement cycle for DFRS and LFRD support vehicles and provide recommendations for maintenance of support vehicles as well as replacement planning.

Summary of Apparatus Replacement Actions

- **FY05**
  - **Lease-purchase 29 units to meet the priority needs for replacement. Develop plan for the purchase of the required tools, equipment, hoses, and appliances.**
  - **Update and refine the apparatus replacement plan to reflect recent purchases. Plan for the FY06 operating budget submissions, including documentation of the need for apparatus replacement. Develop and adopt policies regarding replacement cycles for apparatus and support vehicles.**
  - **Consider alternative methods of funding fire apparatus replacement, including but not limited to lease-purchase programs, lease-turn in programs, outright and pay-go purchase, the establishment of a revolving replacement fund, and alternate funding sources, i.e. grants, EMS third party billing, etc.**

- **FY06-10**
  - **Update and refine apparatus replacement plan to reflect recent purchases. Plan for future operating budget submissions and document the need for apparatus replacement.**

Preventive and Predictive Maintenance

Proper preventive maintenance is second only to an effective fleet replacement program for providing increased reliability of fire apparatus. Preventive maintenance must be scheduled on a regular basis and the prescribed schedule must be adhered to. Proper preventive maintenance includes a physical inspection of the vehicle, performance of manufacturer's recommended scheduled maintenance activities for all aspects of the vehicle, including chassis components as well as vocational components. Timely repair of any accumulated defects reported by the apparatus operators must be addressed as well.

NFPA 1915, Standard for Fire Apparatus Preventive Maintenance Program, manufacturer's recommendations, and COMAR regulation 11.14 and 11.22 will serve as the basis for a preventive maintenance program. Appropriate policies will be developed for FRC adoption and MCFRS implementation.

Preventive maintenance starts in the fire station through standardized daily, weekly, and monthly vehicle condition and defect reports. Various types of vehicle condition activities and checks may be required at different specified times. These apparatus condition checks and associated activities are the basis for many preventive maintenance functions, such as proper tire inflation, operation of pump valves, fluid levels, lubrication, engine and transmission operations, etc. During FY05, standardized vehicle condition and defect reports will be developed as well as the proper training to implement the vehicle condition reporting requirements.

The publication of schedules and checklists for vehicle condition reports that must occur at specified times will be accomplished in FY05. The checklists may include, but not be limited to, specific data collection of items such as mileage, engine hours, tire tread depth, brake wear, coolant freeze point, etc. Additionally, the check lists may include information such as the specific types and quantities of oils, fluids, and lubricants that are required for the specific piece of apparatus, as well as the manufacturer's recommendations for changing them.

As data is reported and accumulates, repair and life cycle cost trends can be analyzed and predictive maintenance activities can then occur. Predictive maintenance will allow for the repair or replacement of components prior to a breakdown based upon experience with like components in other vehicles. Such component repair or replacement may occur at the time of a scheduled preventive maintenance. Such practices will continue to increase reliability of fire apparatus.

The use of preventive and predictive maintenance programs will increase reliability and decrease unscheduled breakdowns. In time, a cost savings should be demonstrated as unscheduled breakdowns are frequently more costly in terms of time and dollars than those repairs accomplished via a preventive/predictive maintenance program. Further, it is expected that any portable equipment such as saws, generators, fans, hydraulic tools, etc. that reside with the vehicle will be added to the preventive maintenance schedule. Currently, there is no uniform practice relating to preventive maintenance for portable tools and equipment.

Summary of Preventive/Predictive Maintenance Actions

- **FY05**
  - **Develop and adopt polices for standardized preventive maintenance schedules and checklists. Implement policies and train users in the application of policies.**
  - **Develop and adopt polices for standardized in-station daily, weekly, and monthly vehicle condition and defect reports. Implement policies and train users in the application of the policies.**
  - **Monitor preventive maintenance schedules, vehicle condition reports and other actions for compliance with standards.**
  - **Increase the apparatus maintenance portion of the operating budget to reflect increases in business volume, travel distances, parts, and consumables. The operating budget needs to reflect the costs to be incurred for the new maintenance initiatives including scheduled preventive maintenance, inspections, and testing of apparatus and major vocational components and the costs incurred to resolve any deficiencies encountered.**
- **FY06-10**
  - **Continue to monitor preventive maintenance activities, vehicle condition reporting and modify as necessary.**
  - **Analyze accumulated fleet maintenance scheduled and unscheduled maintenance and repairs history to develop predictive maintenance procedures to improve reliability.**

Driver Training Enhancements

The MCFRS presently requires all new drivers to complete a thirty hour Emergency Vehicle Operators Course (EVOC) in addition to the minimum requirements established by law in the State where the employee resides. The EVOC curriculum successfully teaches drivers to operate vehicles during emergency response with due regard for public safety and the challenging and changing traffic demands. The training can be enhanced

to provide information regarding the mechanical characteristics of the apparatus and the operations of the fire and rescue vehicles and their individual components. More importantly, the program deals almost exclusively with light duty vehicles and fails to adequately prepare personnel for the demands of safely driving and operating the MCFRS medium and heavy duty vehicles.

Historically, these skills are imparted in a variety of ways at every worksite. Once a DFRS employee has passed the initial training necessary to achieve licensure in their State of residence, they are eligible to proceed through additional training, as directed by the DFRS Chief, at the individual worksites.

The apparatus training includes uniform county wide written and practical exams administered by the Public Service Training Academy (PSTA). This requirement is applied to career personnel and is administered for each breed of apparatus, (pumper, aerial, heavy rescue). Practical training in operating apparatus in emergency response regarding stopping distance, turning radii, defensive driving and maneuvers, diminishing clearances, driving in reverse, height clearances, etc is limited at this time. Additionally, there is no requirement for recertification at this time. The individual LFRD's determine the driver training requirements for volunteer personnel regardless of the breed or ownership of the apparatus.

Recognizing the shortcomings of the existing requirements, the MCFRS recommends the development and implementation of more intensive course work including practical drive time experience in a *Driver Training Academy*. This course will be developed and administered by the DFRS Bureau of Wellness, Safety, and Training. The requirements of this program would apply to all personnel, career and volunteer; and apply to both new and existing drivers. A stringent certification and recertification program would be developed to ensure initial and ongoing development and improvement of knowledge, skills, abilities, and defensive driving for emergency vehicle operations. The skills and safety practices will be periodically observed and checked to improve appropriate safe driving behaviors. The objectives of this initiative are to reduce collision frequency and severity and thereby reduce out of service time for repairs of apparatus.

Curriculum will need to be developed to incorporate the teaching of pre-trip inspections, pre-trip adjustments required to be performed, and the reports necessary to assure safe and reliable operation of fire-rescue vehicles. The course curriculum will include implementation of uniform practices for daily, weekly, and monthly vehicle condition reporting. This will help address the issue that many drivers lack the fundamental understanding of vehicle systems and components involved in vehicle operations.

MCFRS will model the requirements for Commercial Drivers Licensing for fire and rescue vehicle operations. Under State of Maryland laws, the fire service is exempt from complying with the regulations for Federal and State Commercial Driver's Licensing (CDL) requirements. MCFRS certification and recertification will include the standards for inspecting and documenting such activities similar to CDL requirements which

require daily inspection of air brakes, steering, chassis integrity and other major components parts condition review

Summary of Driver Training Actions

- **FY05**
  - **Develop and implement in-station driver training for safe driving behaviors as well as background and training on reporting of daily, weekly, and monthly inspections.**
  - **Develop a budget proposal for the implementation of a driver training academy through the PSTA.**
- **FY06-10**
  - **Implement the driver training academy at the PSTA.**

Parts Inventory

MCFRS should establish a revolving parts inventory system for commonly used parts. Initially the parts inventory would be located in leased or County available space, either separately (i.e. small storage warehouses) or as part of a leased centrally located facility.

It is recommended that facilities for parts storage and the long term arrangements and locations for parts storage should be a task for the fleet maintenance staff to further analyze and evaluate. Among the items to be addressed will be the relationship of the part storage functions to the work performed, overhead costs for central vs. distributed parts storage, travel time, inventory processes for vendor management, purchases, receipt, invoice confirmation and inventory control systems.

An apparatus records management system will be able to maintain inventories. Multiple locations will require a different information technology infrastructure for managing the inventory than a central location. It is assumed that some cost savings may be incurred through "just in time" inventories of a selected vendor, consolidation into a single facility or the utilization of existing County related facilities. The potential savings may be offset by the need for additional staff required to support parts inventory and management to meet operational requirements. LFRD's will be encouraged to work with the Apparatus Chief and staff to also work on competitive, cooperative purchasing of commonly used parts, supplies, etc.

A minimal parts inventory of less common or hard-to-find proprietary parts for older apparatus must also be considered although it is difficult to predict at this time just which parts may or may not fail.

The purchase of at least one complete engine and one complete transmission should be accomplished for major apparatus. This practice should continue with the future acquisition of multiple units whereby a spare swing unit can be purchased for later use.

For instance, a swing alternator for every five units purchased will assure at least one alternator on the shelf at all times to maintain continuity of services and reduce down time rather than ordering one upon failure of a given unit. Purchasing an appropriate level of component parts at the time of manufacture of ordered units may be more cost effective.

It is anticipated that additional maintenance capability, whether provided by in-house staff, competitive services, or a vendor, will exist in future facilities for the change out of these major components. However, the additional components should be purchased at the time of manufacture and stored at the facilities of heavy equipment vendors on an interim basis or until such time that a central facility is provided. Having these items readily available will greatly reduce out of service time. Implementation of this program for new apparatus will require an increase in the apparatus procurement budget to acquire an appropriate number of swing units for major components. On a trial basis, a 10% reserve ratio for swing/rebuild components is recommended. This spare ratio for major component parts is another task for the fleet maintenance consultant to evaluate in determining an appropriate ratio for component parts to sustain an effective apparatus management program.

For FY05, the following components and parts inventory will need to be procured:

- Swing engines and transmissions
- Aerial ladder cables, pulleys, and slide-blocks
- Pump primers, valves, and accessories
- Pump impeller assemblies
- Alternators, starters, and misc. chassis components

In FY06-07, an initial stock of parts will be purchased. This initial stock will be developed based upon commonly used parts and their related fill rate. A determination will be made as to an acceptable fill rate for the MCFRS based upon the type of component. In FY07 an inventory of hard-to-locate and/or proprietary parts will also be purchased.

The Division of Fleet Management Services has suggested that their current infrastructure may allow for parts inventory control and storage, as well as some volume purchasing for common heavy equipment components. This option will be further analyzed by the MCFRS fleet management consultant.

Summary of Parts Inventory Actions

- **FY05**
  - **Purchase OEM proprietary and/or parts with known excessive lead times for the purpose of reducing out of service time.**
  - **Place order for swing components such as engines, transmissions, pumps, etc. at the time of manufacture of apparatus.**

- **Consider parts inventory control and storage options for inclusion in the FY06 operating budget.**

- **FY06**
  - **Lease warehouse or storage facility space, or use available County-owned space, to store parts inventory until completion of centrally-located shop.**
  - **Purchase an initial parts inventory for commonly used items.**
  - **Explore utilizing a fleet management consultant to analyze long term part storage requirements and arrangements; evaluation of the appropriate swing ratio for major component parts and review of inventory level and fill rate.**
  - **Evaluate apparatus management records management system for parts inventory management. Integrate with other maintenance databases as necessary.**

Facilities

Currently, MCFRS maintenance facilities include a total of two single depth bays (1 piece of apparatus), two single + depth bays (1 piece of apparatus + 1 EMS unit) and three double depth bays (2 pieces of apparatus). In most cases the size of any of the bays makes it difficult to maintain modern apparatus. In most cases, work on aerial ladders must be accomplished outdoors due to height limitations. This is a significant constraint when performing both scheduled maintenance and unscheduled repairs on apparatus. Currently, only nine pieces of apparatus can be maintained or repaired at any one time in an indoor environment. This accounts for just less than 5% of the medium and heavy duty apparatus in the fleet.

MCFRS maintenance facilities are located at Silver Spring #16, Rockville #3, Kensington #21, Bethesda #6, and Gaithersburg #8. Only Bethesda #6 and Gaithersburg #8 have available land for the potential expansion of maintenance bays. However, both of those stations have other limitations such as limited parking, site constraints, etc.

To meet the short term and long term needs for apparatus maintenance and management additional maintenance capacity is needed. There are both short-term and long-term needs. Currently, the existing satellite facilities are presently overwhelmed by demand for unscheduled repairs and rebuilds and with running repairs with available parts inventory. These facilities are struggling to maintain any kind of consistent preventive maintenance programs. An immediate action to grow shop capacity without significant capital outlay is to deploy additional mechanics, vendor or competitive services at the existing facilities to expand the hours for maintenance activities. This makes best use of the existing infrastructure and could in the future serve as a place that could provide

minor preventive maintenance service, "drive-up, running repairs". If after additional analysis, the shop structure is discarded, the existing bay space could be used for storage of reserve apparatus. The long term solution is the development of centrally located shops that are designed with more efficient layouts and of sufficient size to accommodate the apparatus being used in emergency response. The central shops would perform major preventive maintenance activities, major repairs, vocational repairs, and parts storage.

In the long-term, the "satellite" concept may not function effectively due to limited space, obsolete layouts and increasing complexity of apparatus. It may not be cost effective to retrofit additional shop capacity at any of the existing facilities. Subject to the fleet management consultant reviewing overall facility capacity to maintain a growing fleet, the plan recommends one shop centrally located within the County and two smaller shops, one located in the northwestern portion of the County and one located in the southeastern portion of the County. The smaller shops would take over the preventive maintenance activities and "running" repairs accomplished by the satellite facilities. In addition the smaller shops could potentially address small tool repair, SCBA repair, etc, all of which are being accomplished via other space and methods at this time. Finally, given the need to maintain close proximity to response demands, strategically located shops that are designed to service vehicles deployed in two adjacent battalions are a practical solution. It is anticipated that the opening of the new fire stations presently approved for construction will take the MCFRS to a 37 station, six battalion model. This model permits a balanced approach to workload demand and efficiency.

Each planned shop must be designed and constructed to meet the needs of the fire apparatus repair activities. The most important feature of a properly designed apparatus maintenance shop is the physical size. Physical size, or lack thereof, is today's most severe limitation at the LFRD shops. The height, width, and depth, of the facility need to be able to accommodate all types of apparatus for indoor repairs. In addition, a central shop must have bay capacity to house long term repairs without influencing normal shop flow. Each shop must also contain the proper tools and equipment to perform repairs. These tools and equipment include portable lifts, automatic oil drain systems, tire changers, overhead cranes, etc. In addition, the shop must be well lit, well ventilated, and be ISO 14001 compliant. Each shop must also contain adequate space for parts, major replacement component storage, secured parking, and storage for reserve apparatus. These facilities should also accommodate repair of portable fire-fighting equipment as well as meet the human needs of the employees staffing those facilities.

There is an immediate opportunity to move ahead with a centrally located shop. The Rockville Volunteer Fire Department (RVFD) is moving forward with plans to renovate Fire Station 3 located on Hungerford Drive. The plans for renovation of Rockville #3 call for its apparatus maintenance bay to be permanently relocated. There have been discussions between RVFD and MCFRS regarding the relocation of the maintenance bay and the transition of the maintenance management to MCFRS. There is funding within the current CIP project for RVFD station maintenance designated for relocating functions during station renovation. The maintenance facility for RVFD apparatus could also serve as the centrally located facility to support MCFRS apparatus management requirements.

Initially this facility may be leased space as the need is immediate for early calendar year 2005 according to the RVFD schedule. It would be difficult to develop and construct a permanent facility within that time period. Ultimately the proposed central shop must be planned, designed, and constructed to meet the needs of the present and future needs of MCFRS and consideration may have to be given to development of a specifically designed fire and rescue apparatus maintenance facility.

The leased facility for this activity may initially be funded from the Rockville #3 capital improvements project and subsequent years would require operating funds. In addition, operating costs for the facility will include proper tools and equipment for apparatus maintenance not transferred from the RVFD maintenance operations and other related costs. To increase the maintenance capacity for this facility to meet the operating needs of either RVFD or MCFRS, consideration should be given to hiring or obtaining contract services for maintenance activities during weekday night and weekend extended hours of operation. The increased capacity should be installed in the short-term.

To proceed with the development of a central maintenance facility and satellite facilities (south eastern and north western) that are functionally designed for fire and rescue apparatus maintenance to replace the existing and obsolete facilities, this project with associated funding must be added to the MCG Facility Planning CIP project and the MCG Site Selection CIP project. If adopted as part of the CIP, the project will allow for both DPWT staff and consultant services to commence planning, site evaluation, program of requirement development and preliminary design activities for a permanent centrally located facility and satellite facilities. The goal would be to have a "ready" CIP project for phased implementation of the facilities to a part of the FY07-12 Capital Improvements Program. In the event, it is preferred that two separate CIP projects be established – one for the central facility, which is the highest priority, and the second for the satellite northwestern and southeastern facilities. MCFRS recommends a CIP amendment for FY05 for facility planning for these facilities.

MCFRS APPARATUS MANAGEMENT PLAN

A proposed facility planning, design, and construction timeline for FY05-10 is offered in the table below.

	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10
	CENTRALLY-LOCATED SHOP					
LEASE	X	X	X	X		
OPERATING	X	X	X	X	X	X
PLANNING	X	X				
SITE		X				
DESIGN		X	X			
CONSTRUCTION			X	X		
	SOUTHEASTERN SHOP					
OPERATING					X	X
PLANNING		X	X			
SITE			X			
DESIGN			X	X		
CONSTRUCTION				X	X	
	NORTHWESTERN SHOP					
OPERATING						X
PLANNING			X	X		
SITE				X		
DESIGN				X	X	
CONSTRUCTION					X	X

The cost of facilities, including land, construction, equipment and facility operating expenses is potentially the single most significant cost of a fire department maintenance program. It is proposed to utilize consultant services to assist MCFRS in planning efficient shop layout that is flexible and effective for the various breeds of apparatus and to accommodate in the facilities the necessary functions and support activities that reflect best practices in design, operations and maintenance.

MCFRS will continue to consider outsourcing to supplement in house staff or to provide direct services for some or all maintenance functions. In essence the County has been using "contract" maintenance services through payment to LFRD's to perform maintenance on County and LFRD apparatus for many years. With increased technical staff and centralized reporting functions, contract or competitively selected maintenance services can supplement existing mechanic staff efforts.

Summary of Facility Actions

- **FY05**
  - **Increase maintenance capacity within existing facilities by extending hours of maintenance activities with in-house or vendor provided services during extended night and weekend hours.**
  - **Analyze overall facility capacity requirements for a growing MCFRS fire and rescue apparatus fleet through the fleet management consultant.**
  - **Address the relocation of the RVFD maintenance bay to leased facilities or available County space and transferring the maintenance function from RVFD to the County.**
- **FY05-10**
  - **Submit CIP project as an amendment to the CIP for facility planning and site evaluation for three maintenance facilities – centrally located facility and two satellite facilities – northwest and southeast. Address facility items for FY05-10 as described in the chart above.**

Facility Environmental Management Systems - ISO 14001

The County is committed to responsible environmental management. The International Organization for Standardization (ISO) prescribes a standard to establish and improve upon environmental management systems (EnvMS) and specifies EnvMS requirements that can be self-certified. ISO 14001 is the basis for the internationally recognized EnvMS standard. A series of related standards in the 14000 series offer guidance to related areas of EnvMS. The MCFRS recommends the application of ISO 14001 to have MCFRS bring future and eventually existing compliance with EnvMS requirements and to self certify its compliance. EnvMS provides standards for the handling and storage of hazardous materials, dealing with potential oil and fluid spills, proper disposal of such materials, storm water management runoff of parking lots that have pollutants on the surface from vehicle leakage, surface water collection and filtering before entering the storm sewer system, utilities management and recycling systems.

The ability to meet the ISO 14001 standard should be a two-phase goal. First, each of the existing satellite shops should be reviewed for compliance with ISO 14001. The review should include a listing of compliance points and recommended remedies for those areas for which compliance has not been met. It is expected that the Department of Environmental Protection will be able to assist with that compliance review.

The second phase of ISO 14001 compliance will assure that all new leased or owned maintenance facilities are in compliance with ISO 14001.

Summary of ISO 14001 Actions

- **FY06**
  - **Evaluate existing shops for ISO 14001 compliance and develop plan to bring the shops into compliance as necessary.**
  - **Incorporate ISO14001 compliance standards into the design of new maintenance facilities.**
- **FY07**
  - **Implement ISO 14001 compliance for existing shops as necessary.**

APPARATUS, TOOLS, AND EQUIPMENT ANCILLARY ISSUES

Fuel Management

MCFRS currently manages fuel storage and distribution through fill sites operated and maintained by the LFRD's. It is assumed that MCFRS will continue to manage its own fuel distribution and usage. It was determined some time ago that while some LFRD-assigned vehicles and other MCFRS vehicles utilize County-managed fueling sites, those sites are too few and spread apart geographically to be used efficiently for regular and frequent use by fire and rescue apparatus. Hence, a number of fire stations have on-site fueling capability. One disadvantage to this decentralized model of the various fill sites being managed by the LFRD is that most apparatus cannot access any available fuel pump in the LFRD network due to assorted fuel management systems, e.g. keys, codes, cards, etc.

Best fleet management practices include the monitoring of fuel usage by vehicle and by station on a daily and monthly basis. Fuel usage data has not been readily available from the LFRD staff. A variety of recordkeeping methods are used thus making centralized data collection more difficult.

In FY06, the MCFRS recommends an evaluation of available fuel monitoring technology and fuel distribution management and access options be completed for application to MCFRS. The Division of Fleet Management Services may be able to assist with fuel distribution and management services for MCFRS.

A fuel usage and control system with appropriate technology must be implemented. This implementation may be in cooperation with the LFRD's. The MCFRS recommends the transferring of fuel management from each of the individual LFRD's to a centralized authority, the Assistant Chief for Apparatus or designee. Implementation of a fuel usage technology may require the addition of personnel to monitor fuel usage and ensure that fuel deliveries are handled.

Summary of Fuel Management Actions

- **FY06**
  - **Evaluate FY06 available fuel management methodologies including distribution and recordkeeping.**

- **FY07**
  - **Implement fuel management methodologies as necessary. Finalize analysis of consolidating purchase and management of fuel delivery from the individual LFRD to the Assistant Chief for Apparatus or designee.**

Tools, Equipment, and Appliances for Apparatus

As stated in OLO study, the transfer of tools, equipment, and appliances between apparatus is time consuming, delays response and becomes a point of friction when apparatus is transferred from station to station. More importantly, the current practice of transferring tools, equipment and appliance from frontline units substantially diminishes the ability of MCFRS to place reserve units into service to meet surge requirements for apparatus and personnel during major disasters or emergencies. The lack of available reserve tools, equipment and appliances keeps an apparatus from being deployed even though the apparatus and personnel are available

Past practice has been to rely upon the LFRD's to fund tools, appliance, and equipment for additional and replacement apparatus. MCFRS has not done a good job in providing operating funds specifically for tools, appliances and equipment for replacement apparatus. Some LFRD's have had Amoss funds approved for such uses or the LFRD has used non-tax funds to purchase the necessary items. More often than not, however, the new apparatus do not get new tools, appliances, and equipment. In general, the tools and equipment are transferred from the replaced unit to the new unit. At times, when the existing equipment is no longer serviceable or not applicable, the new unit is not placed into service until funds are available to purchase needed equipment. Also, there has been limited standardization either regarding the type of equipment or the amount of equipment to be placed on the apparatus The unfortunate impact of not fully equipping new apparatus with the proper equipment and tools is that the unit is not placed into service. Opportunities to address warranty issues with the unit in service are thereby limited.

- Tools, appliances, and equipment must be purchased and mounted for current reserve pumpers (20), aerial ladders/towers (6), and rescue squads (1).

- Tools, appliances, and equipment must be purchased and mounted for replacement and additional apparatus at the time of the apparatus purchase. These items must be coordinated to ensure that the equipment must be in hand by the time the apparatus is delivered for service.

Resources are requested in FY05 to accomplish both of these activities. The apparatus replacement plan includes costs for tools, equipment, and appliances.

Summary of Tools, Equipment and Appliances Actions

- **FY05**
  - **Provide tools, equipment, and appliances for apparatus acquired in FY04.**

- **FY06-10**
  - **Provide tools, equipment, and appliances for replacement apparatus purchased in FY 05 and beyond.**

- **Provide tools, equipment, and appliances for ready reserve apparatus.**

Vocational Component Testing

Aerial ladders, fire pumps, hose, and ground ladders each have test standards prescribed by the NFPA. For the most part, NFPA standards reflect annual testing requirements of key components. With the exception of testing and certifying aerial ladders, all other testing and inspections of all other apparatus can be accomplished in-house.

Aerial testing must be accomplished using a third-party test company that has the equipment and specific technical training for conducting such tests. Occasionally testing falls behind, but this is primarily due to scheduling or apparatus availability issues. The funding for aerial testing already exists within the MCFRS and LFRD operating budgets.

Pump testing is conducted by uniformed personnel. Test results significantly improved between 2002 and 2003. Testing is presently performed at the drafting pit located at the Public Service Training Academy. This pit will be eliminated with the proposed renovation of the PSTA. The centrally-located shop should include a year-round, all weather facility for in-house pump testing.

Ground ladder testing is generally performed by a third-party test company at the time aerial testing occurs. Ground ladder testing could be accomplished in-house with proper training, test equipment, and personnel. If ground ladder testing becomes an in-house process, it is envisioned that testing will occur at the time of a vehicle's annual preventive maintenance activity. Ground ladder testing is not specifically budgeted. Some LFRD's fund ground ladder testing via their operating budget. A standard ground ladder test, consistent with applicable standards program will be developed in FY05 with implementation in FY06.

Hose testing is generally accomplished via an in-station activity. Test methodology and compliance with the test standard varies between stations. A standard hose test procedure will be developed in FY05 with implementation in FY06.

The *Firehouse* software to be implemented in FY05 includes a user-friendly module to track all of the prescribed tests listed above.

MCFRS policies will have to be developed and approved for implementation. The policies apply the appropriate NFPA standards and applicable laws and will address standardized testing protocols.

Summary of Vocational Component Testing Actions

- **FY05**
  - **Continue pump and aerial test programs, including acquisition of needed test equipment and materials.**

- **Develop in-station test procedures for ground ladder and hose testing.**

- **Develop and adopt policies for inspections, testing and certifications to be performed on apparatus and major vocational components on a regular basis as established in NFPA and other industry standards. Repair or replace defects encountered to achieve increased reliability and readiness.**

- **FY06**
  - **Implement in-station test procedures for ground ladder and hose testing.**

Shop Tools and Equipment

There has not been sufficient funding provided to purchase diagnostic equipment for the shops. However, it may be inefficient and expensive to locate heavy equipment diagnostic equipment in each of the existing maintenance facilities. Consolidating expensive diagnostic equipment into a central facility is preferred. But it is recognized that a centrally-located facility is not going to occur immediately. The five satellite shops will be continue to be used for the foreseeable future and the need for diagnostic equipment is compelling. For FY05, the MCFRS recommends that appropriate diagnostic hardware and software for engines, transmissions, and multiplexed systems be purchased and installed for each shop as an immediate and interim short term solution.

Additional investments in both electronic and non-electronic diagnostic tools and equipment must be accomplished. The centrally-located shop should be fully-equipped with all necessary tools and diagnostic equipment.

A fleet management consultant will be tasked to assess and evaluate the organizational structure and business processes needed to complete the required servicing and repairs. The need and location of diagnostic equipment must also be evaluated. Upon recommendation of the consultant, some of the five satellite shops may be designated for installation of diagnostic equipment.

Any diagnostic equipment purchased in the short term is subject to being transferred to the proposed new centralized and satellite maintenance facilities when developed and constructed.

Summary of Shop Tools and Equipment Actions

- **FY05**
  - **Hire a consultant to perform a shop inventories and assess the need for diagnostic equipment and their strategic distribution.**

  - **Provide the necessary electronic tools and software for diagnosis of engine, transmission, and electrical problems.**

- **FY06-10**
  - **Continue to invest in necessary shop tools and equipment to enhance the productivity of the shops.**

Small Tools & SCBA Maintenance

Small tools & SCBA also require regular maintenance. Currently, small tools are maintained utilizing a variety of methods, including fire station personnel, fire mechanics, and/or vendors. Small tools do not have a regular preventive maintenance schedule. The MCFRS recommends that the small tool complement on apparatus be subject to a maintenance schedule that would be based upon the vehicle's annual preventive maintenance activity to assure the readiness and reliability of the equipment.

There are a number of methods that could be used to accomplish this task. The preferred method would be to have a dedicated small tools mechanic (either in-house or vendor provided) to perform preventive maintenance and repairs on saws, portable generators, fans, hydraulic rescue tools, hand lights, etc. Having a dedicated small tools mechanic, either in house or vendor provided, would also assist with the outfitting of new apparatus. It is envisioned that this function will be a component of the permanent centrally-located maintenance facility. Other sources of repairs may include the utilization of other County agencies or vendors. Small tools maintenance will be further reviewed in FY06.

SCBA maintenance is currently accomplished by firefighters with factory training from the SCBA manufacturer. The methodology is acceptable; however, the repair facilities are somewhat limited. Consideration should be given to having SCBA maintenance performed at the permanent centrally-located maintenance facility.

Summary of Small Tools and SCBA Maintenance Actions

- **FY06**
  - **Evaluate maintenance options for small tools.**

  - **Include in the program of requirements for the central facility the space requirements for the SCBA storage and maintenance functions.**

Light-Duty Vehicle Maintenance and Repair

The amount of shop time utilized to maintain light-duty vehicles, i.e., cars, vans, SUVs, varies among LFRD's. There may be some advantage to outsourcing MCFRS support vehicle maintenance and repair to a single vendor or to the County light-duty vehicle contract services to provide capacity to deal with fire and rescue apparatus. There are

certainly operational situations where light-duty vehicle repair would continue to be permitted at a satellite shop. Also, exceptions could be made for emergency repairs and installation and repair of warning equipment on light-duty vehicles. Light-duty vehicle maintenance and repair will be further evaluated in FY06.

Summary of Light-Duty Vehicle Maintenance and Repair Actions

- **FY06**
  - **Evaluate maintenance options for light-duty vehicles.**

OPPORTUNITIES WITH THE DIVISION OF FLEET MANAGEMENT SERVICES

MCFRS has met with the Division of Fleet Management Services during the development of this plan. There are potential opportunities to work together in the following areas:

- Fleet management software
- Parts and fuel purchasing, storage, and inventory control
- Competitive services for light and heavy-duty vehicle inspections, maintenance, and repairs
- Technical support to diagnose problems
- Managerial and technical training

MCFRS intends to work with the Division of Fleet Management Services to identify potential areas for competitive services, integration, and/or technical assistance for implementation of this plan.

MCFRS APPARATUS MANAGEMENT PLAN

PROJECTED RESOURCE REQUIREMENTS

This report focuses principally on the development of a comprehensive list of tasks that must be accomplished to improve the operational readiness of the fire and rescue fleet. Efforts have been made to provide recommendations on the sequence of certain tasks to lay a foundation, perform additional analysis, obtain information, and to address lag time that may occur between ordering an item before receipt. These have been arrayed in this report for tasks to be accomplished in the near term, using the FY05 time frame as a point of reference; short term, using the FY06 time frame as a reference; and long term, using FY07-10 time frame as a reference.

The report includes order of magnitude estimates of the resources needed to accomplish certain tasks for near term and short term objectives (see attached table "A"). The tasks are numbered for identification and discussion purposes. Its sequence is not intended to convey or establish a priority order for implementation. Rather, the implementation priorities for the tasks to be accomplished relate to the resources that would be made available and allocated to address the apparatus maintenance needs and tasks that remedy that need.

The tasks outlined in this report should be considered dynamic and are to revisited and updated on a regular basis depending upon the priorities established for implementation and the availability of resources to complete certain tasks. The listing of tasks for the near term and short term is to provide further opportunity to develop strategies for implementation based upon priorities and resources in terms of staff, technical expertise, administrative and maintenance capacity, and funding availability.

The near term tasks, if all they were to be completed in FY05, are projected to cost about $2.2 million. This includes addressing the issues of apparatus inspections and vocation component testing, COMAR inspections, repair and maintenance, placing an order for replacement apparatus, purchasing tools, equipment and appliances for replacement purchased in FY 04, and the use of a fleet maintenance consultant to assist with policy formulation, implementation and technical analysis. The tasks also include placing an order for replacement and backlogged apparatus under lease-purchase arrangements, the first payment for which does not materialize until FY06. The estimates do not include any costs associated with the relocation of the RVFD shop functions in a proposed leased facility.

The short term tasks, if they were all to be completed in FY06, are projected to require approximately $8.9 million. This includes accumulated lease payments for replacement apparatus; tools and equipment for replacement and ready reserve apparatus; and other apparatus management activities. The projected costs do not include estimates for implementation of vocational testing programs, driver training, parts inventory and storage space which were all identified as necessary but subject to further analysis.

CONCLUSION

A highly trained and motivated MCFRS fleet management staff will be required to grow excellent customer service and communication between those who use the fleet's vehicles and those who oversee their procurement and maintenance. These recurring tasks that must be accomplished, include, but are not limited to:

- Identification of service delivery needs, responsibilities, and performance measures
- Annual budget, strategic planning
- Negotiate and manage external service contracts
- Financial analysis of fleet costs
- Records maintenance
- Assure compliance with all Federal, State, and Local laws as well as professional standards for mechanics and drivers
- Implement a fueling plan to service the entire fleet, including purchasing fuel and scheduling delivery
- Continuous monitoring of the condition and readiness of the fleet
- Development of replacement criteria and specifications for all vehicle types
- Resolution of contractual and or warranty problems
- Procurement of vehicles and equipment
- Ensure that all vehicles are properly licensed, titled and insured
- Disposal of fleet vehicles and equipment when they are no longer economical to maintain
- Promote employee growth and development
- Assist with training and certification of drivers and mechanics
- Develop appropriate policy and procedures for fleet management
- Provide an emergency response infrastructure for roadside breakdowns
- Assist risk management and safety sections with appropriate inventories and implementation of an MCFRS Safety Plan
- Provide documentation for collision investigations and impounding of the vehicle in a secure location
- Ensure proper staff, i.e. service writers; Parts and inventory clerk and couriers; small engine mechanic; SCBA repair technicians; administrative personnel; managerial personnel; and additional uniformed personnel

Through the implementation of industry-wide fleet management practices, the out-of-service time of apparatus within the MCFRS will significantly improve. The appropriate resources are needed, however, for the implementation of these best practices. These range from enhanced utilization or reallocation of existing resources to the infusion the necessary funding for the purchase of replacement apparatus, tools/equipment/appliances, shop personnel, and facilities.

Immediate and full implementation of this plan will ensure that time tested industry-wide best practices will be initiated; followed by continuous improvements necessary to assure

a safe, dependable, and reliable fleet of fire-rescue vehicles are ready at all times. In addition, the overall condition of the fleet will be markedly improved. Finally, areas such as small tool maintenance, fuel management, and vocational component testing will be properly supported to meet the needs of the MCFRS now and into the future.

APPARATUS MANAGEMENT PLAN
ORDER OF MAGNITUDE COSTS BY TASK

	NEAR-TERM GOALS, e.g. FY 05		PERSONNEL	OPERATING	CAPITAL OUTLAY	RECURRING	OTO	NOTE
1	Vehicle management funds - maintenance and fuel			$ 300,000		X		As requested by the LFRDs
2	Six (6) mechanics or equivalent contract services		$ 460,000			X		
3	Training for fleet management staff			$ 15,000		X		
4	Consultant to further develop strategic plan and perform specific tasks including expenses for evaluation of peer sites			$ 105,000			X	
5	Fiscal assistant, grade 16-18		$ 54,000			X		
6	Heavy equipment coordinator, grade 23-25		$ 68,000			X		
7	Overtime for uniformed and non-uniformed personnel for implementation of fleet activities.		$ 100,000			X		
8	Management information system			$ 100,000			X	Potential implementation of FASTER
9	Apparatus replacement per plan							Annual lease payment of $2,883,530 for FY 06-10
10	Preventive maintenance program							No additional funding requested
11	Driver standards							No additional funding requested
12	Parts inventory			$ 200,000			X	Minimal stock of vocational parts, swing units, chassis components
13				$ 200,000		X		Enhance vehicle management budget for predicted additional repairs
14	Shop capacity			$ 50,000			X	Consultant for design of centrally-located shop
15				$ 50,000			X	Diagnostic hardware and software
16				$ -		X		Lease and related costs for RVFD shop - cost to be developed for FY 05 supplemental funding
17	TOOLS, APPLIANCES, EQUIPMENT - FY 04 APPARATUS			$ 488,000			X	Equip four (4) aerial ladder trucks
	TOTAL FUNDING REQUESTED FOR NEAR-TERM GOALS		**$ 682,000**	**$ 1,508,000**	**$ -**			**Does not include items without costs**

APPARATUS MANAGEMENT PLAN
ORDER OF MAGNITUDE COSTS BY TASK

	SHORT-TERM GOALS, e.g. FY 06					RECURRING	OTO	NOTE
1	Recurring Costs from FY 05		$ 682,000	$ 515,000		X		
2	Management information system							Cost to be developed for FY 06 operating budget (if any)
	Apparatus replacement							
3	Lease - FY 05 Apparatus Purchases			$ 2,883,530		X		Per replacement plan
4	Lease - FY 06 Apparatus per Plan					X		Annual lease payment of $1,706,840 for FY 07-11
5	Purchase - FY 06 Apparatus per Plan				$ 225,000		X	Three brush trucks per plan
6	Purchase - Tools/Equipment/Appliances for FY 06 Apparatus			$ 1,135,000			X	Per replacement plan
7	Preventive maintenance program							Cost to be developed for FY 06 operating budget (if any)
8							X	Equipment for standardized hose and ground ladder testing, cost to be developed for FY 06 operating budget
9	Driver standards			$ 300,000			X	Instructor time, additional costs to be developed for FY 06 operating budget (if any)
10	Parts inventory						X	Purchase parts inventory for common items, cost to be developed for FY 06 operating budget
11						X		Lease warehouse space for FY 06-08 to store parts, cost to be developed for FY 06 operating budget
12	Shop capacity			$ 50,000			X	Consultant for design of southeastern shop
13							X	Design funds - centrally-located shop (CIP off-year) amendment, cost to be developed
14	Staff					X		Cost to be developed for FY 06 operating budget (if any)
15	Tools, equipment and appliances for replacement apparatus purchased in FY 05			$ 2,153,000			X	
16	Tools, appliances, and equipment for reserve apparatus			$ 999,500			X	Equip 10 pumpers, 3 aerials, and 1 rescue squad
	TOTAL FUNDING REQUESTED FOR SHORT-TERM GOALS		**$ 682,000**	**$ 8,036,030**	**$ 225,000**			**Does not include items without costs**

MCFRS APPARATUS REPLACEMENT SCHEDULE

AERIAL LADDERS	*BACKLOG*	*FY 05*	*FY 06*	*FY 07*	*FY 08*	*FY 09*	*FY 10*
	REPLACE	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*
BETHESDA							
BURTONSVILLE							T15 (2980800+H59
CABIN JOHN PARK							
CHEVY CHASE							
DAMASCUS							
GAITHERSBURG-WASHINGTON GROVE		AT8 (2950038)					
GERMANTOWN							
GLEN ECHO							
HILLANDALE						T12 (2972065)	
HYATTSTOWN							
KENSINGTON						T25 (2972064)	
LAYTONSVILLE							
ROCKVILLE		T03 (2892060)					
SANDY SPRING				Q40 (2950380)			
SILVER SPRING							
TAKOMA PARK							
UPPER MONTGOMERY COUNTY							
RESERVE		RAT6 (2893708) RAT20 2893716)	RT 3 (2892054) RT21 (2892055) RT 6 (2842111)		RT8 (2965565)		
TOTAL	0	4	3	1	1	2	1
COST ($700,000 REPLACE + $45,000 EQUIPMENT + $27,000 SCBA FY06->)	**$0**	**$2,988,000**	**$2,316,000**	**$772,000**	**$772,000**	**$1,544,000**	**$772,000**

PER APPARATUS STRATEGIC PLAN
(includes LFRD-owned apparatus)

03/20/04

MCFRS APPARATUS REPLACEMENT SCHEDULE

ENGINES	*BACKLOG*	*FY 05*	*FY 06*	*FY 07*	*FY 08*	*FY 09*	*FY 10*
	REPLACE	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*
BETHESDA	1872130 1882105		1902038		1984827	1991756	
BURTONSVILLE					1984828		
CABIN JOHN PARK	1882106					E101	
CHEVY CHASE			1902029				
DAMASCUS			1902049				
GAITHERSBURG-WASHINGTON GROVE	1862030		1942026		1984826	1997997	
GERMANTOWN	1842007		1942028				
GLEN ECHO				E112		1991757	
HILLANDALE	1872004		1902039				1008261
HYATTSTOWN	1862004						
KENSINGTON	1882110 1872128	1902035		1952075 1952074		1996489	
LAYTONSVILLE			1902048				
ROCKVILLE		1902051	1902057 1942027			1991755	1008262
SANDY SPRING	1842001	1902058				E401	
SILVER SPRING	1872126 1882107		1942104	1952073		1996487	
TAKOMA PARK			1902036				1008263
UPPER MONTGOMERY COUNTY				1952076			
PSTA				1952077			
TOTAL	12	3	11	6	3	8	3
COST ($350,000 REPLACE + $45,000 EQUIP + 27,000 SCBA)	**$5,064,000**	**$1,266,000**	**$4,642,000**	**$2,532,000**	**$1,266,000**	**$3,376,000**	**$1,266,000**

PER APPARATUS STRATEGIC PLAN
(includes LFRD-owned apparatus)

03/20/04

MCFRS APPARATUS REPLACEMENT SCHEDULE

BRUSH TRUCKS	*BACKLOG*	*FY 05*	*FY 06*	*FY 07*	*FY 08*	*FY 09*	*FY 10*
	REPLACE	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*
BETHESDA							
BURTONSVILLE			B155 (6885141)				
CABIN JOHN PARK							
CHEVY CHASE							
DAMASCUS			B135 (6885140)				
GAITHERSBURG-WASHINGTON GROVE							
GERMANTOWN							
GLEN ECHO							
HILLANDALE							
HYATTSTOWN							
KENSINGTON			B215 (6885139)				
LAYTONSVILLE							
ROCKVILLE							
SANDY SPRING							
SILVER SPRING							
TAKOMA PARK							
UPPER MONTGOMERY COUNTY							
RESERVE							
TOTAL			3				
COST ($75,000 REPLACE)	**$0**	**$0**	**$225,000**	**$0**	**$0**	**$0**	

PER APPARATUS STRATEGIC PLAN
(includes LFRD-owned apparatus)

03/20/04

MCFRS APPARATUS REPLACEMENT SCHEDULE

RESCUE SQUADS	*BACKLOG*	*FY 05*	*FY 06*	*FY 07*	*FY 08*	*FY 09*	*FY 10*
	REPLACE	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*
BETHESDA							
BURTONSVILLE			RS 15 (4933027)				
CABIN JOHN PARK							
CHEVY CHASE							
DAMASCUS							
GAITHERSBURG-WASHINGTON GROVE							
GERMANTOWN		RS291 (4922169)					
GLEN ECHO							
HILLANDALE							
HYATTSTOWN							
KENSINGTON							
LAYTONSVILLE		RS 17 (4949657)					
ROCKVILLE		RS 3 (4834416)					
SANDY SPRING							
SILVER SPRING							
TAKOMA PARK							
UPPER MONTGOMERY COUNTY							
RESERVE							
TOTAL		3	1				
COST ($750,000 REPLACE + $150,000 EQUIP + $27,000 SCBA)	**$0**	**$2,781,000**	**$927,000**	**$0**	**$0**	**$0**	**$0**

PER APPARATUS STRATEGIC PLAN
(includes LFRD-owned apparatus)

03/20/04

MCFRS APPARATUS REPLACEMENT SCHEDULE

EMS UNITS	*BACKLOG*	*FY 05*	*FY 06*	*FY 07*	*FY 08*	*FY 09*	*FY 10*
	REPLACE	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*
BETHESDA							
BURTONSVILLE				M159			
CABIN JOHN PARK			A109				
CHEVY CHASE							
DAMASCUS				M139			
GAITHERSBURG-WASHINGTON GROVE		A88		A87	A289	M89	X
GERMANTOWN			M299				X
GLEN ECHO				A119			
HILLANDALE			M129	A128		A249	X
HYATTSTOWN		A99					
KENSINGTON		A258	A219	A59	M259		X
LAYTONSVILLE		A179					
ROCKVILLE			A238	A319, M239	A38, A339	M39	X
SANDY SPRING		A409				M49	
SILVER SPRING				M19	A169	A18	X
TAKOMA PARK							
UPPER MONTGOMERY COUNTY						M149	
RESERVE							
TOTAL		5	5	9	5	6	6
COST ($150,000 REPLACE, FY 06->)	**$0**	**$700,000**	**$750,000**	**$1,350,000**	**$750,000**	**$900,000**	**$900,000**

PER APPARATUS STRATEGIC PLAN
(includes LFRD-owned apparatus)

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MCFRS APPARATUS REPLACEMENT SCHEDULE

SPECIALTY UNITS	*BACKLOG*	*FY 05*	*FY 06*	*FY 07*	*FY 08*	*FY 09*	*FY 10*
	REPLACE	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*
BETHESDA							
BURTONSVILLE							
CABIN JOHN PARK							
CHEVY CHASE		HAZMAT (8896156) X 2					
DAMASCUS				E134 (1901388)			
GAITHERSBURG-WASHINGTON GROVE							
GERMANTOWN							
GLEN ECHO							
HILLANDALE							
HYATTSTOWN							
KENSINGTON							
LAYTONSVILLE				E172 (1901387)			
ROCKVILLE							
SANDY SPRING							
SILVER SPRING							
TAKOMA PARK							
UPPER MONTGOMERY COUNTY					E142 (1911112)		
RESERVE							
TOTAL		2	0	**********	**********		
COST (EXCLUDING EQUIPMENT)	**$0**	**$1,500,000**	**$0**	**$694,000**	**$347,000**	**$0**	**$0**

PER APPARATUS STRATEGIC PLAN
(includes LFRD-owned apparatus)

03/20/04

MCFRS APPARATUS REPLACEMENT SCHEDULE

SUMMARY	*BACKLOG*	*FY 05*	*FY 06*	*FY 07*	*FY 08*	*FY 09*	*FY 10*
	REPLACE	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*	*REPLACE*
AERIAL LADDERS	$0	$2,988,000	$2,316,000	$772,000	$772,000	$1,544,000	$772,000
ENGINES	$5,064,000	$1,266,000	$4,642,000	$2,532,000	$1,266,000	$3,376,000	$1,266,000
BRUSH TRUCKS	$0	$0	$225,000	$0	$0	$0	$0
RESCUE SQUADS	$0	$2,781,000	$927,000	$0	$0	$0	$0
EMS UNITS	$0	$700,000	$750,000	$1,350,000	$750,000	$900,000	$900,000
SPECIALITY UNITS	$0	$1,500,000	$0	$694,000	$347,000	$0	$0
LEASE COSTS FY 05-09		$1,069,640	$1,069,640	$1,069,640	$1,069,640	$1,069,640	$0
LEASE COSTS FY 06-10			$2,860,450	$2,860,450	$2,860,450	$2,860,450	$2,860,450
COST	**$5,064,000**	**$10,304,640**	**$12,790,090**	**$9,278,090**	**$7,065,090**	**$9,750,090**	**$5,798,450**

PER APPARATUS STRATEGIC PLAN
(includes LFRD-owned apparatus)

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