Regional Fire and Rescue Study

COUNTY OF ALBEMARLE, VIRGINIA AND CITY OF CHARLOTTESVILLE, VIRGINIA

FINAL REPORT

matrix consulting group
4322 North Belt Line Road, Suite B-112
Irving, TX 75038
v.972.871.7950 f. 972.871.7951

April 20, 2007

TABLE OF CONTENTS

1. INTRODUCTION AND EXECUTIVE SUMMARY

This document is the final report of an assessment of the opportunities and challenges the County of Albemarle and the City of Charlottesville could face in creating a consolidated, regional fire and rescue system serving both jurisdictions. The report addresses the manner in which regional consolidation would affect the two career fire/EMS Departments, seven independent volunteer fire Departments and three independent Rescue Squads serving the County and the City.

The County and City jointly retained the Matrix Consulting Group to conduct the consolidation assessment during the fall of 2006. The purpose of the assessment was to evaluate opportunities for regional cooperation that might include a partial or complete consolidation of the fire and rescue services in both jurisdictions. The agencies studied include the Albemarle County Fire and Rescue Department and its volunteer components (ACFRD), the Charlottesville Fire Department (CFD) and the volunteer Charlottesville Ambulance Squad (CARS) that serves the City and the County. The study addresses the following questions defined in the request for proposal:

- Is a multi-jurisdictional approach feasible and appropriate in all areas or just for certain functions?
- What issues or obstacles could affect the development of a more cooperative approach?

  Furthermore, the study focused on the key objectives of:

  – Improving efficiency.

  – Improving effectiveness.

– Reducing duplication.

– Increasing standardization.

– Enhancing the coordination of services.

In order to accomplish the scope of services, the Matrix Consulting Group undertook the following activities:

- Interviews with a broad range of personnel involved in fire and rescue services including:
  - Elected officials from both the City and the County.
  - The City Manager and the County Manager.
  - The Fire / Rescue Chiefs for each of the career and volunteer organizations serving City and County residents.
  - Members of the command staffs of the various Departments as well as employee association representatives serving each agency.
  - Career and volunteer personnel during visits to each of the City and County fire and rescue stations.
  - City and County planning officials.
  - City and County personnel staff.
- Four meetings with the Project Steering Committee to:
  - Initiate the study and discuss the project schedule and activities.
  - Review and discuss the Descriptive Profile of current operations.
  - Review and discuss an Issues Report addressing the 22 key issues listed for investigation in the Request For Proposal.
  - Review and discuss the Draft Final Report
- Gathering detailed operational and service information from each operating agency.
- Analyzing automated data about emergency services provided by the Charlottesville – UVA – Albemarle County Emergency Communications Center.

The next section of this chapter contains an executive summary of our major findings.

EXECUTIVE SUMMARY

The Executive Summary has been divided into five sections addressing the issues and findings of the study team, the economic impact of consolidation, recommendations for improvement and implementation planning.

1. ISSUES

The following points provide a summary of the key issues identified in the course of this assignment:

- There are significant geographic differences between the City and County that affect the delivery of fire and rescue services. The County has more than twice the population of the City, but that population is spread over a 723 square mile area. The City is a compact jurisdiction covering 10.3 square miles.

- The ACFRD and the CFD have different response time goals and there are no specific response time goals for the provision of ambulance services by the Rescue Squads.

- There are significant differences in the cost for services in the City and County. For example:

  – **Per Capita Budget** – The per capita budget for County residents is $75 compared to $194 for City residents. The per capita budget for the CFD is 159% greater than the ACFRD per capita budget.

  – **Real Estate Tax Rate** – County residents pay $0.041 per $100 of assessed value for fire and emergency medical services compared to a rate of $0.182 per $100 of assessed value for City residents. The City tax rate is 340% greater than the County tax rate.

- The City and County have different policies regarding vacation and holiday leave practices such that personnel in the City Fire Department assigned to emergency operations receive considerably more holiday leave than their counterparts in the County Fire Rescue Department.

- Both Departments offer retirement plans for their employees in addition to Social Security benefits. The City has its own retirement system while the County participates in the Virginia Retirement System.

  – The City's retirement plan considerably more expensive than the County's plan. The County contributes 14% of a Firefighter's base pay towards retirement while the City contributes 34.57%. This is a difference of 247%.

  – The City and County offer their active employees similar health benefit packages.

- The CFD is accredited by the Commission of Fire Accreditation International while the ACFRD is not accredited. The CFD's current accreditation would not carry forward to a consolidated agency.

- The City has a lower (i.e., better) Insurance Service Office (ISO) rating than the County. The ISO rates the fire suppression, communications and water supply systems to develop a rating. The City has a rating of 2 on a 10-point scale. The County ratings range from 5 to 10. Some, but not all insurance companies, use the ISO raring to set fire insurance rates.

- The City has had a lower loss of life from fires than the County. During the past five years the City has not had any fire related deaths while the County has had eight.

- The City and County have similar property dollar loss rates from structure fires.

- The City and County provide fire prevention and training programs. However, the ACFRD staffs these functions at a higher level to support the volunteer Departments and because the County has a larger population and covers a larger geographic area.

- All career operations personnel in the CFD are assigned to work a rotating shift of 24-hours on duty and 48-hours off duty. Personnel in the ACFRD's career stations work a similar schedule. However, ACFRD personnel assigned to work in volunteer stations to provide weekday coverage work four, 12-hour day shifts per week.

- The ACFRD is deploying an Advanced Life Support (ALS) level of EMS care on its career staffed fire trucks and ambulances while the CFD provides Basic Life Support (BLS) care and limited ALS care on its fire trucks.

- The City and County have very different approaches to the integration of volunteers into their service delivery systems. Volunteers are the primary service providers in most of the County fire and rescue stations while volunteers backup

career personnel in Charlottesville. The ACFRD has 440 active volunteers while the CFD has 30 active volunteers.

While the differences cited above are not absolute impediments to consolidating the City and County systems they are major hurdles that need to be resolved between the parties before a consolidation could occur. Furthermore, resolution of the impediments could require a significant expenditure of additional resources if a decision is made to provide all employees of a consolidated system with the higher level of benefits paid provided by the Charlottesville Fire Department to its employees.

There are a number of similarities and dependencies between the City and County fire/EMS Departments that underscore the need for both agencies to continue finding ways to work together cooperatively. These include the following:

- Extensive common borders between the jurisdictions and the fact that the City has a station located in the County and plans to move that station to another location in the County.
- The need for the ACFRD to rely on the CFD for first due response in areas of the County's designated development areas surrounding the City that are not served by a fire station. The primary areas are Pantops and Ivy.
- The ACFRD's relies on the City for second and third due apparatus support for working fires and major emergencies. It is very difficult for the ACFRD to service the areas surrounding the City because of the long distances between its stations circling the City and the limited road network connecting the County stations. A service agreement by which the City/County provide emergency backup services to each other will need to be considered.
- The existence of a joint training facility and interest in exploring the development of new shared training facility.
- A long history of the ACFRD, CFD and CARS successfully working together at emergency incidents.
- The existence of a consolidated public safety communications system (9-1-1 and dispatch) in a single dispatch center that serves all of the fire and EMS providers in the City and the County.

- The reliance on the Charlottesville-Albemarle Rescue Squad (CARS) for the provision of ambulance transportation services and advanced life support emergency medical care.

- The continued refinement and extension of a closest unit response policy that the Fire and Rescue Chiefs have been working to implement.

Our analysis of the operations in both jurisdictions did not find any impediments to the development of a consolidated City/County system in terms of either the service provided or the scale of the operation. Interviews with at broad range of managers and line personnel from career and volunteer Departments indicate that the separate agencies work well together at emergency incidents. There is however, a significant difference between working together cooperatively on the one hand and organizationally consolidating services on the other. The following points list key factors, most dealing with funding, personnel and compensation issues, that the City and County would need to address before moving forward with a functional consolidation plan:

- Department funding and the development of equitable tax rates for the various service levels provided in different areas of the jurisdiction.

- Hiring, career development and promotional strategy for officers, Firefighters and emergency medical technicians.

- Development of a common compensation plan for all members of the consolidated Department.

- Development of a common benefit plan for all members of the consolidated Department.

- Defining the role of volunteers in the system, especially the role of volunteers in stations staffed primarily by career personnel.

- Redefining the role of City Firefighters who volunteer in the County Fire Department and Rescue Squads.

- Resolving the use of 48-hour and 56-hour work schedules for career personnel.

- Reconciling the rank structure of the Departments.

- Defining the role of seniority in personnel decisions.

- Reconciling the different retirement system benefits currently offered by the ACFRD and the CFD.

2. KEY FINDINGS

The following points provide a summary of the key findings discussed in the final report:

- Consolidation of the Departments would offer minimal opportunities to reduce staff levels.

  – One of the Fire Chief positions could be eliminated and the chief officers responsible for training and fire prevention, a total of four in the ACFRD and CFD, could be reduced to two.

  – Analysis of the current and proposed fire station locations in the City and the urban development area in the County surrounding the City did not identify any opportunities for the consolidation of City and County fire stations and the fire/EMS personnel that staff the stations.

- The fire station location analysis supports the construction of ACFRD fire stations in the Ivy and Pantops areas of the County and the relocation of the CFD fire station # 10 to Route 29 and Fontaine Avenue.

- The analysis of the ambulance transportation system identified the need for:

  – A minimum of three 24-hour ambulances and one 12-hour peak ambulance in Charlottesville and the urban development areas of the County surrounding the City. A mix of ACFRD, CARS and CFD personnel would staff these ambulances to guarantee coverage.

  – Continued deployment of an ACFRD staffed ambulance in the Hollymead station.

  – Continued deployment of ambulances by the Scottsville and Western Albemarle Rescue Squads.

- There are significant differences in employee benefit costs between the City and County that will require resolution. The report recommends the adoption of the higher benefit costs of the City.

- Consolidation of the Departments will require the new agency to follow the Fair Labor Standards Act and pay career personnel who volunteer with the volunteer Fire Departments and Rescue Squads serving the County.

3. ECONOMIC IMPACT

A consolidation of the Departments would result in additional costs rather than cost saving because of increased wage and benefit costs and an inability to reduce personnel needs through the consolidation of stations and functions. The following points provide a summary of the economic impact of consolidation in the final report.

- Addressing differences in the costs for retirement, retiree medical benefits and holiday pay by adopting the more expensive CFD plan will add approximately $688,000 annually to the costs for operating a consolidated agency based on current personnel levels. These costs will increase annually by the rate of inflation and by any increases in the number of personnel. The added benefit costs are itemized below.
  - Retirement benefit - $309,000 annually.
  - Retiree medical benefit - $307,000 annually.
  - Holiday pay for 56-hour personnel - $72,000 annually.
- Although the merged Department would yield some minor personnel cost savings through the elimination of a Fire Chief's position and staffing downgrades in Training and Prevention, the total budget for a consolidated department will increase by $515,000 in its first year of operation over current costs because of the higher retirement and holiday leave benefits. This is a 3.5% increase over the total current operating costs.
- Because of the disparity in operating costs between the ACFRD and the CFD a consolidation of services and the levying of a single property tax rate across both jurisdictions would lead to a shift in the tax burden for fire and EMS from City to County taxpayers. If the ACFRD and CFD merged and operating practices and costs remained unchanged at current budget levels for the jurisdictions:
  - The property tax rate for County residents would increase from 4.1¢ per $100 of assessed valuation to 8.9¢ - an increase of 117%.
  - The property tax rate for City residents would drop from 18.2¢ per $100 of assessed value to 8.9¢ - a decrease of 51%.

4. RECOMMENDATIONS

The primary recommendation of this report is that the City and County should not consolidate their fire and EMS Departments but that the service providers should continue to work together to coordinate services and share resources. As an alternative to consolidation the City and County should plan to revisit the "Service Agreement" between the two jurisdictions. The ACFRD, CARS and the CFD should work closely together to monitor ambulance transportation services and to ensure that sufficient career and volunteer personnel are on duty and available to control response times. The tables below summarize the recommendations in the report and contain cost and service impact information about the recommendations. The recommendations have been divided into two tables. The first table lists the recommendations dealing with consolidation issues and the second table lists all other recommendations

Consolidation Recommendations and Cost Impact Summary

Recommendation	Cost Impact
A merged Department would require that the new agency adopt a unified leave plan for all employees. The plan would need to guarantee that no employee lost any paid leave as a result of the merger.	Adoption of the higher CFD's benefit and wage plan would add $688,000 annually to personnel costs.
Based on the transfer of costs for a consolidated system from City to County taxpayers and the added cost to provide ACFRD personnel with the CFD's level of benefits the study does not recommend that the City and County consolidate their fire and EMS systems.	Cost avoidance by the County taxpayers of a property tax increase from 4.1¢ per $100 of assessed value to 8.9¢ per $100 of assessed value.
Based on the differences in the ACFRD and CFD work schedules (48-hour and 56-hour shifts) and the extent to which each agency use volunteers the study does not recommend consolidation.	Cost avoidance for 56-hour staffing.
The service providers should set up an EMS steering committee to discuss EMS problems, analyzing operations and developing solutions.	No cost impact.

Recommendation	Cost Impact
CARS, in conjunction with the ACFRD and the CFD, should deploy three ambulances 24-hours per day, seven days a week and a peak hour ambulance from 8AM to 8PM daily.	Cost will depend on the extent to which career or volunteer personnel staff the ambulances.
CARS and the ACFRD should explore the possibility of assigning a CARS ambulance and one of its volunteers to work with the ACFRD paramedic chase car in the Monticello station.	Cost will depend on the extent to which career or volunteer personnel staff the ambulances.
Do not combine fire prevention services.	Minimal cost impact if services are not consolidated.
Do not combine training services. However, increase efforts to coordinate training and conduct joint training exercises.	Minimal cost impact.
The ACFRD, CARS and the CFD should form a committee to review current training programs and plan for improvements.	No cost impact. Potential training and service improvement.
Coordination of training could be facilitated by the agreement of the Departments to develop a joint fire/EMS training facility.	Costs to develop a new training academy have not been determined.
ACFRD and CFD should continue to develop a joint HazMat response capability.	Cost avoidance for the support of two separate teams.
The Departments should begin development of a shared automated database that uses permits and Material Safety Data Sheets (MSDS) to catalog material risks in the community.	Software acquisition and development cost of approximately $15,000.
The ACFRD, CARS and the CFD should move forward formally to develop and implement a written “closest unit response” approach to all fire and EMS calls.	No cost impact. Potential service improvement
The ACFRD, CARS and the CFD should form a task force to conduct a policy and procedures needs assessment	No cost impact.
The ACFRD and the CFD should consider merging the purchasing functions of their Departments only as part of City/County effort to merge purchasing.	Cost impact cannot be determined.
Based on the fact that a merger would result in a cost increase of approximately $515,000 rather than a savings we do not recommend the City and County consolidate the Departments.	Cost increase of $515,000.
The City and County should revisit the Service Agreement for the exchange of services when it expires in 2010. The agreement should consider joint operation of the planned station for Fontaine and Route 29	No total cost impact. May alter the amount of funds flowing from the County to the City.
The City and County should pursue a broader range of service exchanges between the two Departments in revisiting the Service Agreement to include ambulance service, hazardous materials response and training.	No total cost impact. May alter the amount of funds flowing from the County to the City.

Recommendation	Cost Impact
If a decision is made to consolidate, the City and County should use the ECC model of governance as a guide for setting up the Department	No cost impact.

Other Recommendations and Cost Impact Summary

Recommendation	Cost Impact
As the County system grows the ACFRD should deploy a 24-hour on-duty Battalion Chief when it opens the Pantops station.	Cost impact of $360,000 annually in salary and benefits.
The ACFRD should continue to deploy both 56-hour and 48-hour schedules for career personnel assigned to operations as a cost effective measure to support the volunteer Departments and Squads needing weekday coverage.	Cost avoidance by not deploying all personnel on the 56-hour shift.
ACFRD should continue to support a strong role for its volunteers. The County's Volunteer Fire Rescue Advisory Board should be maintained.	Cost avoidance if additional career personnel are not deployed
The ACFRD, CARS and CFD should monitor response times on a monthly basis for all fire and EMS calls.	No cost impact. Identify service gaps and potential service improvements.
Monitor ambulance response times and develop response time goals for incidents in which ambulances are responding to calls in which fire apparatus has been dispatched	Setting response time objectives may result in the need for more ambulances.
The County should construct a station in Pantops on Route 250.	Annual operating cost of $480,000 for a 3-person 24-hour crew.
The County should construct a station in Ivy on Route 250. Timing of the construction should coincide with the relocation of CFD station # 10.	Annual operating cost of $480,000 for a 3-person 24-hour crew.
Rescue Squads should be required to register their available units with the ECC for entry into the CAD system.	No Cost impact. Improved coordination of EMS transport and ALS care.
Review the EMS call priority classification system to determine if the classification criteria need to be revised since less than 1% of the calls are classified as Priority 2.	No Cost impact. Improved coordination of EMS transport and ALS care.
Develop a method to track zero ambulance availability information.	No Cost impact. Improved coordination of EMS transport and ALS care.
Although the Hollymead, Scottsville and Western Albemarle squads have a limited call volume, a full time ambulance is needed in each of these stations.	No cost impact if Scottsville and WARS ambulances are staffed by volunteers.

Recommendation	Cost Impact
The CFD should deploy an ambulance.	Annual cost will vary depending on how the ambulance is staffed Purchase ambulances – $354,000 Use current staff - $35,000 Hire additional staff – $544,727
Involve ACFRD suppression personnel in business inspections.	Minimal cost to train suppression personnel to conduct inspectors.
ACFRD should complete the migration of its fire prevention inspection database to the records management system (RMS). CFD should use the RMS Fire Prevention module to automate its fire inspection program.	No cost impact. Departments own the software.
Both Departments should initiate a proactive voluntary inspection of residential smoke detectors.	No cost impact. Departments would use on-duty suppression personnel.
ACFRD and the CFD should consider developing a method and a schedule to enable volunteer units to standby in career stations so that on-duty career units can more readily participate in multi-company drills.	Potential cost savings from reduced overtime for training. Potential service improvement.
The ACFRD should conduct a study of the vehicle maintenance process and maintenance costs for its career and volunteer apparatus.	Approximately $50,000 for a study.
The ACFRD and the CFD should train all volunteers to the HazMat Awareness level and the ACFRD volunteers in the Earlysville and Scottsville stations to HazMat Operations.	Minimal cost for additional training. Service and safety improvement.
Install Automatic Vehicle Locator (AVL) technology in the ACFRD, CARS and CFD emergency vehicles.	Acquisition costs of $295,200 for 36 pieces of apparatus plus annual maintenance of $23,400. Improved apparatus deployment.
Use the policy needs assessment to modify existing policies and procedures, develop new ones and implement training.	No cost impact
The ACFRD should consider the merits of purchasing supplies and materials for the Volunteer Departments and Squads.	Cost impact cannot be determined.
The ACFRD, CFD and the volunteer Rescue Squads should form an ambulance billing committee to develop recommendations regarding ambulance billing and how it might be applied across the range of career and volunteer service providers	Ambulance billing could cover some ambulance costs We estimate that bill would raise approximately $200,000 per transport.
The ACFRD, CFD and the volunteer Rescue Squads should continue to seek out and apply for Federal and State grant funding for regional services.	No costs to apply for grants. Grants could subsidize some costs. Regional grants are more readily available.

5. IMPLEMENTATION PLANNING

Although the report does not recommend consolidation there are a number of actions, described in the recommendations of the report, that the fire and EMS agencies can do, individually and collectively, to better coordinate their activities and ultimately improve services. We recommend that the fire and EMS agencies work systematically thorough the report to determine which recommendations will be acted upon and then develop an implementation schedule. The following points outline an implementation strategy.

- Month 1:
  - Establish a multi-agency Steering Committee to oversee the review and implementation of the report's recommendations.
  - The Steering Committee should request each agency to set up a committee to review the report and comment in writing on the recommendations and identify ways in which the agency can support planning and implementation activities.
- Month 2:
  - The Steering Committee should review the written comments and plans submitted by each of the service providers and develop a prioritized list of actions for review by City and County administrators.
  - City and County administrators should meet together to discuss the report and the recommendations, review how the recommendations will affect their respective jurisdictions and map out a strategy of how they would like their fire and EMS administrators to proceed.
- Month 3:
  - Based on feedback from City and County administrators, the Steering Committee should develop an action plan for each recommendation.
  - The ACFRD or CFD should designate a career member to create the action plan in MS Excel or MS Project or recruit a volunteer to develop and maintain the action plan.

– The action plan should identify:

  -- What needs to be done? Tasks can range from analyzing information, developing policy and procedures, outlining implementation steps, identifying resource needs to actually implementing change.

  -- Who will be responsible for doing it? Committees should be set up to develop action plans for each recommendation or a group of related recommendations. For example, a committee dealing with HazMat issues would include HazMat representatives from the Hazmat team while ambulance transportation issues would involve the ACFRD and CFD as well as the Rescue Squads (CARS, Scottsville and WARS).

  – When will the work be done? The report contains a number of recommendations. Hence, it may necessary to phase in the recommendations over a period of time. The Steering Committee should phase the recommendations based on what needs to be done immediately and what the system participants are able to manage in a given period of time. For example, the CFD may want to move forward with planning the deployment of an ambulance quickly so that it can be included in the Department's FY08 while the planning for a joint City-County training academy might be postponed for a later implementation period.

– Month 4:

  – Kick-off implementation of the first set of approved action plans.

  – Monthly update of the action planning tool.

– Months 5 and beyond:

  – Monthly Steering Committee meetings to update the status of the Implementation. The meetings should discuss progress, roadblocks, funding and resource needs.

  – Quarterly reports by the Steering committee to the service provides and to City and County administrators.

The next chapter analyzes the service delivery and cost structures affecting consolidation between the City and the County fire and EMS services.

2. SERVICE DELIVERY AND COST FACTORS AFFECTING CONSOLIDATION

This chapter focuses on an assessment of the similarities and differences between the two jurisdictions that affect the cost for fire and emergency services. Total service costs are analyzed as well as differences in compensation and personnel practices between the Departments that affect overall costs. The final section of this chapter assesses how a merger would affect City and County real estate taxes.

1. THE SERVICE DELIVERY ENVIRONMENTS AND REQUIREMENTS OF THE CITY AND COUNTY ARE SIGNIFICANTLY DIFFERENT BASED ON GEOGRAPHY, BUILT-UP ENVIRONMENT AND POPULATION DENSITY.

There are significant demographic and geographic differences between the City and County that affect the delivery of fire and rescue services. The table, below, summarizes several key demographic factors describing the jurisdictions. The County has more than twice the population of the City but that population is spread over a 723 square miles. The City's covers an area of 10.3 square miles. The City is a compact jurisdiction while the County has a broad range of urban, suburban and rural densities.

Service Area Demographics and Geography

Community / Factor	Albemarle County	City of Charlottesville
Population (2005 Estimate)	90,717	39,900
Land Area (Square Miles)	723	10.3
Population Density per square mile	125 residents	3,873 residents
Population Served Per Fire Station	10,080 residents	13,300 residents
Population Served per Rescue Station	22,679	39,900
Fire/EMS Stations	9*	3
Square Miles Served Per Station	80	3.5

*Includes the Hollymead station that will open in the fall of 2007. The ACFRD deployed an ambulance to a temporary station in Hollymead in September 2006. Two other County fire/EMS stations, in the Pantops and Ivy areas, are planned for construction by 2012.

The following points summarize demographic and geographic similarities and differences between the City and the County:

- The population of the County is more than double that of the City. However, because of the large land area served by the County there is wide disparity between the population densities of the City (3,873 residents per square mile) and the County (125 residents per square mile). It should be noted that although the County has an average population density of 125 residents per square mile, the actual density varies substantially between the County's rural and suburban areas. The more densely populated neighborhoods in the County resemble much of the single-family residential development in the City.

- The area served by the average fire station in the City and the County varies substantially. Fire stations in the County serve an average of 80 square miles while those in the City serve an average of 3.5 square miles. There is also a large amount of diversity in the size of the areas covered by each fire/EMS station in the County. The County's current stations (Seminole, Monticello, Hollymead) and planned station (Pantops) for the urban ring surrounding Charlottesville tend to serve smaller geographic areas than stations located in rural areas (Crozet, Earlysville, East Rivanna, North Garden and Scottsville).

- The number and spacing of stations has long been a major consideration in the planning of fire/rescue services because of the importance that has been placed on the need for a rapid response to emergencies.

The differences in the size of the population served by a station in the City and the County as well as the coverage area and travel time of these stations should not be an impediment to consolidation. It is not unusual for fire/rescue service areas to exhibit wide demographic and geographic variations. This is especially the case for large land area jurisdictions that have concentrations of urban and suburban development as well as large rural areas.

The next section of the report discusses Fire/EMS service delivery costs in the City and County

2. THE PER CAPITA COST FOR SERVICE VARIES VARY WIDELY BETWEEN THE CITY AND THE COUNTY.

In order to better understand the financial implications of consolidating fire and EMS services we have made a distinction between "budget" and "costs". In the analysis below "budget" refers to the monies allocated by the jurisdiction to cover the operating expenses of the Departments. "Cost" refers to the amount of money used by each Department to provide service in their respective service areas. The distinction between "budget" and "cost" is used to better understand the effect of the service agreement between the City and County in which the County pays the City to provide primary service in the parts of the County's urban development areas surrounding the City and backup coverage in the rural areas. The analysis involves a review of the current budgets of each Department as well as an estimate of how the service agreement between the City and County affects the allocation of costs between the jurisdictions.

(1) Current Operating Budgets.

The following table compares the total budget for the City and County Fire/EMS Departments. The CFD budget is about 13% higher than the ACFRD budget.

Service Delivery Budget Comparison

Department / Factor	ACFRD	CFD	CFD Premium
FY07 Budget Fire and EMS Budget	$6,844,496	$7,741,471	+13%
Per Capita Costs	$75.00	$194.00	+159%
Cost Per Call	$849*	$1,193	+41%

*Based on 8,062 fire Department calls in FY06.

The table, above, also contains two relative fiscal measures frequently used by communities to compare budgets for similar services. They are:

- **Per Capita Budget** – The per capita budget figures were derived by dividing the agency budget by the population of the jurisdiction. The per capita budget for the CFD of $194 is 159% greater than the ACFRD per capita budget of $75.

- **Budget Per Emergency Call** - The budget per emergency call figures were derived by dividing each agency's budget by the number of citizen generated calls for assistance to which apparatus were dispatched. The budget per call for the CFD of $1,193 is 41% greater than the ACFRD budget per call of $849.

Although the budgets of the City and County Fire Departments are similar in structure and content one difference needs to be noted. The ACFRD budget includes approximately $454,787 in subsidies for the three volunteer Rescue Squads serving the County as well as in-kind weekday staff contributions to CARS and Scottsville for ambulance staffing at a cost of approximately $400,000 annually. The subsidy to CARS is indirectly beneficial to the City because CARS provides ambulance service in the City. To the extent that CARS units are better able to handle the County rescue workload because of ACFRD support, CARS units are more available for rescue calls in Charlottesville.

(2) Current Operating Costs.

The budget analysis in the preceding section reveals a large and significant difference in the expenses incurred by each Department to provide service. A review of the Service Agreement between the City and the County suggest that the difference may not be as great as the budget analysis indicates. The CFD has historically provided fire and first responder EMS care in the County. Most of the service has been provided in the development areas surrounding Charlottesville - east to Pantops, west to Ivy, south on Route 29 and along I-64 west. The CFD ran 1,664 emergency calls in the County in FY05. The County also benefits from CFD services because one of the

City stations, # 10 at Route 29 and Ivy Road, is located in the County. When this station moves to Fontaine Street and Route 29, it will also be located in the County.

The provision of cross-jurisdiction fire/EMS services between the City and the County is defined in a 10-year "Service Agreement" that will expire in 2010. In FY07 the County will reimburse the City approximately $394 for each emergency fire/EMS call that the CFD runs in the County. The cost per call is adjusted annually to account for inflation. It is important to note that while the County reimburses the City $394 per call for its services, it costs the City an average of $1,193 per emergency call to provide this service.

The following table analyzes service costs in both jurisdictions taking into consideration the service agreement between the City and the County and the rate at which the City is reimbursed for the calls that it runs in the County.

Service Delivery Cost Comparison
Adjusted to Account for the Service Agreement

Community / Factor	Albemarle County	City of Charlottesville
Adjustment 1 – Reassignment of the service agreement payment to the City		
FY07 Budget Fire and EMS Budget	$6,844,496	$7,741,471
Service Agreement Adjustment	+$600,000	-$600,000
Total Service Agreement Adjusted Cost	$7,444,496	$7,141,471
Service Agreement Adjusted Per Capita Costs	$82.00	$179.00
Adjustment 2 – Difference between the service agreement budget and costs		
Charlottesville subsidy to the County	+$1,403,959	-$1,403,959
Adjustment Summary		
Total Adjusted Cost (Agreement + subsidy)	$8,848,455	$5,737,512
Adjusted Cost Per Capita	$98.00	$144.00

The information in the above table contains two adjustments that significantly alter the service costs for City and County residents.

- **Adjustment 1 – Reassignment of the Service Agreement payment** – The FY payment from the County to the City for services in FY07 will be approximately $600,000 based on prior year experience. This is a cost to the County but it is not included in the ACFRD budget. Hence we have added this amount to the

ACFRD budget figure and subtracted it from the CFD budget. As a result the gap between the service delivery costs in the County and the City for fire/EMS care narrows somewhat. The per capita cost for the County increases from $75 to $82 while the cost for the City decreases $194 from to $179.

- **Adjustment 2** – **Difference between the Service Agreement budget and service costs** – It costs the CFD $1,193 for every emergency call that it runs. It will cost the City approximately $1,983,959 (1,664 County calls X $1,193 per call) to provide services in the County in FY07. The City will receive approximately $600,000 for these services in FY07 based on a per call reimbursement rate of $394. The differences between the actual cost to provide the service and the amount received by the City via the contract amounts to a $1,403,959 subsidy for the service it provides to the County

- **Adjustment Summary** – The adjustment summary removes the $1.4 million subsidy from the City cost column and adds it to the County cost column of the table. In addition, it also contains a recalculation of the per capita cost for service in each jurisdiction. If the second adjustment were made the per capita cost for the County would increase from the current $76 to $98 while the cost for the City decreases from the current cost of $194 to $144. The per capita cost differences are less than in the budget analysis in section (1) above but per capita costs are still 47% greater in the City than they are in the County.

The difference in costs between the City and County operations is a function of the manner in which services are provided and personnel are deployed. For example:

- Costs in the County are significantly moderated because the ACFRD relies primarily on unpaid volunteers to provide fire and EMS services while the City, relies primarily on paid career staff. Personnel costs account for approximately 83% of the CFD operating budget compared to 63% of the ACFRD's operating budget. Hence, decisions about the use of volunteer and career resources have a major impact on service delivery costs.

- The ACFRD uses a mix of 12-hour and 24-hour career shift personnel to staff apparatus whereas all of the CFD personnel are assigned to work 24-hour shifts. The County is able to deploy 12-hour weekday career personnel because volunteers provide service during the rest of the hours of week. It is much less costly to deploy 12-hour staffed units than it is to deploy 24-hour staffed units.

- The CFD clusters its stations more closely together and operates multiple staffed engine companies from two of its three stations while the ACFRD spaces its stations further apart and operates single engines from its staffed stations.

The service delivery system in the County is evolving such that costs will rise in the coming years with the deployment of career services in its planned stations (Pantops and Ivy). These stations will have volunteers, but career personnel will provide most of the service. The operation and staffing of additional ACFRD combination career volunteer stations in Pantops and Ivy will increase the costs for fire rescue services in the County. The current cost to operate the Monticello Station which deploys a 3-person engine and a 1-person ALS chase car, a total of 15 personnel, is approximately $1.2 million annually. If operating costs are similar for the future Pantops and Ivy stations, this will add approximately $2.4 million to the ACFRD's annual operating budget in current dollars. Adding $2.4 million to the current budget of $6.8 million yields a total budget of $9.2 million or approximately $101 per capita. This is a significant increase in cost for the County's fire/EMS service but it is still substantially below the City's $194 per capita cost**.**

The next section of the report discusses ISO rating and service outcomes in the City and County.

3. THE HIGHER SERVICE DELIVERY COSTS IN THE CITY PROVIDE ADVANTAGES AND PRESENT CHALLENGES.

The close spacing of stations in the City, the number of fire companies and the fact that the entire City is served by fire hydrants contributes to fire safety in the City. Because of its staffing and deployment decisions the City enjoys a higher Insurance Service Office (ISO) rating than the County. The City has an ISO 2 rating. The ISO grades community's on a scale of 1 to 10, with 1 being the highest rating and 10 the lowest rating. The ISO rating focuses on suppression resources (50% of score - stations, apparatus, personnel, training), water supply (40% of score – hydrants and distribution)

and, communications (10% of score - staffing). Some insurance companies use ISO to set the fire portion of residential property rates while others use actuarial data.

ISO gives its highest rating to communities in which most built-up areas are within 1.5 miles of a staffed engine company (pumper) and 2.5 miles of a staffed ladder company. Nearly all areas of the Charlottesville are within 1.5 miles of an engine company and within 2.5 miles of a ladder company. The City has a class 1 water distribution system and wet hydrants that enable it to meet ISO's water flow requirements for fires. Most of the County's development areas are served by a wet fire hydrant system while the rural areas are not. Water for rural firefighting is provided from tanker trucks operated by the volunteer companies. Areas that are not served by hydrants have ISO ratings of five and above. The Emergency Communications Center serving the City and the Count with E-911 and dispatch services meets the basic ISO requirements. ISO collects data annually from fire Departments regarding their operations but only does reassessments at 10-year intervals.

The County has multiple ISO ratings ranging from 5 to 10. The poorest ratings are reserved for areas that are not served by fire hydrants and are more than five miles from a fire station. The ISO ratings for the various County Fire Department are listed below:

- Charlottesville (Automatic Response District in the County – 7/9
- Crozet – 5/9
- Earlysville – 6/9
- East Rivanna – 7/9
- Monticello – 6/9

- North Garden – 6/9
- Scottsville – 6/9
- Seminole – 5/9
- Stony Point – 9/10

A merger of the City and County Departments is unlikely to significantly affect the ISO ratings of either jurisdiction because ISO calculates multiple ratings for subsections of communities. Later sections of this report discuss ways in which the ACFRD can improve station coverage in its development areas.

The ISO rating system takes into consideration some factors that affect safety in a community. It places an emphasis on the number, staffing and spacing of fire companies, suppression training, water supply and emergency communications but does not consider fire prevention activities targeted at commercial and residential properties and pre-planning activities undertaken by fire companies. The ISO rating can affect property insurance rates. However, not all insurance companies use the ISO rating to set fire insurance rates. Some insurance companies use actuarial data.

The City and County have very similar property dollar losses from fires. The table, on the next page, summarizes fire property losses for the past three years. Some caution must be used in evaluating fire deaths and fire dollar loss information because the data may vary dramatically from year-to-year and factors other than a Department's response may play a significant role in the outcome of a fire.

Property Loss Due to Fires

	ACFRD			CFD		
Year	**Loss**	**Assessed Value**	**% Loss**	**Loss**	**Assessed Value**	**% Loss**
2006	$2.4 million	$16.5 billion	0.015%	$1.4 million	$4.3 billion	0.03%
2005	$3.7 million	$16.0 billion	0.023%	$0.1 Million	$3.6 billion	0.003%
2004	$5.6 Million	$15.5 billion	0.036%	$1.0 Million	$3.1 billion	0.032%
Average	**$3.9 million**	**$16.0 billion**	**0.024%**	**$0.83 Million**	**$3.6 billion**	**0.023%**

In evaluating fire Departments or fire/EMS Departments the ISO does not take into consideration the need for emergency medical services in a community. Over the years fire Departments, nationally, have taken on greater responsibility for EMS care. That same transition has occurred in Albemarle County and Charlottesville. Both Departments provide a substantial amount of emergency medical care. In fact, the biggest component of the ACFRD and CFD emergency workloads are EMS calls. EMS calls account for 55% of the ACRD emergencies annually and 46% of the CFD's emergencies. Structure fires, on the other hand account for 2% of the ACFRD's emergency workload and 2.6% of the CFD's emergencies annually. The design of fire and EMS system must take into consideration the multiple roles fire/EMS agencies play in providing emergency services. At the present time the ACFRD has taken a more active role in developing its emergency medical capabilities as demonstrated by the deployment of more advanced level emergency medical technicians and its involvement in deploying ambulances.

The next section of the report discusses differences in the ACFRD and CFD pay plans.

4. THE DEPARTMENTS HAVE SIGNIFICANTLY DIFFERENT WAGE SCALES FOR SIMILAR POSITIONS.

This section of the report discusses pay plan principles used by each agency and the current wage scales used to compensate the different ranks of career personnel in the Departments.

(1) Pay Plan Principles

Pay plan principles are factors used to determine compensation levels of individuals. Some public sector agencies rely on seniority to determine pay rates for staff within the same personnel classification, other agencies base pay decisions on individual skill levels while still other agencies use a combination of seniority and skills to set wage rates for their personnel. The following points describe the similarities and differences in the principles of the pay plans for the ACFRD and CFD.

- Both the City and the County have identified pay ranges for each rank in their systems. For example, the pay for captain's position in the ACFRD ranges from a low of $37,669 to $60,269. The spread between the low- and high-end of a pay grade for the ACFRD is 60% compared to a spread of 88% for similar positions in the CFD. Progress through each rank range is based primarily on longevity in both Departments.

- The ACFRD has two levels of Firefighters based on the level of EMS certification held by the Firefighter. ALS Firefighters are paid more than BLS certified Firefighters in the ACFRD. The CFD has only one level of Firefighter and most of its personnel are BLS rather than ALS certified. The BLS Firefighters in the ACFRD are compensated at a higher level than Firefighters in Charlottesville. However, the City's career development program and compensation, described below, enables Firefighters in the CFD to earn more than their counterparts in the ACFRD.

- The CFD has a career development program for Firefighters but not for fire officers. The program compensates personnel for fire certifications and college credits in accordance with time in position and good annual performance evaluations. The program identifies a Specialist, Senior and Master Firefighter progression that caries pay supplements of 5%, 10% and 15% on top of a Firefighters base wage. The ACFRD does not have a similar career

development and compensation program. 30 of the 59 CFD Firefighters participate in the career development plan as follows:

– Specialist – 21

– Senior – 8

– Master - 1

- The Departments have slightly different overtime compensation policies for ranking personnel. The following positions in the County and City Fire Departments are not eligible for overtime compensation:

  – ACFRD – Chief, Deputy Chief, Assistant Chief.

  – CFD – Chief, Deputy Chief, Battalion Chief.

(2) Pay Plan Rates

The ACFRD and the CFD has established pay plans for each rank of Firefighter/EMT. The exhibit, that follows, compares wage ranges for each career rank in the two Departments.

Current Wage Scales – ACFRD and CFD

Position	Wage Ranges	Albemarle Fire Rescue	Charlottesville Fire	CFD Premium/Lag	Dollar Difference
Chief	Minimum	$76,141	$71,323	-6%	-$4,818
	Midpoint	$98,983	$103,272	4%	$4,289
	Maximum	$121,825	$135,200	11%	$13,375
Deputy Chief	Minimum	$61,648	$54,350	-12%	-$7,298
	Midpoint	$80,143	$73,590	-8%	-$6,553
	Maximum	$98,638	$92,830	-6%	-$5,808
Assistant Chief Operations	Minimum	$49,916	NA	NA	NA
	Midpoint	$64,890	NA	NA	NA
	Maximum	$79,865	NA	NA	NA
Battalion Chief	Minimum	$43,362	$46,941	+8%	+$3,579
	Midpoint	$56,371	$64,646	+15%	+$6,275
	Maximum	$69,380	$82,322	+19%	+$12,942
EMS Supv	Minimum	$43,362	NA	NA	NA
	Midpoint	$56,371	NA	NA	NA
	Maximum	$69,380	NA	NA	NA

Position	Wage Ranges	Albemarle Fire Rescue	Charlottesville Fire	CFD Premium/Lag	Dollar Difference
Captain	Minimum	$37,669	$35,846	-5%	-$1,823
	Midpoint	$48,969	$50,552	3%	$1,583
	Maximum	$60,269	$65,228	8%	$4,959
Fire Prevention	Minimum	$32,723	NA	NA	NA
Inspector	Midpoint	$42,540	NA	NA	NA
	Maximum	$52,358	NA	NA	NA
Fire Prevention	Minimum	$35,110	NA	NA	NA
Investigator	Midpoint	$45,642	NA	NA	NA
	Maximum	$56,174	NA	NA	NA
Firefighter	Minimum*	$35,110	NA	NA	NA
ALS	Midpoint	$45,642	NA	NA	NA
	Maximum	$56,174	NA	NA	NA
Firefighter	Minimum	$32,732	$34,537	+6%	+$1,805
BLS	Midpoint	$42,540	$39,399	-7%	-$3,141
	Maximum	$52,358	$51,251	-2%	-$1,107
Firefighter – Career Development	Specialist		5% over base,	NA	NA
	Senior		10% over vase	NA	NA
	Master		15% over base	NA	NA

*Pay for Firefighter/ALS in the County is $36,500 (0 years experience with Firefighter and ALS certification). This is an artificial minimum of a pay grade 13.

The following points describe the pay similarities and differences between the two Departments for each rank listed in the exhibit, above:

- The Chief's positions are similar in the two Departments. Both are responsible for the entire operation of their respective Departments. Whereas the Charlottesville Chief has a larger complement of career personnel the County Chief has a much larger contingent of volunteer Departments and personnel. The wage scale for the City Chief is higher than that of the County Chief.

- The Deputy Chief's positions are similar in both Departments. The Deputy Chiefs have a range of administrative duties and are responsible for emergency operations. The Deputy Chief position in Albemarle County is compensated at a higher level than the counterpart in Charlottesville.

- Day-to-day management of operations falls to one Assistant Chief in Albemarle County and to six Battalion Chiefs in Charlottesville. The wage scale for Battalion Chiefs in Charlottesville is slightly higher than the Assistance Chief's position in Albemarle County. The wage scale for the Battalion Chief's position in Charlottesville is considerably higher than for the Battalion Chief's position in Albemarle County.

- Captains in both Departments are responsible for emergency operations. Captains, except for a few specialized positions in the ACFRD (Training, Recruitment), command a piece of emergency apparatus. Career Captains in the ACFRD frequently act as incident commanders until the arrival of Chief Officer from ACFRD or one of the volunteer Departments. In addition, ACFRD Captains are responsible for volunteer relationships and volunteer operations in their stations. Captains in the CFD act as incident commanders when they respond into the County until a County Chief Officer arrives on the scene. The Captain's position in Charlottesville is compensated at a higher level than their counterpart in Albemarle County.

- The ACFRD has a range of fire prevention positions (Assistant Chief, Investigator, Inspector, Plan Reviewer) not found in the CFD. The CFD has a single person, a Battalion Chief, assigned to fire prevention and three inspectors assigned to fire companies who coordinate inspections by fire companies.

The next section of the report discusses the paid leave policies of the Departments.

5. THE MORE GENEROUS LEAVE POLICIES OF THE CFD WILL ADD COSTS IF THE DEPARTMENTS ARE MERGED.

This section of the report compares the paid annual, holiday and sick leave offered by each Department to its employees.

(1) Annual Leave.

The tables, on the following pages, compare the annual leave policies for 40-hour and 56-hour employees in both Departments. The ACFRD has a slightly more generous annual leave allotment than the CFD. However, this must be tempered by the manner in which the CFD calculates the amount of leave taken by 56-hour personnel. Although leave is granted in hours, it can be taken in weekly increments that are based on a maximum deduction from a Firefighter's accrued leave of 56-hours per week.

Firefighters in the CFD work an average of 56 hours weekly in weeks of either 48 hours (2 days) or 72 hours (3 days). Depending on which weeks a CFD Firefighter

chooses to take vacation he/she will be credited with the actual hours taken up to a maximum of 56 hours. For example, if a CFD Firefighter takes annual leave during a 48-hour workweek, he/she is charged with 48 hours of leave. If, on the other hand, a CFD Firefighter takes leave during a 72-hour workweek, he/she is credited with 56 hours of leave. CFD Firefighters choose their leave days based on seniority and are able to maximize the amount of their annual leave taken based on the weeks they choose to take vacation. A 10-year CFD Firefighter accrues 196 hours of leave but could be off duty for as few as 196 hours (8.2, 24-hour days) or as many as 240 hours (10, 24-hour days).

Annual Leave for 40-hour employees

Year of Service	ACFRD 40-hour	CFD 40-hour	CFD Premium/Lag
1	96	80	-16%
2	96	80	-16%
3	96	100	4%
4	96	100	4%
5	96	120	25%
6	120	120	0%
7	120	120	0%
8	120	120	0%
9	120	120	0%
10	120	140	17%
11	144	140	-2%
12	144	140	-2%
13	144	140	-2%
14	144	140	-2%
15	144	160	11%
16	168	160	-5%
17	168	160	-5%
18	168	160	-5%
19	168	160	-5%
20	168	180	7%
21	192	180	-6%
22	192	180	-6%

Year of Service	ACFRD 40-hour	CFD 40-hour	CFD Premium/Lag
23	192	180	-6%
24	192	180	-6%
25	192	180	-6%
26	216	200	-7%

Annual Leave for 56-hour employees

Year of Service	ACFRD – 56-Hour	CFD 56-Hour	CFD Premium/Lag
1	134	112	-16%
2	134	112	-16%
3	134	140	4%
4	134	140	4%
5	134	168	25%
6	168	168	0%
7	168	168	0%
8	168	168	0%
9	168	168	0%
10	168	196	17%
11	202	196	-3%
12	202	196	-3%
13	202	196	-3%
14	202	196	-3%
15	202	224	11%
16	235	224	-5%
17	235	224	-5%
18	235	224	-5%
19	235	224	-5%
20	235	252	7%
21	269	252	-6%
22	269	252	-6%
23	269	252	-6%
24	269	252	-6%
25	302	280	-7%

(2) Sick Leave.

The sick leave policies for the Departments are similar. 40-hour employees in the ACFRD receive slightly more sick time than their counterparts in the CFD but 56-

hour personnel in the CFD receive slightly less sick time than their counterparts in the ACFRD. The table, which follows, compares sick time accumulation in the Departments.

Sick Leave Comparison

Employee / Department	ACFRD	CFD	CFD Premium/Lag	Percent Difference
40-hour Employee	8 hours/Mo	9 hours/Mo	+12 Hours	+ 12%
48-hour Employee	9.6 hours/Mo	N/A	N/A	N/A
56-hour Employee	11.2 hours/Mo	10 hours/Mo	-14 Hours	-10%

(3) Holiday Leave.

Holiday leave is similar for 40-hour personnel in each Department. However, there is a considerable difference between the amount of holiday leave 56-hour personnel accumulate in each Department. 56-hour personnel in the ACFRD accumulate holiday leave at the rate of 11.2 hours per holiday while CFD 56-hour personnel accumulate holiday leave at the rate of 24 hours per holiday. As displayed in the table, below, 56-hour CFD personnel receive more than twice as much holiday time off as their counterparts in the ACFRD:

Holiday Leave Comparison – Based on 11 Annual Holidays

Employee / Department	ACFRD	CFD	CFD Premium/Lag	Percent Difference
40-hour Employee	8 hours/Holiday	8 hours/Holidays	Same	Same
48-hour Employee	9.6 hours/Holiday	N/A	N/A	N/A
56-hour Employee Based on 11 holidays	11.2 hours/Holiday 123 hours	24 hours/Holidays 264 hours	+141 Hours	+114%

RECOMMENDATION:

Any merger between the City and County merged the Departments would require that the new agency adopt a unified leave plan for all employees. The plan would also need to guarantee that no employee lost any paid leave as a result of the merger. Such a plan would add significant cost to the system over the current cost structure because additional time off (annual and holiday) would need to be granted to the ACFRD operations career staff (56-hour personnel) to provide parity with the current leave benefits of the CFD Firefighters.

The table, that follows, estimates the additional leave and the cost involved in providing the additional leave to ACFRD 56-hour personnel in Operations. The 6.8 days of lost time equates to nearly three 56-hour workweeks. The costs in the table are based on direct wages and do not include fringe benefits. These are per-person costs.

Lost Time Impact of Additional Leave on ACFRD 56-hour Firefighters

Leave	Hours	24 –hour Days lost	Hourly Rate**	Annual Cost
Annual	22*	0.9	$15.80	$347.50
Holiday	141	5.9	$15.80	$2,337.80
Total	**163**	**6.8**	**$15.80**	**$2,575.40**

*One half the difference between the amount of annual leave for a 10year CFD Firefighter (196 hours) and the amount of time actually taken depending on whether the time off is taken on a 48- or 72-hour work week (240 hours).
**Average mid-point hourly rate for a Firefighter and Captain, approximately $46,000.

The next section of the report discusses differences in retirement benefits between the Departments.

6. THE RETIREMENT BENEFITS AND COSTS ARE SIGNIFICANTLY HIGHER FOR THE CFD THAN THEY ARE FOR THE ACFRD.

Both Departments offer retirement plans for their employees in addition to Social Security benefits. The City has its own retirement system while the County participates in the Virginia Retirement System. The costs and benefits for the defined benefits programs are listed in the exhibit, which follows:

Defined Benefit Retirement and Medical Plans

Employee / Department	ACFRD	CFD	CFD Premium/Lag	Percent Difference
Employee Contribution	None	None	Same	Same
Employer Retirement Contribution	14% of Base Wage	24.33% of Base Wage		+74%
Employer Medical Contribution	Included in retirement contribution above	10.24% of base wage		
Eligibility	Age 50 with 25 years of service	Age 50 with 25 years of service	Same	Same
Payout Formula	1.7% of highest 3 years X years of service 25 year FF @ $50.000 = $21,250	1.6% of highest 3 years X years of service 25 year FF @ $50.000 = $20,000	FF = -$1,250	-6%
Supplemental Retiree Benefit to Age of Social Security Retirement	Maximum benefit is currently $892 per month ($10,704 annually).	1.0% of average final compensation X years of credible service until the normal SS retirement age		City plan is advantageous based on pay grade and service years.
Retiree Medical Benefit	Retirees may remain on the plan until 65, but County only contributes for 5 years.	Benefits paid to age 65. Same contribution as for active employees. Monthly payments of $300.		City plan is advantageous to those who retire before age 60.

The following points describe the similarities and differences in basic aspects of the Departments' defined benefit retirement plans:

- Annual costs for the defined benefit program are considerably higher in the City than they are for the County. The combined retirement and retiree medical benefit for a City Firefighter is 130% higher than for a County Firefighter. The following table calculates the costs for different Firefighter ranks in each Department.

Employee / Department	CFD Benefit Cost	ACFRD Benefit Cost	CFD Premium/Lag	Percent Difference
Firefighter @ $50,000	$16,135	$7,000	+$9,135	+130%
Captain @ $60,000	$20,976	$9,100	+$11,876	+130%
Battalion Chief @ $82,000	$26,461	$11,480	+$14,981	+130%
Deputy Chief @ $92,000	$29,688	$12,880	+$16,808	+130%

- The supplemental retirement benefit paid to employees between the age at which they retire and when they become eligible for Social Security is considerably higher for CFD Firefighters than it is for ACFRD Firefighters. The

following table calculates the annual benefit payout for personnel at different ranks who retire with 25 years of service.

Employee / Department	ACFRD Cost	CFD Cost	CFD Premium/Lag	Percent Difference
Firefighter @ $50,000	$12,500	$10,800	+$1,700	+16%
Captain @ $60,000	$16,250	$10,800	+$5,450	+50%
Battalion Chief @ $82,000	$20,500	$10,800	+$9,700	+90%
Deputy Chief @ $92,000	$23,000	$10,800	+$12,200	+113%

- The retiree health care benefit is higher for CFD employees than it is for ACFRD employees.

The City also offers employees the option of joining a defined contribution retirement plan whereas the County does not have a defined contribution plan. The City contributes 8% of an employee's base pay to the defined contribution plan. Only one CFD employees currently participates in the defined benefit plan.

RECOMMENDATION:

Any merger between the City and County Departments would require that the new agency adopt a unified retirement plan for all employees. The plan would have to guarantee that no employee lost any retirement benefit as a result of the merger. Such a plan would add cost to the system over the current cost structure because of the need for the merged Department to provide the former ACFRD employees with benefits similar to those of the CFD. The largest benefit differences relate to the supplemental retirement benefits to the normal Social Security retirement age and retiree medical benefits. Bringing the ACFRD Firefighters up to the CFD benefit level would result in an increase in retirement costs from 14% of base wages, the current ACFRD rate, to 34.57%, the current CFD rate.

The next section of the report compares the health care benefits offered to employees in each Department.

7. THE DEPARTMENTS PROVIDE THEIR EMPLOYEES WITH SIMILAR HEALTH CARE AND LONG TERM DISABILITY BENEFITS.

Both Departments provide medical and dental benefits to their employees on a co-pay basis. In general, employee contributions are lower in the City than they are in

the County. The exhibit, below, lists the bi-weekly contributions employees make to participate with their families in various coverage options.

Employee Medical Contributions

Medical Coverage	Albemarle Employee	Charlottesville Employee	Charlottesville Premium/Lag
High Option			
Employee	$37	$24	-34%
Employee + Minor	$79	$111	40%
Employee + Spouse	$257	$171	-34%
Family	$344	$220	-36%
Middle Option			
Employee	$27	$9	-68%
Employee + Minor	$58	$88	52%
Employee + Spouse	$187	$144	-23%
Family	$249	$189	-24%
Low Option			
Employee	$9	$0	-100%
Employee + Minor	$37	$31	-16%
Employee + Spouse	$118	$75	-37%
Family	$161	$111	-31%

The table, below, lists the bi-weekly contributions employees make to participate with their families in various dental coverage options. Employee contributions are considerably lower in the City than they are in the County.

Employee Dental Contributions

Dental Coverage	Albemarle Employee	Charlottesville Employee	Charlottesville Premium/Lag
High Option			
Employee	$13.59	$0.00	-100%
Employee + Minor	$32.04	$5.69	-82%
Employee + Spouse	$32.04	$7.24	-77%
Family	$37.01	$14.35	-61%
Basic Option			
Employee	$2.85	Not Available	
Employee + Minor	$13.00	Not Available	
Employee + Spouse	$13.00	Not Available	
Family	$37.01	Not Available	

Both Departments provide state-mandated long-term disability benefits for partial and total disabilities. The City provides its benefits through a private insurance company while the County provides its benefits through the Virginia Retirement System.

8. CONSOLIDATION OF THE ACFRD AND THE CFD WILL SHIFT SOME OF THE TAX BURDEN FOR THE MORE COSTLY CFD TO COUNTY TAX PAYERS.

Fire and EMS services in both jurisdictions are part of their General Fund appropriations that are based primarily on real property taxes. The following table compares property tax rates and property tax allocations for the fire and EMS operations in both jurisdictions:

Real Property Tax Rates and FIRE/EMS Operating Costs

Community / Factor	ACFRD	CFD	CFD Premium
FY07 Budget Fire/EMS Budgets	$6,844,496	$7,741,471	+13%
Assessed Valuation (100%)	$16.53 Billion	$4.25 Billion	-74%
Real Estate Tax Rate	$0.74 per $100	$0.99 per $100	34%
Total Property Taxes	$122.3 Million	$42.1 Million	-66%
Tax Rate Attributed to Fire/Rescue	$0.041 per $100	$0.182 per $100	340%
Consolidated Rate	8.9¢ per $100 of assess value		N/A

The following points summarize information on the table, above:

- The County has a much higher assessed value of real estate than the City. The County has slightly more than twice the population of the City but the assessed value of real property in the County is nearly four times the assessed value of the property in the City. As a result, the County has a much lower real estate tax rate than the City.

- If fire/EMS services were supported entirely by the real estate taxes in both jurisdictions the County would need to collect 4.1¢ per $100 of assessed valuation and the City would need to collect 18.2¢ per $100 of assessed value from property owners.

- If the ACFRD and CFD merged and operating practices and costs remained unchanged at current budget levels for the jurisdictions:

  – The property tax rate for County residents would increase from 4.1¢ per $100 of assessed valuation to 8.9¢ - an increase of 117%.

– The property tax rate for City residents would drop from 18.2¢ per $100 of assessed value to 8.9¢ - a decrease of 51%.

The considerable disparity in per capita operating costs between the ACFRD and the CFD indicates that a consolidation of services and the levying of a single property tax rate across both jurisdictions would lead to a shift in the tax burden from City to County residents.

The tax analysis, above, assumes that the "City" and "County" Firefighters in a consolidated fire Department would continue to receive their current retirement, retiree medical and holiday leave benefits. As discussed in earlier section of this report there is considerable difference in the costs of these benefits between City and County Firefighters. The City benefit plan is considerably more expensive. The total budget for the consolidated Department is based on the assumption that the personnel policies of the individual Departments will not be changed. ACFRD and CFD personnel would continue to receive their current pay and benefit package. The study team does not think this is a viable option because of the large differences in retirement, retiree medical coverage and holiday leave policies between the Departments. The differences will breed animosities between personnel receiving the more lucrative "City" benefit package and less lucrative "County" benefit package.

The table, on the next page, summarizes major differences between the City and County benefit packages. Implementation of the more generous "City" benefits for all employees would add approximately $688,000 to the costs for operating the consolidated agency. Providing CFD benefits to the ACFRD would cost a consolidated Department approximately $10,000 per Firefighter annually.

Estimated Cost to Achieve "City" Benefit Levels

Cost Factor	ACFRD	CFD	Cost to Achieve "City" Benefit Level
Retirement Contribution	14% of Base Wage	24.33% of Base Wage	+$309,000*
Retiree Medical Contribution	Included in the retirement contribution	10.24% of base wage	+$307,000*
Holiday Leave (Line Personnel)	11.2 hours/Holiday 123 hours	24 hours/Holidays 264 hours	+$72,000**
Total Estimated Cost			**+$688,000**

*Based on $3 million in wages.
*Based on 141 hours of holiday pay for 33 ACFRD 56-hour personnel at $15.50 per hours.

RECOMMENDATION:

As with other elements of compensation in a consolidation, the City and Count would have to adopt a single personnel benefit package based on the higher level of benefits currently available to CFD Firefighters.

Based on the transfer of costs for a consolidated system from City to County taxpayers and the added cost to provide ACFRD personnel with the CFD's level of benefits we do not recommend that the City and County consolidate their fire and EMS systems.

3. STAFFING AND CULTURAL FACTORS AFFECTING CONSOLIDATION

This chapter of the report discusses the differences in the staffing of the ACFRD and the CFD, largely a function of the career / volunteer structure of each Department and the level of emergency medical care each provides.

1. THE ACFRD AND CFD HAVE DIFFERENT LEVELS OF STAFF SUPPORT.

The table, below, displays information about the staff support or non-emergency positions in each Department. The most noticeable difference between the Departments is the 13 support staff in the ACFRD compared to 5 positions in the CFD.

Career Support Staffing in the ACFRD and CFD

Position / Department	ACFRD	CFD
Fire Prevention	6	1
Training	3	2
Recruitment / Retention	1	0
Mechanic	0	1
Administrative / Clerical	3	1
Total	**13**	**5**

The following points summarize key differences in support staffing.

- **Fire Prevention Staff** - The difference in the number of prevention personnel can be attributed in large part to the volunteer nature of the ACFRD and the career nature of the CFD. Although volunteers have not typically been involved in prevention activities the Department recently recruited a volunteer inspector and a volunteer public educator. The ACFRD prevention staff conducts inspections, investigations and plan reviews. The CFD has a single inspector (Fire Marshal) but has actively involved its suppression personnel in inspection activities. The CFD has a trained and certified inspector on each shift in Operations who serve on a piece of apparatus. In addition, the Charlottesville Police Department conducts fire investigations in the City while ACFRD has fire investigators on its staff. Both Departments install residential smoke detector and batteries when requested by citizens. However, neither Department has a proactive inspection program in which career or volunteer personnel conduct door-to-door voluntary safety and smoke detector inspections for residents.

However, the CFD promotes smoke detectors and has installed over 1,000 detectors with 10-year batteries during the past decade.

- **Training, Recruitment and Retention Staff** – The differences in the number of training personnel can be attributed to the volunteer nature of the ACFRD. The ACFRD has made a major staff commitment to recruiting and training its 440 active volunteers. This mission is complicated by the annual turnover in the volunteer force and the extent to which the ACFRD and CFD hire from the volunteer ranks. The fire training courses offered by the ACFRD and its volunteer agencies are open to CFD personnel at no cost to CFD personnel.

- The CFD has a single Administrative Assistant who performs a range of administrative, clerical, purchasing and receptionist tasks and supports the Fire Chief, Fire Prevention and Training Bureaus. The ACFRD has three administrative personnel who support the Fire Rescue Chief, Fire Prevention and Training Bureaus with administrative, receptionist and clerical support.

- **Apparatus Repair** - The CFD has a civilian Mechanic who runs the Department's apparatus repair shop and works on the fire apparatus. The Department has a single repair bay at its headquarters station. In addition, the Department uses a vendor to conduct apparatus tests and to do major apparatus and specialized repairs. The ACFRD and the volunteer Departments contact out their apparatus maintenance work.

The table, below, displays information about the management and service delivery positions in each Department. Both Departments are organized to provide emergency care to citizens and are staffed by a range of Firefighter/EMTs, supervisors and managers. The majority of the personnel staff fire trucks, rescue vehicles and ambulances deployed in the fire stations.

Career Firefighters and Emergency Medical Technicians Assigned to Operations

Position / Department	ACFRD	CFD
Assistant Chief	1	0
Battalion Chiefs	1	6
EMS Supervisors	1	0
Captains	15	18
ALS FF / EMTs	25	10
BLS FF / EMTs	15	49
Total	**60***	**85**
Percent ALS Certified	**73%**	**12%**

• The total number of ACFRD personnel includes 12 positions funded for 25% of the year to provide engine company service at he #12 Hollymead station.

The following points summarize key differences in the career emergency operations staffing between the Departments.

- **EMS Supervisor** – The ACFRD has an EMS Supervisor who oversees operations and provides quality control oversight for emergency medical services. The EMS supervisor reviews the care provided by career and volunteer EMS providers in the County. The City does not have a similar position.

- **Battalion Chief** – The CFD has six Battalion Chiefs in operations compared to one in the ACFRD. CFD Battalion Chiefs are responsible for the daily shift of personnel who staff the apparatus and act as the incident commander at major emergencies. In addition, if two Battalion Chiefs are on duty in the CFD, one will staff a piece of apparatus if a Captain's position is vacant.

  The Battalion Chief position is just emerging in the ACFRD. The ACFRD plans to deploy one daytime Battalion Chief in FY07 to oversee its growing contingent of career personnel at the Monticello and Hollymead stations. The role and number of ACFRD Battalion Chefs will expand as new career-staffed stations are opened in the County. By the end of 2007 the ACFRD will have two 24-hour stations and four 12-hour weekday stations staffed by career personnel. The ACFRD plans to add two more 24-hour career stations by 2012. As the County system grows there will be a need for a 24-hour on-duty County Battalion Chief.

- **Captains** – The Captains' positions in both Departments are similar in that they are in charge of a piece of apparatus. Captains in both agencies are also incident commanders until the arrival of a career or volunteer Chief officer. The ACFRD Captains are responsible for volunteer coordination and support in the stations where they are assigned.

- **Firefighters** – The ACFRD provides Advanced Life Support (ALS) EMS Care compared to the Basic Life Support (BLS) level of care provided by the CFD. ALS personnel in the ACFRD are in a higher pay grade than BLS Firefighters. About 2/3 of the ACFRD Firefighters are ALS certified. The CFD has only a few ALS certified Firefighters and does not provide a pay incentive for ALS certification. Firefighters in the ACFRD operate ambulances in the volunteer squads, at CARS and in the temporary # 12 Hollymead station. The CFD does not currently provide any ambulance service.

- **Daily Career Staffing in Emergency Operations** – The number of career staff deployed daily varies substantially between the Departments.

  – The ACFRD deploys 11 career personnel on weekdays from 6 AM to 6 PM in four volunteers stations (Earlysville, Seminole and Stony Point Fire and Scottsville Rescue), details three career Firefighter/EMTs to CARS on

weekdays form 6 AM to 6 PM and assigns six career personnel around the clock 7-days a week in two stations (Monticello and Hollymead). Three more 24-hour personnel will be added to the Hollymead station in the summer of 2007. The career personnel along with the volunteers cover a 723 square mile area.

– The CFD deploys a minimum of nineteen 24-hour personnel daily in operations to cover a 10.4 square mile area and contract response areas in the County.

RECOMMENDATION:

The role and number of Battalion Chefs will expand as new career-staffed stations are opened in the County. By the end of 2007 the ACFRD will have two 24-hour stations and five 12-hour weekday stations staffed by career personnel. As the County system grows the ACFRD should deploy a 24-hour on-duty Battalion Chief when it opens the Pantops station. It will cost the County approximately $360,000 annually in wages and benefits to staff such a Battalion Chief's position around the clock.

The next section of the report compares the schedules of operations personnel in the ACFRD and the CFD.

2. THE ACFRD DEPLOYS A MIX OF 48-HOUR AND 56-HOUR PERSONNEL WHILE THE CFD DEPLOYS ONLY 56-HOUR PERSONNEL.

All of the operations personnel in the CFD are assigned to a 24-hour shift. The Fire Officers and Firefighters work a 56-hour week composed of 24-hour shifts. Operations personnel in the ACFRD work either a 56-hour week, like their CFD counterparts, or a 48-hour week composed of four 12-hour weekday shifts. The 48-hour personnel work Monday – Friday from 6 AM to 6 PM in volunteer stations or at CARS.

ACFRD personnel assigned to fire and EMS apparatus in its new stations (Monticello and Hollymead) work the 56-hour schedule while personnel assigned to provide weekday service in the volunteer Departments (Earlysville Fire, Seminole Fire, Scottsville Rescue and Stony Point Fire) work the 48-hour schedule. The ACFRD is

likely to deploy both 48-hour and 56-hour personnel into the foreseeable future. Furthermore, the 48-hour staffing is likely to expand as additional volunteer Departments request weekday career support. The East Rivanna Fire Department recently requested career weekday support. The 48-hour schedule is a cost effective way for the County to provide service and support to its volunteer Departments and to cover peak ambulance demand times of the day.

The table, below, lists the current and proposed on duty career staff of the ACFRD through the year 2012. By 2012 the ACFRD will have nineteen, 24-hour personnel on duty in four stations and seventeen, 12-hour weekday personnel on duty in five volunteer stations. In addition to the staff listed on the table, other volunteer companies (Crozet, Scottsville Fire, North Garden) could request weekday staffing for their stations in the future.

Current and Future On Duty Career Staffing in the ACFRD

Station	24 hour Personnel	12-Hour Personnel
Current Station Staffing		
Monticello	4	0
Hollymead	5*	0
Earlysville Fire	0	3
Scottsville Rescue	0	2
Seminole Fire	0	3
Stony Point	0	3
CARS	0	3
Planned Station Staffing		
East Rivanna (2007)	0	4
Pantops (2008)	5	0
Ivy (2012)	5	0
Total	**4 Stations 19 positions**	**6 Stations 18 positions**

* A two-person ambulance was deployed in September 2006 and a 3-person engine will be deployed in the summer of 2007.

RECOMMENDATION:

The ACFRD should continue to deploy both 56-hour and 48-hour schedules for career personnel assigned to operations as a cost effective to support the volunteer Departments and Squads needing weekday coverage.

The next section of the report compares the ACFRD and CFD approaches to the use of volunteers and the level of emergency medical care they provide.

3. APPROACHES TO SERVICE DELIVERY VARY WIDELY BETWEEN THE CITY AND COUNTY.

This section of the report discusses career and volunteer staffing and the level of EMS care provided by the fire/EMS Departments.

(1) Career and Volunteer Staffing.

The City and County have very different approaches to the integration of volunteers into their service delivery systems. Volunteers are the primary service providers in a most of the County fire and rescue stations while volunteers are a backup to career personnel in Charlottesville. In addition, CARS provides volunteer rescue and ambulance services in the City and the County. ACFRD career personnel supplement CARS rescue ambulances on weekdays. The ACFRD personnel assigned to CARS run rescue calls and transport patients in both the County and the City.

The County has a Fire Rescue Advisory Board that represents the volunteer Departments whereas the City does not have a similar entity but meets and plans regularly with the Charlottesville Volunteer Fire Company. The Albemarle County Fire Rescue Advisory Board is a fire rescue policy-making organization established to advise the Albemarle County Board of Supervisors and County Executive on fire and rescue related issues. The Board is comprised of Chief operating officers from each of

the County's volunteer fire and rescue stations and the Albemarle Fire Chief. Each member organization has voting rights. The Board is responsible for developing countywide operational and administrative policy to help the County fire rescue system achieve the four strategic goals listed below:

- Develop a unified combination emergency service system at the operational level.
- Deliver services that are consistent with our customer's expectations.
- Further develop and support our volunteer and career personnel.
- Recruit and retain quality volunteer and career personnel.

The table, below, displays information about the career and volunteer staff in the City and County systems. The most noticeable difference between the Departments is the large number of volunteers in the County system and in CARS.

Career and Volunteer Staff

Position / Department	ACFRD	CFD	CARS
Career Personnel	71	87	0
Career Per 1,000 Population	0.78	2.2	0
Active Volunteers	440	30	156
Volunteers Per 1,000 Population	4.8	0.6	1.4
Percent Volunteer	86%	22%	100%

The ACFRD is evolving such that it will be hiring additional career personnel as new stations are opened and as the volunteer stations request weekday assistance. The new stations are likely to be staffed with from four to five on-duty career personnel depending on the number and type of apparatus assigned to the station. CARS is experiencing workload stress as the County grows and service demands increase. The County has been supporting CARS by providing funding and career staff support during weekday hours.

University students make up a significant portion of the CARS and Seminole Volunteer Fire Department volunteers and are regarded as valuable resources. Both the ACFRD and the CFD have discussed their desire to include student dormitory space in any new stations they build as a means to encourage University volunteers. The ACFRD is planning stations for Pantops and Ivy and the CFD is planning to replace Station 10 with a permanent facility. Each of these stations as well as the planned replacement of the Seminole Fire station and the CARS Rescue station on Berkmar Drive would be good locations for student dormitory space. One of the issues facing the Departments is a concern that volunteers who reside in the Department's dormitories may be required to claim their housing as income when filing federal taxes.

RECOMMENDATIONS:

ACFRD should continue to support a strong role for its volunteers. The County's Volunteer Fire Rescue Advisory Board should be maintained.

The Departments should actively pursue the construction of student dormitory space in their new facilities. If there are tax implications for providing housing to the students, the jurisdictions should pay the taxes incurred for housing student volunteers.

(2) Emergency Medical Services.

The ACFRD and the CFD have adopted different strategies for providing Advanced Life Support emergency medical care and ambulance transportation service as outlined below.

- The ACFRD provides a mix of ALS and BLS care.
  - ALS care is provided from each of the Department's career staffed fire/EMS stations (Monticello and Hollymead) and plans call for ALS staffing in future career stations (Pantops and Ivy).
  - ALS Firefighters staff an ALS car in Monticello, an ALS ambulance in Hollymead and a weekday ambulance in the Scottsville Volunteer Rescue

station. ALS personnel are also on duty in the Earlysville, Seminole and Stony Point fire stations on weekdays. The East Rivanna fire station will be staffed by career ALS Firefighters beginning in the summer of 2007.

  - Two ALS Firefighters are detailed to CARS on weekdays from 6 AM to 6 PM to staff ambulances.

  - The three volunteer Rescue Squads (CARS, Scottsville, Western Albemarle) provide a mix of BLS and ALS care in the County.

  - Most of the seven volunteer fire Departments provide BLS care in their first due districts. Although EMS training for the volunteer Firefighters is not mandatory, many have sought EMS certification.

- The CFD provides BLS Care.

  - All CFD career Firefighters are BLS trained and a few are ALS certified.

  - The Department's apparatus is ALS certified.

  - The Department does not have any ambulance transportation capability.

  - The CFD volunteer Firefighters are not EMS trained or certified.

  - CARS provides a mix of BLS and ALS care and ambulance transportation in the City.

4. CONSOLIDATION WOULD ADVERSELY AFFECT THE ABILITY OF CFD FIREFIGHTERS TO VOLUNTEER IN THE COUNTY.

This section of the report discusses the extent to which CFD Fire Officers and Firefighters participate in the County's volunteer system. This is an important issue because: (1) a number of CFD personnel volunteer in the County and (2) the Fair Labor Standard Act (FLSA) mandates that personnel in an organization must be paid for all hours they work. If the County and City Departments were consolidated into a single agency the FSLA guidelines would mandate that the CFD volunteers be compensated at their normal overtime rate of pay.

The table, on the next page, displays data about the extent to which Firefighters from the CFD are actively volunteering with the County's fire and Rescue Squads. 26 CFD personnel, nearly 30%, are currently active volunteers. Slightly more than a third of the CFD volunteers are involved in volunteer leadership positions with the County's volunteer fire Departments. Although CFD Firefighters constitute only a small portion of total volunteers in the County they are an important resource because of their level of training, weekday availability and active participation in volunteer Departments.

CFD Firefighters Volunteering in the County

Department / Volunteers	CFD Members Who Volunteer with County Departments	CFD Members Who are Volunteer Company Officers
Fire Departments		
#2 East Rivanna	4	0
#3 North Garden	3	2
#4 Earlysville	1	0
#5 Crozet	7	2
#6 Stony Point	0	0
#7 Scottsville	3	2
#8 Seminole	0	0
Rescue Squads		
CARS	2	1
#5 Western Albemarle	2	2
#7 Scottsville	4	2
Total	**26**	**11**

RECOMMENDATION:

Based on the differences in which the ACFRD and CFD schedule personnel (48-hour and 56-hour shifts) and the extent to which each agency use volunteer personnel in their respective systems we do not recommend that the City and County consolidate their fire and EMS systems. Consolidation would have a particularly negative implication for the County since they rely on many City Firefighters as volunteers currently.

The next section of the report discusses the emergency response time objectives of the Departments.

5. THE CITY AND COUNTY HAVE DIFFERENT EMERGENCY RESPONSE TIME OBJECTIVES.

This ACFRD and CFD have adopted different response time objectives. The table, below, lists these objectives.

Response Time Objectives

ACFRD	CFD
• The ACFRD's Fire and EMS service level standards for facility planning are contained in the County's Land Use Plan. These standards are: – Fire response in the development areas – 5 average minute unit response time; EMS in the development areas – 4-minute average unit response time. – Fire and EMS in the rural areas – 13 minutes unit response time.	• To complete ninety (90) percent of the emergency responses within the City in six (6) minutes or less. • To complete seventy (70) percent of the emergency responses to the development area of Albemarle County in ten (l0) minutes or less. • Continue to evaluate ways to reduce response times.

The ACFRD has two response time objectives, one designed for the development areas and the other for the rural areas. The ACFRD objective for developed areas is five minutes for fire, four minutes for EMS and 13 minutes for all calls in the rural areas. The objectives do not break the response time out into reflex time and travel time. Reflex time is the amount of time it takes to roll a piece of apparatus out the door. In addition, the objective does not distinguish between Fire Department and Rescue Squad responses. The actual response times for fire and rescue apparatus could be substantially different given that County fire companies respond from eight locations and the Rescue Squads respond from only four locations. The County's response time objectives are based on an "average" response time. The County has not established any specific response time objectives for ambulances that are responding to calls to which fire apparatus have been dispatched.

The CFD, like the ACFRD, has two response time standards, one for the City and one for the areas it protects outside the City per the Service Agreement between the City and the County. Unlike the ACFRD that uses an average response time, the City's response objectives are stated in terms of the percent of calls answered within a give time frame – 90% of the City calls in six minutes and 70% of the County calls in 10 minutes. The City's response time objectives are more rigorous than the County's objectives. The City has not established any specific response time objectives for ambulances that are responding to calls to which fire apparatus have been dispatched.

RECOMMENDATIONS:

The ACFRD, CARS and the CFD should monitor response times on a monthly basis for all fire and EMS calls on the following parameters:

- **Reflex time – Time from when a unit is dispatched until it leaves the station.**
- **Travel Time – Time from when a unit leave the station until it arrives at incident scene.**
- **Total Response Time – Reflex plus travel time.**

The City and County should monitor ambulance response times and develop objectives for response time goals for incidents in which ambulances are responding to calls in which fire apparatus has been dispatched.

The County should adopt a fractile measurement system to monitoring response times.

4. STATION LOCATION ANALYSIS

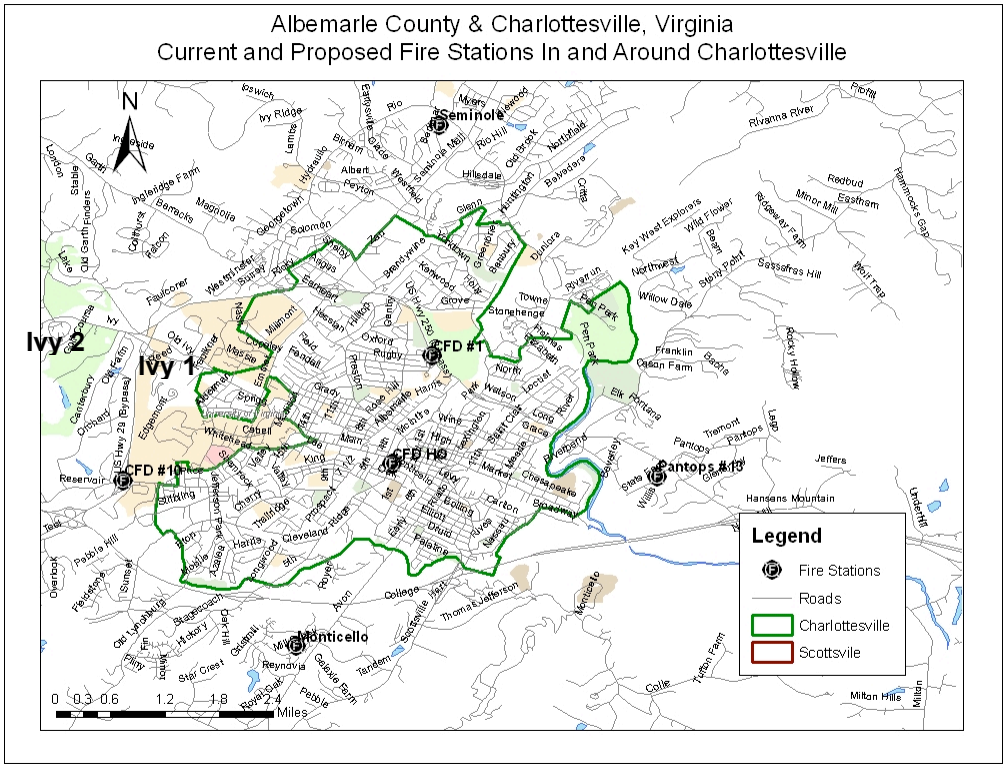
Fire and emergency medical services are geographically based systems in which emergency units are spaced throughout a community so responders can quickly arrive at emergency scenes. The vast majority of fire and EMS personnel are dispersed to multiple locations in a jurisdiction. Albemarle County and Charlottesville currently have 13 stations from which fire apparatus and ambulances are deployed and the County is planning two new stations. The typical fire station is home to one or two pieces of apparatus. In the event of a major emergency, multiple apparatus are dispatched from several stations to an incident. The purpose of this chapter is to discuss the deployment of fire apparatus in the City and County and evaluate opportunities for the consolidation of services between the City and County.

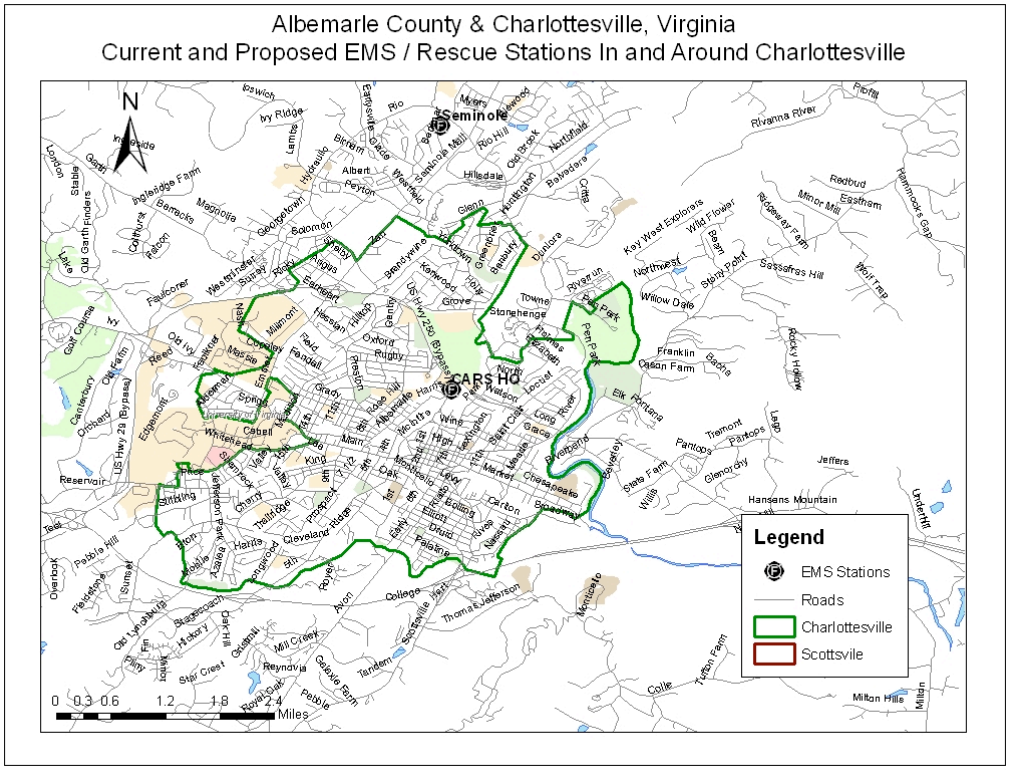
1. ANALYSIS OF FIRE STATION LOCATIONS INDICATES CITIZENS RECEIVE VARYING LEVELS OF COVERAGE IN THE CITY AND COUNTY.

The study team examined the current service delivery environment in and around the City of Charlottesville to determine whether or not it would be possible for the City and the County as well as CARS to improve operational efficiency and effectiveness by sharing fire/EMS stations. The map, on the following page, displays three City stations and two County stations currently located in the County's urban development areas surrounding the City. The map also displays locations for the relocation site for City station #10 and two proposed County stations (Pantops and Ivy). The table, on the following page, lists these stations as well as two CARS stations.

Fire and Rescue Station Locations

Stations
ACFRD Stations
8 Seminole - Berkmar Drive
#11 Monticello – Mill Creek
Planned - Pantops –
Planned - Ivy –
CFD Stations
Headquarters – Ridge @ Monticello
#1 - Route 250 By-pass
#10 - Ivy @ Route 29. Station will be relocated to Fontaine/Route 29
Planned - #10 Fontaine @ Route 29
CARS Stations
Headquarters - Route 250 &@ McIntire
#2 – Berkmar – Berkmar Drive





The following points summarized information about each fire and EMS station in Charlottesville and in the areas surrounding the City.

- **ACFRD Stations:**

  – **#8 Seminole** – The County operates three engines and a ladder from this station. Career and volunteer personnel staff the station on weekdays from 6 AM to 6 PM and volunteer duty crews staff the station at other times. The County is planning to rebuild this station close to its present location in the next several years. The station's first due area includes the north central section of the County and the northern section of the City accessible along Rio Road. The area is a mix of commercial occupancies and suburban single-family homes.

  – **#11 Monticello** – The County operates an engine and an EMS chase car from this station. Career personnel staff the station around the clock. The station's first due area includes the southern development areas of the County from Route 250 on the east of the City to Route 29 on the south west side of the City as well a rural areas of the County east to East Rivanna south to Scottsville. The area has limited commercial development and is home to suburban single-family dwellings.

– **Pantops** – The County plans to construct a station in the Pantops area along Route 250 in 2010. The preferred location is approximately 1.5 miles from the City's eastern border. The station's first due area would extend north on Route 20 towards Stony Point and east on Route 250 towards East Rivanna. Career personnel will staff the station around the clock. The City and County have discussed the possibility that this station could serve both jurisdictions. The area is a mix of commercial occupancies, a hospital, nursing homes and suburban single-family dwellings.

– **Ivy** - The County plans to build a station in the 3,000 block of Ivy Road (Route 250) west of the intersection of Ivy with Ednam Drive. The preferred location is approximately 2.1 miles from the City's western border. Career personnel will staff the station around the clock.

• **CFD Stations:**

– **Headquarters** – The City operates two engines and a ladder from this station. Career personnel staff the station. The Department's volunteers also operate from this station. The two engines have separate first due districts and the ladder company operates Citywide as well as in the County. The station serves the urban center of the City with a mix of mid-rise commercial and residential buildings as well as the southern residential sections of the City.

– **#1 250 by-pass** – The City operates two engine companies from this station. The engine companies have separate response districts and the companies first due district includes areas in the County along Rio Road and on Route 250 east into the Pantops area. Career personnel staff the station. The station serves portions of the University of Virginia, residential neighborhoods and several commercial strip shopping centers.

– **#10 Ivy @ Route 29** - The City operates one engine from this temporary station. Career personnel staff the station. The station is the first due company for most of the University of Virginia and serves large areas of the County to the west along Route 250, to the south and north along Route 29 and along the I-64 corridor. The station is located in the County. The City plans to relocate this station and its apparatus to a new location on Fontaine Street near the intersection of Route 29. This location provides access to the University as well as into the southwest section of the City and to the Sherwood, Redfields and I-64 areas of the County. This station will be located in the County.

- **CARS Stations:**

  – **Headquarters** – CARS operates most of its apparatus from this station. The station is staffed primarily with volunteers. In addition, three ACFRD ALS Firefighters are detailed to this station on weekdays from 6 AM to 6 PM. The station serves the City and the central section of the County along the Route 29 corridor.

  – **Berkmar** – CARS operates this station when staff is available. CARS and the Seminole Fire Department have been discussing jointly staffing an ambulance here with volunteers. CARS and Seminole have also been discussing the possibility of sharing a new facility in the area. The current CARS station and the Seminole Fire Station are located on the same block on Berkmar Drive.

The initial step in the analysis of station locations was to review response times to each response district in the City of Charlottesville and areas of the County immediately surrounding the City. These locations were examined because this area provides the best opportunity for enhanced coordination between the City and the County. The study team examined calls for the period September 1, 2004 to August 31, 2006. The data set contained 61,000 apparatus dispatch records.

The table, on the next page, provides a summary of two critical time factors – **reflex time** (the time between the dispatch of a unit and that unit indicating that it is "en-route") and **drive time** (the time between "en-route" and "arrival" at the call location).

Actual Response times to City / County Response Districts

Fire / EMS District	Average Reflex Time	Average Drive Time	Total Average Response Time
CFD - All Stations	1.44	4.77	6.21
ACFRD - #8 Seminole	1.54	5.45	6.99
ACFRD - #11 Monticello	1.45	8.19	9.64
County - CFD First Due	1.03	5.57	6.60

As shown above, response times vary significantly by response area.

- Reflex times varied form a low of 1.03 minutes for County areas in which the CFD is first due to a high of 1.5 minutes for the Seminole Station. Matrix

generally recommends that fire and EMS units seek to achieve a one-minute or less reflex time.

- Calls in the City of Charlottesville generally received the quickest total average response at approximately 6.2 minutes.

- The areas of the County where CFD provides first due automatic response had a total average response time of 6.6 minutes.

- The total average response time to calls in the County ranged from 6.9 minutes in Seminole's district to over 9.6 minutes in Monticello's response area.

The "average" time is not the only way to look at service delivery. A more descriptive and accurate method for examining response time data is to use a method call "fractile" performance. In this method, the data is summarized by stating the percent of calls that achieve a targeted minute performance standard. The fractile response data for the various stations are presented below:

Actual Fractile Response Time Performance

Fire / EMS District	Reflex < 1 Min	Drive < 4 Min	FD Total < 5 Min
CFD - All Stations	46%	59%	52%
ACFRD - #8 Seminole	35%	41%	31%
ACFRD - #11 Monticello	40%	31%	27%
County - City First Due	69%	31%	35%

The following points highlight the information contained in the table above:

- The CFD stations are responding to calls within one-minute of "reflex" time 46% of the time, within four-minutes of drive time 59% of the time, and within five-minutes of total fire Department response time 52% of the time.

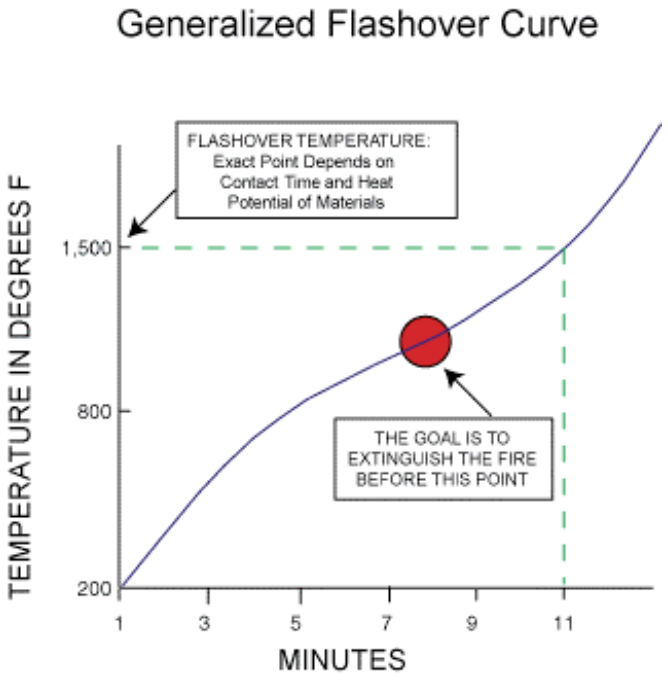
- The County stations, Seminole and Monticello, respond to calls within one-minute of reflex time 35% to 40% of the time, within four-minutes of drive time between 31% to 41% of the time and within five-minutes of total average response time between 27% and 31% of the time.

- Districts in the County where CFD units are first due, received a one minute reflex time 69% of the time, a four-minute travel time 31% of the time and a total average response within five-minutes of 35% of the time.

The Matrix Consulting Group used its fire station location model to assess various elements of response time performance in the system. This model used GIS and data sets from the Emergency Communications Center to model performance of the current (or alternate) station location and deployment systems. This model is based on ESRI GIS products as well as a number of analytical modules developed by the project team. This model was used to analyze the current response network.

The project team used a series of performance measures to evaluate the network. These measures focus on the drive time capability from the network of fixed station locations. The project team referred to a series of performance measures developed by the American Heart Association, the National Fire Protection Association and others for benchmark response time targets. These targets are derived from a series of initiatives that examine the ability of first responders to address two issues: a typical room and contents fire and a cardiac arrest. The objective is to mitigate the fire before "flashover" occurs – the point at which the fire leaves the room of origin and begins to impact the remainder of a structure or adjacent structures. The objective is to enhance survivability for cardiac arrest patients (and by extension to improve the health outcome of those suffering from trauma or other serious illnesses).

The exhibit, below, displays a typical flashover curve for interior structure fires. The point in time represented by the occurrence of flashover is critical because it defines when all of the contents of a room become involved in the fire. This is also the point at which a fire typically shifts from "room and contents" to a "structure" fire – involving a wider area of the building and posing a potential risk to structures surrounding the original location of the fire.



This graph, above, depicts a fire from the moment of inception – not from the moment that a fire is detected or reported. It demonstrates the criticality of early detection and fast reporting as well as the rapid dispatch of responding units. This also shows the critical need for a rapid and sufficiently staffed initial response – a response with a rapid initial attack on a fire prior to flashover. The points, below, describe the major changes that occur at time of flashover:

- It is the end of time for effective search and rescue in a room involved in the fire. It means the likely death of any person trapped in the room – either civilian or Firefighter.

- Portable extinguishers can no longer have a successful control a blaze after flashover. Only larger hand-lines will have enough water supply to affect a fire after this point.

- The fire has reached the end of the growth phase and has entered the fully developed phase. During this phase, every combustible object is subject to the full impact of the fire.

- This also signals the changeover from “contents” to “structure” fire. This is also the beginning of collapse danger for a structure. Structural collapse begins to

become a major risk at this point and reaches the highest point during the decay stage of the fire (after the fire has been extinguished).

It should be noted that not every fire will reach flashover – and that not every fire will wait for the 8-minute mark to reach flashover. A quickly responding fire crew can do things to prevent or delay the occurrence of flashover. These options include:

- Application of portable extinguisher or other "fast attack" methods
- Venting the room to allow hot gases to escape before they can cause the ignition of other materials in the room.
- Not venting a room – under some circumstances this will actually stifle a fire and prevent flashover from occurring.

Each of these techniques requires the rapid response of appropriately trained fire suppression resources that can safely initiate these actions. In the absence of automatic fire suppression systems, access to interior fires can be limited by a safety requirement related to staffing levels. OSHA and related industry standards require the presence of at least two Firefighters on the exterior of a building before entry can be made into a structure in which the environment has been contaminated by a fire. In the absence of a threat to life demanding immediate rescue, interior fire suppression operations are limited to the extent that a fire service delivery system can be staffed to assure a minimum of four people actively involved in firefighting operations.

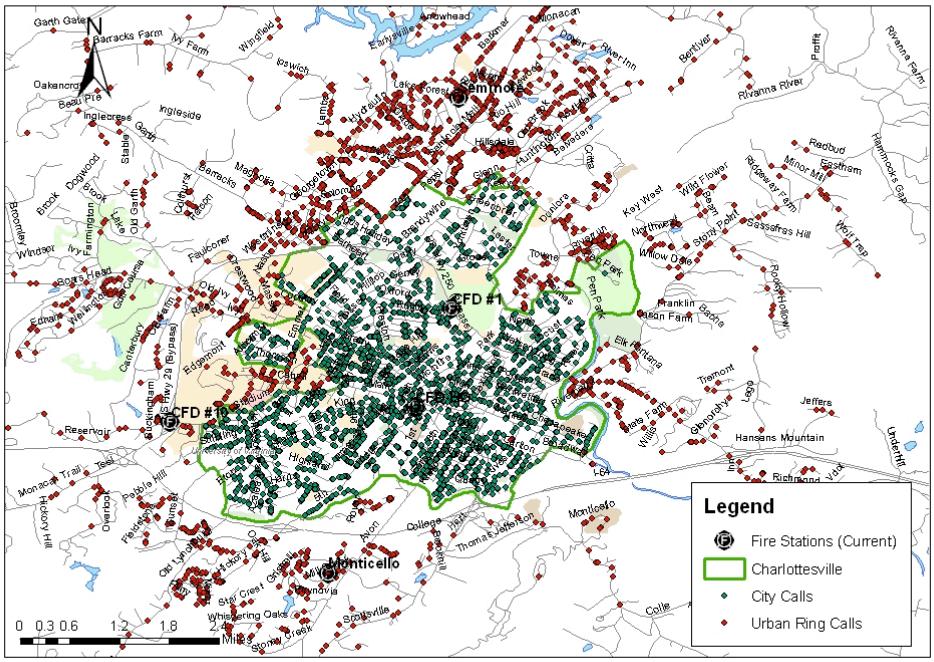
The study team examined the current response capabilities of the City and County urban development area stations as well as the capabilities of the system with the addition of the proposed Ivy and Pantops stations. The analysis is contained in the maps on the following pages.

- The first map shows the distribution of calls for service in the City and the urban development area surrounding the City.

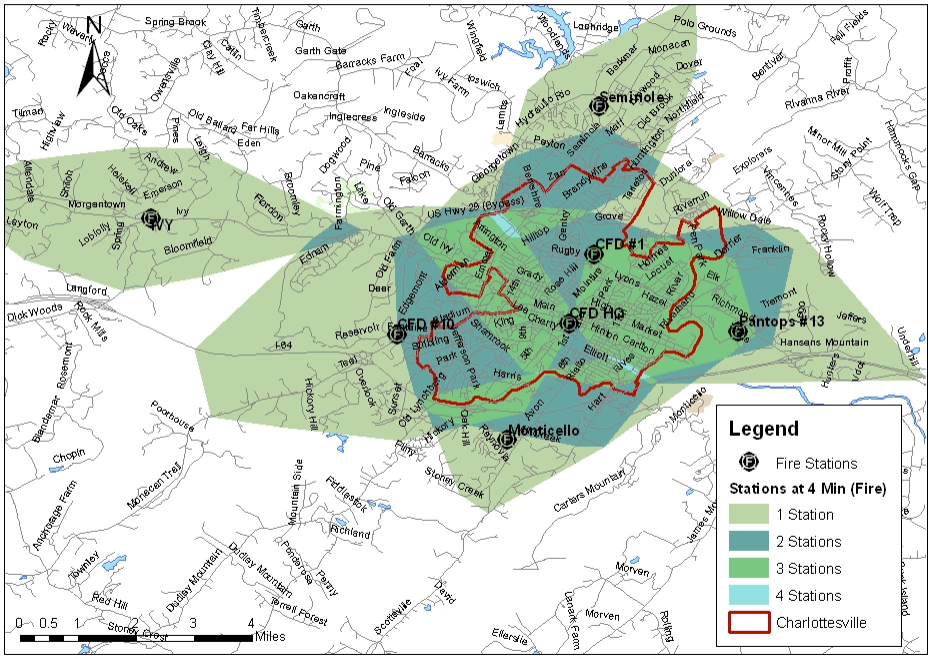
- The second map shows the 4-minute station overlap from the current fire stations proposed fire stations (Pantops and Ivy) in the City and in the Urban Ring),

- The third map shows the 8-minute station overlap from the current and proposed stations in the City and the urban development area surrounding the City.

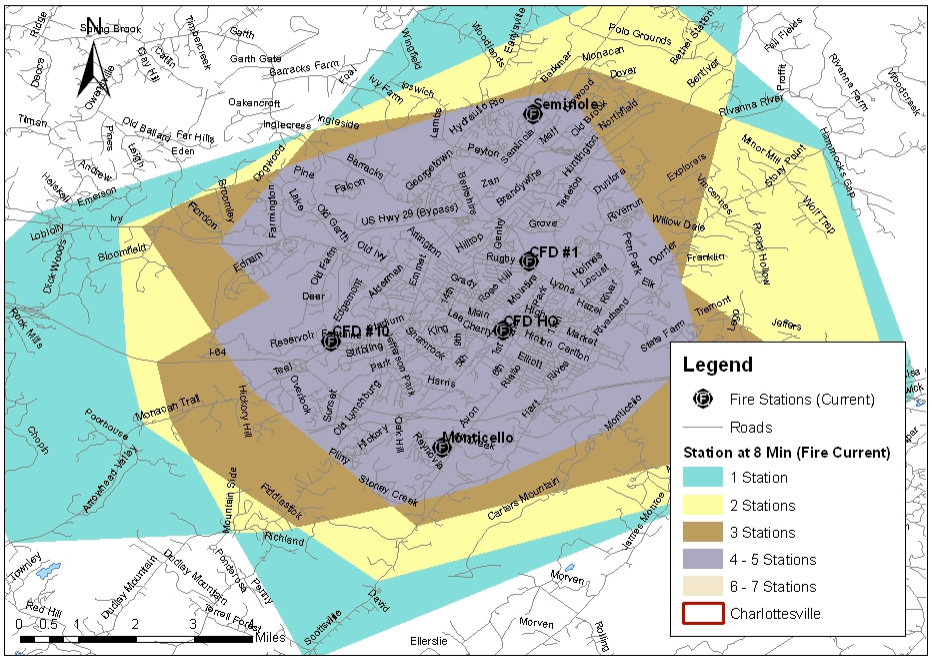
Albemarle County & Charlottesville, Virginia
Calls for Service 9/04 to 9/06 in City and County within Urban Ring



Albemarle County & Charlottesville, Virginia
Four Minute Drive Time from Current & Proposed CFD & County Fire Stations



Albemarle County & Charlottesville, Virginia
Eight Minute Drive Time from Current CFD & County Fire Stations



The tables, on the next several pages, contain theoretical information about the capability of the system to meet the four-minute drive time and eight-minute drive time targets with and without the proposed stations in both the City districts and the "Urban Ring" (County districts within 2.5 miles of the City). It is not unusual to find differences between the GIS derived travel time and actual travel times. Travel times are affected by traffic and weather conditions as well as the location from which apparatus are actually dispatched. Fire companies may be out of their stations conducting inspections, engaged in training, completing another call or running errands when they are dispatched to a new call. The study team compared the theoretical GIS and actual travel times from Station #1 to several locations in the City and the County. That analysis is summarized in the points below.

- **Travel time from Station 1 to Long St. and River Rd**. (Just inside the City boundaries) GIS projects a travel time of 2.5 minutes. The CAD data travel time was 2.8 minutes.
- **Travel time from Station 1 to Stony Point & Richmond**. (Just outside the City boundaries) GIS projects a travel time of 3 minutes. The CAD data travel time was 3.5 minutes.
- **From Station 1 to Richmond & State Farm** (Near one of the proposed Pantops station locations) GIS projects as travel time of 4.3 minutes. The CAD data travel time was 4.8 minutes.

Percentage of Calls Reached in Urban Ring within 4 Minutes Drive Time

Number of Station Capable of Responding	Current CFD & County Stations	With Proposed Stations Ivy and Pantops	% Change
At least 1 Station	88%	91%	3%
At least 2 Stations	51%	55%	4%
At least 3 Stations	12%	20%	8%

Percentage of Calls Reached in City within 4 Minutes Drive Time

Number of Stations Capable of Responding	Current CFD & County Stations	With Proposed Stations Ivy and Pantops	% Change
At least 1 Station	100%	100%	0%
At least 2 Stations	99%	100%	1%
At least 3 Stations	50%	70%	20%

Percentage of Calls Reached in Urban Ring within 8 Minutes Drive Time

Number of Stations Capable of Responding	Current CFD & County Stations	With Proposed Stations Ivy and Pantops	% Change
At least 1 Station	100%	100%	0%
At least 2 Stations	99%	100%	1%
At least 3 Stations	95%	96%	1%
At least 4 Stations	88%	93%	5%
At least 5 Stations	14%	74%	60%

Percentage of Calls Reached in City within 8 Minutes Drive Time

Number of Stations Capable of Responding	Current CFD & County Stations	With Proposed Stations Ivy and Pantops	% Change
At least 1 Station	100%	100%	0%
At least 2 Stations	100%	100%	0%
At least 3 Stations	100%	100%	0%
At least 4 Stations	100%	100%	0%
At least 5 Stations	68%	100%	32%

The following points summarize the information on the tables on the next page.

- The first table shows the projected response capabilities of the current County and City system within the "urban ring" areas (districts within 2.5 miles of the City) compared to the performance of the system with the Ivy and Pantops stations. The table shows that service levels improve with these new stations. Note that current performance is projected at 88%. This means that 88% of calls within the urban ring district should be reached within four minutes of drive time 88% of the time. The 2004-2006 call for service data indicates that calls within the City and where the CFD was first due, received a response of four-minute drive time only 59% and 31% respectively. The difference may be due to a number of reasons including: errors in recording response times, delays due to weather, traffic, or other impediments, or peculiarities in the ways response times are captured (e.g. similar to the recording of en-route times when multiple volunteer companies are paged). Nevertheless, the GIS model indicates that the

addition of the two stations, Ivy and Pantops, will improve service to districts within 2.5 miles of the City.

- The second table shows that projected service levels are already high in the City of Charlottesville. Approximately 100% of calls for service can be reached within four minutes of drive time from at least one station. The addition of the two County stations improves performance when considering the number of calls that can be reached by three or more stations. The number of calls reached by three stations within four minutes increases by 20% with the addition of these stations.

- The third table shows that eight-minute performance in the urban ring districts improves significantly at the four and five station level. This means that under the current system, approximately 14% of calls can be reached within eight minutes of drive time from current stations. With the new County stations, approximately 74% of calls can be reached within eight minutes drive time. This figure is important when considering the ability to handle large incidents (i.e. multiple alarm structure fires), which require resources from several stations.

- The fourth table shows that performance in the City improves only when considering fire station coverage at eight minutes. Coverage under this measure improves from 68% of calls for service to 100% of calls.

The project team also evaluated ALS service levels from current stations and with the use of the Monticello station for ALS response. The addition of the Monticello station to the ALS network increases the number of stations capable of responding within eight minutes of drive time. The tables, on the following page, describe the increase in response capabilities under the current and proposed ALS network in and around the City.

Percentage of Calls within the Urban Ring Reached in Eight Minutes of Drive Time

Number of Stations Capable of Responding	Current Stations CARS, Seminole, Monticello	With Pantops	% Change
At least 1 Station	100%	100%	0%
2 Stations	37%	99%	62%
3 Stations	NA	13%	13%

Percentage of Calls within the City Reached in Eight Minutes of Drive Time

Number of Stations Capable of Responding	Current Stations CARS, Seminole, Monticello	With Pantops Station	% Change
At least 1 Station	100%	100%	0%
2 Stations	88%	100%	12%
3 Stations	NA	66%	66%

The following points summarize the information, above:

- The first table shows the current network of ALS resources provides 100% coverage of calls within eight minutes by at least one station. However, coverage by two stations within eight minutes improves significantly with the addition of the Seminole station, from 37% of calls in the urban ring to 99% of calls. Three stations can reach 13% of calls within these districts.

- The second table shows the current network is designed to provide coverage to 100% of City calls within eight minutes. Note again, that coverage by two stations improves by 12% with the addition of the Seminole station and three stations are projected to be able to reach 66% of calls within eight minutes.

The proposed station additions around the City of Charlottesville will significantly improve response times in the first due areas served by the stations (Ivy and Pantops) and provide additional support to both the City and the County's urban ring (Seminole and Monticello) and rural districts (East Rivanna and Stony Point) during multi-station incidents and where one or more station is already committed elsewhere. More detail about the extent to which the Ivy and Pantops station will improve service in the County are discussed in the next two sections of the report.

2. LOCATION OF AN ACFRD STATION IN PANTOPS WILL PROVIDE ENHANCE FIRE AND EMS IN THIS DEVELOPING AREA.

The County's Comprehensive Plan identifies Pantops as a development area. It is located on the east side of Charlottesville, extending east on Route 250 and north on Route 20. The area is the site of a considerable amount of commercial and residential

development. The points below summarize development plans for the area that will require a fire station that houses fire and EMS apparatus.

- **Pantops Development area** - The Pantops development area contains Martha Jefferson Hospital (1,170,000 sq. ft upon completion) and over 640 units of progressive care, assisted living, and independent living. The area has over 850,000 sq. ft. of commercial/retail space with an additional 380,000 sq. ft. in various planning stages. Over 2,200 residential units are expected which will likely double the residential population.

- **Southern development area (Monticello)** - The Southern development area contains mostly residential dwellings, but has a large amount of multifamily dwellings and an industrial/manufacturing corridor along Avon Street and Mill Creek Drive. In addition, the Biscuit Run develop is in the planning stages which will add approximately 3,100 single and multiple family dwellings.

- **Eastern development area (Glenmore)** - The Eastern development area contains mostly 2-3 story, large residential dwellings. However, the Rivanna Village project is in the planning stage, which includes 500 residences and 250,000 square feet of retail, office, and institutional uses including a 300 unit elderly care facility.

Albemarle County has developed response time goals for its designated development areas as follows:

- **Fire calls** - 5 minute average unit response time (reflex plus travel time) for the first due unit.

- **EMS calls** – 4-minute average unit response time (reflex plus travel time) for the first due unit.

The closest current CFD and ACFRD stations to the Pantops development area are listed in the points below. The distances and times were calculated from the closest fire station to the intersection of Routes 250 and 20 on the western edge of the Pantops area. This intersection is located in the western section of the Pantops area, close to Charlottesville/Albemarle border.

- CFD Headquarters in downtown Charlottesville - 2.1 miles from the intersection of Routes 250 and 20, a travel time of approximately five minutes at 25 MPH.

This exceeds the County's response time goal for both fire and EMS incidents assuming a one-minute reflex time.

- CFD #1 on Route 250 - 2.3 miles from the intersection of Routes 250 and 20, a travel time of approximately four minutes at 35 MPH. This meets the County's response time goal for fire incidents but exceeds the response time goal for EMS incidents, assuming a one-minute reflex time.

- ACFRD # 6 Seminole on Route 29 north of the City – 6.9 miles from the intersection of Routes 250 and 20, a travel time of approximately 12 minutes at 35 MPH. This exceeds the County's response time goal for both fire and EMS incidents assuming a one-minute reflex time

- ACFRD # 11 Monticello off Route 20 south of the City – 4.6 miles from the intersection of Route 250 and I-64, a travel time of approximately eight minutes at 35 MPH. This exceeds the County's response time goal for both fire and EMS incidents assuming a one-minute reflex time

The travel distances and resulting travel times for the CFD and certainly the ACFRD into Pantops indicates the need for a station in this dynamically growing area if the County wants to meet its development area response time goals. A Pantops station would serve the Route 250 corridor to the east towards East Rivanna and the Route 20 corridor to the north towards Stony Point. While this station will serve the first due area quite well, the long travel distances between Pantops and the ACFRD stations suggest that the County may continue to need to rely on the CFD for back-up on major emergencies and working structure fires even after a station is built and staffed in Pantops. A typical response to a residential structure alarm would be an engine from Pantops, a second from the CFD or East Rivanna and a ladder from the CFD. The dispatch of CFD apparatus to Pantops for ladder coverage is recommended because the CFD apparatus has a shorter response distance to travel than the ACFRD career and volunteer staffed ladder in Seminole.

The ACFRD conducted a study of four sites for the location of a station in the Pantops area. Each site was evaluated regarding response time to the area accessibility, site development constraints, and compatibility with adjacent uses, compatible zoning and cost/availability of the parcel. The table, below, summarizes the ACFRD's evaluation of each site. A lower score is deemed more advantageous to the County and the ACFRD.

ACFRD's Assessment of Several Pantops Fire Rescue Sites

Location	Response Time	Access	Site Prep	Adjacent Uses	Zoning	Cost	Total Score
Site A	3	2	1	2	3	2	**13**
Site B	2	3	4	1	1	2	**13**
Site C	1	2	2	1	2	2	**10**
Site D	1	1	2	1	2	2	**9**

ACFRD Scoring: 1 = Very Good, 2 = Good, 3 = Fair, 4 = Poor or Difficult

In addition to providing better service to Pantops the ACFRD had another objective in mind in when analyzing the various station location options in Pantops. The station would be able to provide much better backup to the volunteer stations in East Rivanna and Stony Point. The County's response time goal for rural areas is 13 minutes. A Pantops station would significantly improve response times to the western section of East Rivanna's district and the southern portion of Stony Point's district.

The location of a staffed station in Pantops will enable the ACFRD to meet the County's urban first due response time goals of five minutes for fire calls and four minutes for EMS calls and should result in an improved ISO rating for the area.

The opening of an ACFRD station in Pantops will have an impact on the service agreement between the City and the County. In all likelihood, the number of CFD dispatches into Pantops, and the CFD's revenue per the service agreement between the City and County will drop significantly with the deployment of a fire/EMS station in

Pantops. The CFD responded to 277 calls into the eastern section of the County during the 2-year period covering September 2004 through August 2006 – an average of 140 calls annually. The City currently bills the County $394 per call, for a potential annual revenue loss under the current service agreement of $55,000.

The table, below, contains information about the potential ACFRD personnel costs for staffing a station at Pantops with a fire engine and a ladder truck.

Apparatus Staff Costs for the Pantops Station

Community	Apparatus Staffing	Personnel to Cover	Annual Cost / Position	Annual Total Cost
ACFRD Pantops	Engine - 3 on duty	12	$65,000	$780,000
ACFRD Pantops	Ladder - 3 on duty	12	$65,000	$780,000

RECOMMENDATION:

The County should continue to plan for the development of a station in Pantops on Route 250. The station should have adequate space to house an engine, a ladder and an ambulance. It will cost the County approximately $780,000 in current dollars to staff a station in Ivy with a 3-person on duty crew of career Firefighters. The engine should be deployed as soon as the station is built and the ladder should be deployed by 2011.

3. LOCATION OF AN ACFRD STATION ON IVY ROAD WEST OF ROUTE 29 WILL FILL THE GAP LEFT BY THE RELOCATION OF CFD STATION #10.

The planned move of the CFD Station #10 from Ivy road and Route 29 to Fontaine and Route 29 will leave a gap in coverage for the Ivy Road corridor from the City/County line on the east to Ivy on the west and in areas to the north and south of Ivy Road on Route 29 including the Bellair and Canterbury Hills areas of County. Although the County previously designated Ivy as a growth area, it is now designated as a rural areas, it is the most densely populated rural area of the County. The area east of Route 29 is home to the University of Virginia and several high-rise residential buildings and the Ivy area west of Route 29 has some of the highest rural density development in the

County. In addition the University has identified the area west of Route 29 on Ivy road as a likely future development area. A County Station in Ivy will enable the County to provide a better response to the University of Virginia east of Route 29 and serve the University if it expands west of Route 29.

Albemarle County has developed response time goals for its designated development areas as follows:

- **Fire calls** - 5 minute average unit response time (reflex plus travel time) for the first due unit.
- **EMS calls** – 4-minute average unit response time (reflex plus travel time) for the first due unit.

The closest current CFD and ACFRD stations to the Ivy area are listed in the points below. The distances and times were calculated from the closest fire station to the intersection of Route 29 and Ednam Road. This intersection is located in the center of the Ivy area approximately 2.0 miles from the City/County border on Ivy Road. The closest current CFD and ACFRD stations to Ivy area (Ivy and Ednam Roads) after CFD Station #10 is relocated to Fontaine Avenue and Route 29 are listed below:

- CFD Headquarters in downtown Charlottesville – 3.5 miles from the intersection of Ednam and Ivy Roads, a travel time of approximately eight minutes at 25 MPH. This exceeds the County's response time goal for both fire and EMS incidents assuming a one-minute reflex time.
- CFD #1 on Route 250 – 3.8 miles from the intersection of Ednam and Ivy Roads, a travel time of approximately seven minutes at 35 MPH. This exceeds the County's response time goal for both fire and EMS incidents assuming a one-minute reflex time.
- Proposed CFD Station # 10 on Fontaine at Route 29 – 3.8 miles from the intersection of Ednam and Ivy Roads, a travel time of approximately 7 minutes at 35 MPH. This exceeds the County's response time goal for both fire and EMS incidents assuming a one-minute reflex time.

- ACFRD # 8 Seminole on Route 29 north of the City – 5.4 miles from the intersection of Ednam and Ivy Roads, a travel time of approximately nine minutes at 35 MPH. This exceeds the County's response time goal for both fire and EMS incidents assuming a one-minute reflex time.

- ACFRD #11 Monticello on Route 20 south of the City - – 8.1 miles from the intersection of Ednam and Ivy Roads, a travel time of approximately eleven minutes at 45 MPH. This exceeds the County's response time goal for both fire and EMS incidents assuming a one-minute reflex time.

The travel distances and resulting travel times for the CFD and the ACFRD into the Ivy area suggests the need for a station in this area. The station would serve the Route 250 Ivy Road corridor from the City line on the east near Colonade Street west to the Ivy area. Nearly all of the Ivy rural area would fall within the ISO five-mile service benchmark that would drop the ISO rating for the area from 10, the current rating, to 5. While this station would serve the first due area quite well, the long travel distances between the proposed Ivy station and other ACFRD stations suggest that the County may need to need to rely on the CFD for back-up on major emergencies and working structure fires. A typical response to a residential structure alarm would be an ACFRD engine from Ivy and an engine and/or ladder from ACFRD's Seminole station. A confirmed working fire would involve additional apparatus from either the City or the County. The proposed Ivy station would handle EMS calls in conjunction with CARS to the east of the station and with the Western Albemarle Rescue Squad to the west of the station.

The ACFRD conducted a study of two sites for the location of a station in the Ivy area. Each site was evaluated regarding response time to the area, accessibility, site development constraints, and compatibility with adjacent uses, compatible zoning and

cost/availability of the parcel. The table, below, summarizes the ACFRD's evaluation of each site. A lower score is deemed more advantageous to the County and the ACFRD.

ACFRD's Assessment of Several Ivy Fire Rescue Sites

Location	Response Time	Access	Site Prep	Adjacent Uses	Zoning	Cost	Total Score
Site A	1	2	1	2	2	2	**10**
Site B	1	2	3	4	2	1	**13**

ACFRD Scoring: 1 = Very Good, 2 = Good, 3 = Fair, 4 = Poor or Difficult

In addition to providing better service to the University area and Ivy the ACFRD had another objective in mind in when analyzing the various station location options in Ivy. The station would be able to provide much better backup to the volunteer fire and rescue stations in the Crozet development area of the County.

The opening of an ACFRD station in Ivy will have an impact on the service agreement between the City and the County. In all likelihood, the number of CFD dispatches into Ivy, and the CFD's revenue per the service agreement will drop after the ACFRD's Ivy station is opened. The CFD responded to 422 calls into the western section of the County during the 2-year period covering September 2004 through August 2006 – an average of 210 calls annually. The City currently bills the County $394 per call. If all of these CFD calls into the Ivy area were dropped, the City could suffer a revenue loss of approximately $83,000 at the current billing rate.

The construction of a station at the intersection of Fontaine and Route 29 just outside the City border with the County will be advantageous to the County and its need to provide fire/EMS services in the developing areas southwest of the City. The location of the station could provide an opportunity for the City and the Count to jointly build and staff this proposed station.

The table, below, contains information about the potential ACFRD personnel costs for staffing a station at Ivy with a fire truck.

Apparatus Staff Costs for the Ivy Station

Community	Apparatus Staffing	Personnel to Cover	Annual Cost / Position	Annual Total Cost
ACFRD Ivy	Fire - 3 on duty	12	$65,000	$780,000

RECOMMENDATIONS:

The County should continue to plan for the development of a station in Ivy on Route 250. Although this station would be too distant from the City to serve as collocated City/County facility it will serve the County quite well. The service area will include the Ivy Road corridor as well as the Bellair and Canterbury Hills areas of the County along Route 29.

The timing of the opening of the station should correspond to the relocation of CFD Station #10 from its current location on Ivy Road to Fontaine Road.

The City and County should open discussions regarding the construction and staffing of the proposed station at Fontaine and Route 29. Since, the station will be located in an area in close proximity to development areas of the County, it could provide an opportunity for the City and County to jointly build and staff a facility.

It will cost the County approximately $780,000 in current dollars to staff a station in Ivy with a 3-person on duty crew of career Firefighters.

5. EMERGENCY MEDICAL SERVICE NEEDS ASSESSMENT

This chapter focuses on an assessment of ambulance services in the City and the County and includes recommendations on how ambulance services might be improved. The analysis is based on a description of the current system of EMS delivery and a review of 3,891 ambulance calls that occurred between September 18, 2006 and January 9, 2007. The start date for the analysis coincided with the most recent change in the system involving the deployment of an ACFRD career staffed ambulance at the temporary # 12 - Hollymead station located near the airport.

Citizens in the City and County are served by a tiered emergency medical services system. It is tiered in the sense that EMS trained personnel in the career and volunteer fire companies are the initial responders to most EMS calls and the rescue or ambulance squads along with the ACFRD provide ambulance transportation and advanced levels of emergency medical care. The EMS system is overseen by and operates under the licenses of the several medical directors listed below.

- **Dr. Sabina Braithwaite** - Albemarle County Fire and Rescue Department.
- **Dr. George Lindbeck** - Albemarle County Volunteer Fire Departments, Charlottesville Fire Department, #5 Western Albemarle Rescue Squad, #7 Scottsville Rescue Squad.
- **Dr. George Lindbeck and William Brady** - Charlottesville Albemarle Rescue Squad.

The basic services provided by the various providers are summarized in the points below.

- **CFD** - The Department provides EMT- Basic care from its three stations. In addition, the CFD's apparatus is ALS certified and the Department has 10 ALS certified personnel who provide advanced care when they are on duty.

- **ACFRD Volunteer Fire Departments** - The seven volunteer Departments provide First Responder and EMT-Basic levels of care in support of the Rescue Squads operating in the County. They are dispatched to some but not all EMS calls. The system is quite variable depending on the coverage district and the personnel available at any given time. The following is a general outline of the response patterns:

  – ACFRD Career companies – Engine 11 responds to all ALS calls and selected BLS calls.

  – CFD - Responds to most ALS calls and selected BLS calls.

  – #2 East Rivanna – Responds to ALS calls.

  – #3 North Garden – Responds to all EMS calls.

  – #4 Earlysville – Responds to ALS calls, if Rescue 12 Hollymead, is not available.

  – #5 Crozet – Does not respond to EMS calls.

  – #6 Stony Point – Responds to ALS calls. Career staff is at the station weekdays, 6 AM to 6 PM.

  – #7 Scottsville – Responds to car accidents.

  – #8 Seminole – Responds to ALS calls and selected BLS calls depending on CARS' availability. Career personnel staff the station on weekdays from 6 AM to 6 PM.

- **ACFRD** – The Department provides Advanced Life Support level of care from its ambulances and its fire apparatus. All of its apparatus and approximately 73% of the Department's personnel are ALS certified. ALS care is provided as follows:

  – Weekday ALS coverage (5 AM to 5 PM, Monday – Friday) is provided from the Scottsville Rescue, Seminole Fire and Stony Point Fire Departments. The ACFRD is planning to staff the East Rivanna volunteer station with weekday ALS personnel in July 2007.

  – 24-hour daily ALS coverage is provided from the Monticello and Hollymead stations. The Monticello station deploys a one-person ALS

chase car and the Hollymead station deploys a two-person ALS ambulance.

– Two ALS personnel are detailed on weekdays from 6 AM to 6 PM to CARS where they are deployed on ambulances with CARS personnel.

- **Rescue Squads** – Three volunteer Rescue Squads provide a mix of ALS and BLS ambulance transportation service in the City and County.

  – **CARS** – The Charlottesville Albemarle Rescue Squad provides services from two stations – Station 1 on McIntire Road in the City and Station 8 on Berkmar Drive in the County. CARS serves the central and eastern portion of the County and Charlottesville.

  – **Scottsville Rescue -** Scottsville Rescue serves Scottsville and the southern portion of the County.

  – **Western Albemarle Rescue (WARS**) – WARS serves Crozet and the western sections of the Count with ambulance service.

- **Private ambulances and the University of Virginia Hospital's Medic 5** - They provide non-emergency patient transportation from nursing homes and other health care facilities. On occasion and upon request, they provide emergency transport services.

The following section addresses ambulance service coordination in the City and County.

1. EMERGENCY MEDICAL SERVICES INVOLVES 13 SEPARATE ENTITIES BUT DOES NOT HAVE A CENTRAL COORDINATING BODY.

The emergency medical system is a complex system that involves 13 independent organizations – the Charlottesville - Albemarle – University of Virginia Dispatch Center, seven volunteer Fire Departments, three volunteer Rescue Squads and two career Fire Departments, that serve two independent jurisdictions (Albemarle County and Charlottesville).

The current EMS system is dependent on a mix of ALS and BLS service providers. This tiered EMS procedure requires dispatchers to "triage" calls by asking

callers a series of questions. Most incidents involve at least two service providers, a Fire Department and a Rescue Squad. Because the Fire Departments respond from 11 stations compared to four stations for the Rescue Squads, they are dispatched to EMS calls to provide service quickly. The Rescue Squads are dispatched to provide transport services and, in some cases, to provide a higher level of EMS care than the fire Departments. Advanced life support (ALS) services are provided from all career staffed ACFRD apparatus (Fire trucks and ambulances) and volunteer ALS trained personnel staff some of the volunteer ambulances.

In spite of the complexity of the system and the need for coordination among the agencies involved there is no regional EMS coordination group or forum that enables the providers to discuss problems and work out solutions. In this type of environment some issues are not resolved, one agency or another may resolve others unilaterally and the resolution of some issues is delayed for lengthy periods of time.

An example of an issue that has not been resolved is the manner in which rescue units are tracked by the Emergency Communications Center (ECC) and managed by the Center's computer aided dispatch (CAD) system. Unlike fire apparatus that are entered in the CAD system, rescue units are not specifically identified in CAD. As a consequence, dispatchers do not always know the number of in-service ambulances in the system available for a response or the staffing levels on the ambulances. In addition, the dispatchers must remember toning sequences based on station specific protocols that sometimes cause delays and mistakes in the toning process. It should be noted that CARS keeps the dispatch center notified about the units it has in service.

Ambulance availability and staffing level information is particularly critical when there is a need to dispatch ambulances across squad service areas in a way that insures closest unit response. Furthermore, the failure to mark up ambulances in CAD makes it difficult for managers to analyze operations and make decisions about resource needs.

RECOMMENDATIONS:

The service providers should set up an EMS steering committee by which the ACFRD, CARS, the CFD and the Medical Directors can interact formally. The committee should be responsible for discussing EMS problems, analyzing operations and developing solutions. Some of the issues that could be addressed by the committee include:

- **Reporting of incident times to dispatch.**
- **Upgrading and automating the EMS reporting system.**
- **Reviewing EMS unit availability and response times measure periodically against defined standards.**
- **Coordinating Fire Department and Rescue Squad emergency services.**
- **Developing joint training activities for Fire Department and Rescue Squad members.**
- **Coordinating practices between field EMS operations and Medical Facilities.**
- **Deciding how and to whom the NFPA 473 – Emergency Medical Response to HazMat Incidents training will be met.**
- **Implementing an EMS quality assurance program that evaluates patient care and patient outcomes.**
- **Assessing the need for ambulance fees and the manner in which the fees might be levied and collected.**

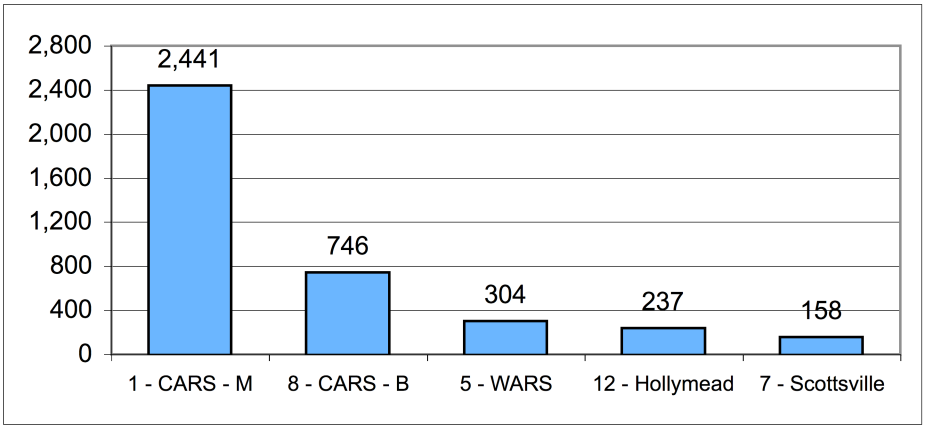
The Rescue Squads should be required to register their available units with the ECC so the information can be entered into the CAD system to support the dispatch process.

The next section of the report discusses the ambulance service demand levels in the City and the County.

2. AMBULANCE SERVICE DEMAND LEVELS VARY WIDELY ACROSS THE CITY AND COUNTY.

Analysis of the 3,891 EMS calls to which ambulances were dispatched between September 18, 2006 and January 9, 2007 allowed the study team to develop an understanding of ambulance response patterns and develop recommendations on how the City, County and squads might best meet the ambulance needs of the community. The exhibit, which follows, displays information about the distribution of EMS calls between the Squads.

Ambulance Calls by Squad Stations (3,886 Calls – September 18, 2006 – January 9, 2007)



The following points summarize information about demand levels among the providers:

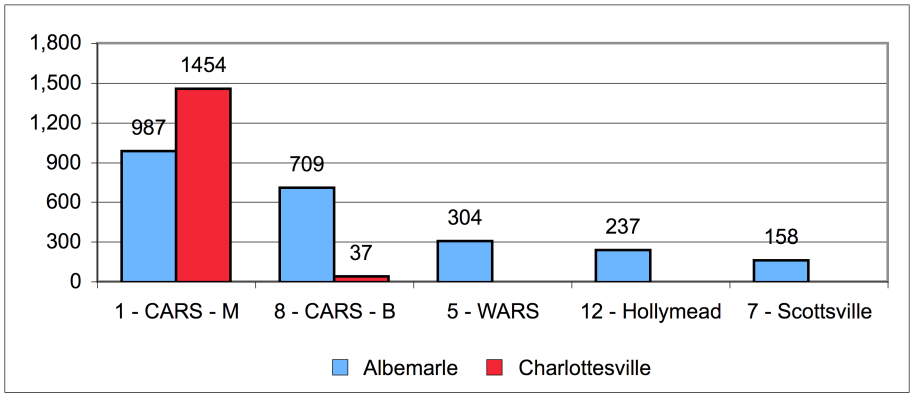
- #1 CARS McIntire accounted for 63% of the ambulance runs during the study period. Its ambulances handled an average of 21 calls a day.
- #8 CARS Berkmar accounted for 19% of the ambulance runs during the study period. Its ambulances handled an average of 6.5 calls a day.
- #5 Wars, located in Crozet, accounted for 7.8% of the ambulance runs during the study period. Its ambulances handled an average of 2.7 calls a day.

- #12 Hollymead, located at the airport, accounted for 6% of the ambulance runs during the study period. Its ambulances handled an average of 2.1 calls a day.

- #7 Scottsville accounted for 4% of the ambulance runs during the study period. Its ambulances handled an average of 1.4 calls a day.

The exhibit, below, displays information about where the ambulance service was provided and the Squad associated with the service.

Ambulance Calls by Squad Stations (September 18, 2006 – January 9, 2007)



The following points summarize information contained in the table above.

- 1 CARS McIntire Road provides service in the City and the County. 60% of its calls occurred in the City and 40% occurred in the County.

- 8 CARS Berkmar Road provided 95% of its service in the County and 5% of its service in the City.

- The WARS, Hollymead and Scottsville ambulances worked exclusively in the County. However, on occasion, the Hollymead ambulance will answer calls in the City.

The EMS providers have developed criteria to classify EMS calls according to their severity and ECC dispatchers enter call priority data into the CAD system for every EMS call. Dispatchers use call priority and other information about a call to determine whether or not fire apparatus will be dispatched to an EMS emergency. Squad ambulances are dispatched to all EMS calls, but fire apparatus is not dispatched to all EMS calls. The table, on the next page, identifies the priorities assigned to the EMS

calls handled by each of the Rescue Squads during the September 18 through January 9, 2007 sample period.

Rescue Squad Calls by Priority (September 18, 2006 – January 9, 2007)

Squad	Priority 1	Priority 2	Priority 3	Total
1 - CARS - M	1,404	16	1,024	**2,444**
5 - WARS	212	1	92	**305**
7 - Scottsville	96	1	62	**159**
8 - CARS - B	450	3	293	**746**
12 - Hollymead	156	3	78	**237**
Total	**2318**	**24**	**1549**	**3891**

The following points summarize information about the call priority assignments.

- **Priority Red (1) Calls** – Priority 1 calls are the most serious calls. They involve injuries or a current, deteriorating medical condition that will result in death within one hour unless seen and treated by a physician. Nearly 60% of the calls were classified as Priority 1. Fire apparatus and rescue ambulances are usually dispatched to Priority 1 calls. 75% of the Priority 1 calls involved the transport of a patient to a hospital.

- **Priority Yellow (2) Calls** – Priority 2 calls involve injuries or a current deteriorating medical condition that could or may result in death within twenty-four hours unless seen and treated by a physician. The Priority 2 classification is seldom used. 75% of the Priority 2 calls involved the transport of a patient to a hospital.

- **Priority Green (3) Calls** – Priority 3 calls involve injuries, or a medical condition that is not life threatening. However, it is recommended that the patient see a physician at the patient's earliest convenience. Nearly 40% of the calls were classified as Priority 3. 72% of the Priority 3 calls involved the transport of a patient to a hospital.

RECOMMENDATIONS:

The EMS providers should review the call priority classification system to determine if the classification criteria need to be revised since less than 1% of the calls are classified as Priority 2.

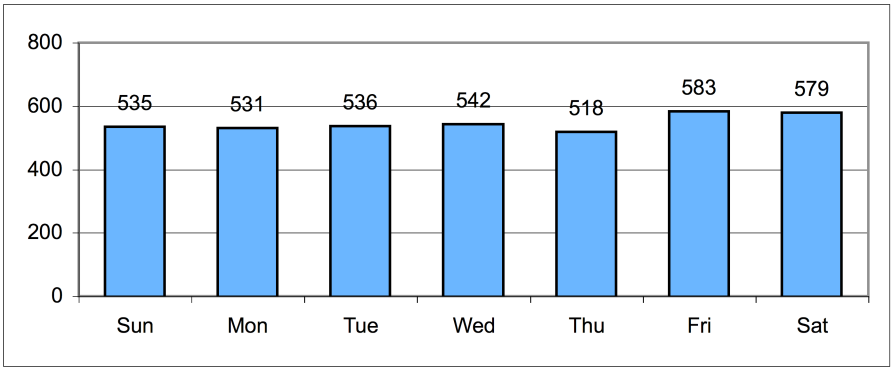
The priority assigned to a call should be regularly reviewed as part of the quality assurance assessment of patient care reports.

The next section of the report discusses the day of week and time of day patterns when ambulance calls occur.

3. SERVICE REQUESTS VARY BY DAY OF WEEK AND TIME OF DAY.

It is important to examine call for service workload patterns by day of week and time of day to determine if ambulance schedules should be adjusted to account for temporal variations in the workload. The graphs, on the following page, present the daily and hourly distribution of ambulance calls in the City and County. The first graph, below, depicts the number of calls by the day of week. The data indicate that there is little variation in the number of daily calls. On a daily basis for the 16-week sample of calls, the average number of calls ranged from a low of 32 on Thursdays to a high of 36 calls on Fridays. On average the Squads respond to 33.5 calls daily.

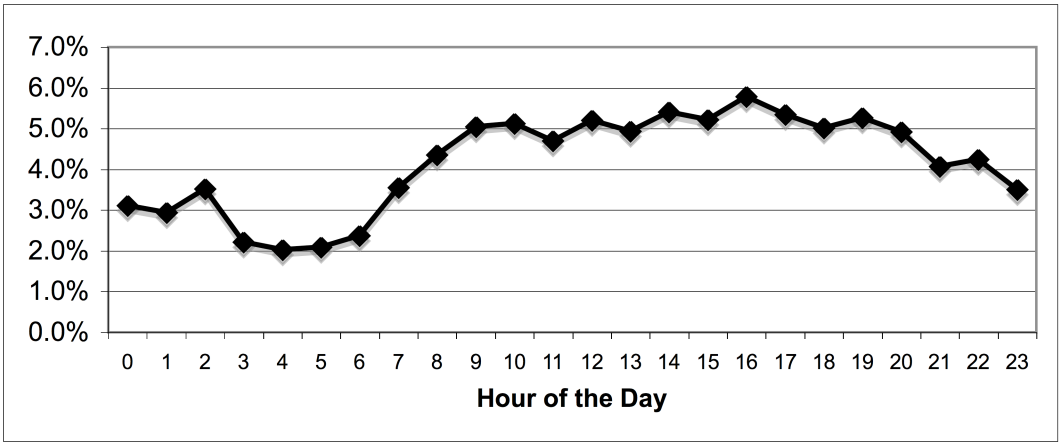
Number of Call by Day of Week (September 18, 2006 – January 9, 2007)



While there is little variation in the workload by day of the week there is significant variation in the number of ambulance calls by the time of day. The graph, on the next page, charts the hourly variation in the daily workload. The trend displayed in the graphs is typical of EMS service demands we have observed in other communities. EMS calls tend to increase significantly in the morning hours (8 AM to 9 AM) as people wake up, peak in the afternoon and early evening and then decline as the day draws to

a close. During the study period an average of 0.7 calls occurred at 4 AM, the least busy hour, compared to 1.9 calls per hour at 4 PM, the busiest hour. The busiest 12-hours of the day (9 AM to 9 PM) accounted for 62% of the calls.

Percent of Calls by Time of Day (September 18, 2006 – January 9, 2007)



The hourly variation in the number of calls by time of day presents personnel scheduling challenges for both career and volunteer agencies. The ACFRD has responded to this challenge by scheduling some of career personnel to work 12-hour shifts on weekdays (6 AM to 6 PM) when the call demand is highest and the availability of volunteers is constrained. The ACFRD schedules four of its ALS personnel as follows:

- 2 Firefighter/EMTs at CARS on weekdays from 6 AM to 6 PM.
- 2 Firefighter/EMTs at Scottsville Rescue on weekdays from 6 AM to 6 PM.

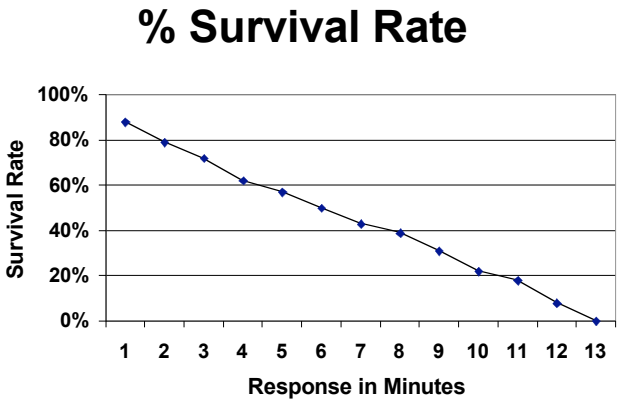
RECOMMENDATION:

The ACFRD and the CFD, if it becomes involved in ambulance service, should review their deployment decisions in relationship to (1) the Volunteer Rescue Squad staff support needs and (2) peak demand periods for EMS service and schedule their personnel accordingly.

The next section of the report discusses ambulance response times to emergencies.

4. RESPONSE TIME TO EMERGENCIES IS A KEY ELEMENT IN DEPLOYING EMS PERSONNEL AND AMBULANCES.

Response time to emergencies has been an important factor in planning emergency medical systems. One of the primary factors in the design of emergency medical systems has been the ability to deliver basic CPR and defibrillation to the victims of cardiac arrest. The exhibit, below, traces the relationship between the survivability rates of cardiac patients from time of onset of an attack until an emergency unit arrives to administer care.



This graph illustrates that the chances of survival of cardiac arrest diminishes approximately 10% for each minute that passes before the initiation of CPR and/or defibrillation. The survivability graph is the result of extensive studies of patients suffering from cardiac arrest. While the demand for services in EMS is wide ranging, the survival rates for full-arrests are often used as benchmarks for response time standards as they are more readily evaluated because of the ease in defining patient outcomes (a patient either survives or does not). This research results in the

recommended objective of provision of basic life support (BLS) within 4-minutes of notification and the provision of advanced life support (ALS) within 8-minutes of notification. The goal is to provide BLS within 6 minutes of the onset of the incident (including detection, dispatch and travel time) and ALS within 10 minutes. This is often used as the foundation for a two-tier system where fire resources function as first responders with additional (ALS) assistance provided by responding ambulance units and personnel. Although the research addresses the response of BLS and ALS units it does not address response time goals for ambulance transport services when BLS and ALS providers are on-scene and providing emergency medical service.

(1) Citizens Are Served by a Tiered Emergency Medical System in Which the Fire Departments Provide a Rapid Response to Medical Emergences and the Rescue Squads Provide Follow-up with Ambulance Service.

The CFD operates a two-tiered EMS response in which the Fire Departments provide initial EMS care and the Squads provide additional care and ambulance transportation. The level of care provided, BLS or ALS, is dependent on the training and certification of the responders. The CFD provides mostly BLS care, but has a few ALS trained personnel who operate in the ALS mode when they are on duty. The ACFRD operates an all ALS system in its career-staffed stations (Hollymead and Monticello) and when career staff is on-duty on weekdays in volunteer stations (Earlysville Fire, Scottsville Rescue, Seminole Fire, Stony Point Fire and CARS). The County volunteer Fire Departments provide BLS care while the Rescues Squads (CARS, Scottsville and Western Albemarle) provide a mix of BLS and ALS care.

National research has found that best results can be accomplished when initial responders are on-scene in six minutes or less from the time of the report and when a

full response is on-scene in ten minutes or less from the time of initial report. The table, on the next age, breaks these two time frames out in more detail.

EMS Delivery of Care Benchmark Times

Time Element	Time for Element	Time Elapsed
Call Taking / Triage / Dispatch of Units (Dispatch)	1 Minute	0 - 1 Minutes
Crews React, Dress and Begin to Move (Reflex)	1 Minute	1 - 2 Minutes
Initial Crew Drives from Station to Call Location	4 Minutes	3 – 6 Minutes
Balance of Initial Dispatch Arrives on Scene	4 More Minutes	7 – 10 Minutes

(2) Response Time Analysis of Rescue Squad Ambulances to EMS Calls.

During the course of the study team's interviews, Fire and EMS managers expressed concerns that the rescue companies are not always able to staff their units to provide an adequate and rapid response. As a result, the ACFRD has detailed three personnel to CARS on weekdays to staff ambulances, placed a weekday ambulance in service in the Scottsville Rescue station, deployed a 24-hour ALS chase car in Monticello and deployed a 24-hour ambulance in its Hollymead station. In addition, the CFD has been discussing the need to deploy an ALS ambulance in the City.

The study team reviewed the response times of the fire and ambulances to emergencies. The table, below, contains the results of that analysis.

Average Response Time to Emergencies in Minutes

Squad Area	Dispatch to En-route	Travel to Scene	Total Response
CFD – In the City	1.4	4.8	6.2
CFD - First due in County	1.0	5.6	6.6
8 – CARS - B	1.9	6.0	7.9
1 - CARS - M	1.9	6.1	8.0
5 – WARS	2.9	6.2	9.1
ACFRD #11 Monticello	1.5	8.2	9.6
12 - Hollymead	1.6	8.8	10.4
7 - Scottsville	4.5	8.6	13.1
Average	**2.1**	**6.8**	**8.9**

The following points summarize information about current response times.

- **Dispatch to En-route** – This is the time it takes for a piece of apparatus to leave a station after it has been dispatched to a call. High performance fire and EMS systems generally expect personnel staffing an ambulance to be rolling within one minute of being dispatched. The response for volunteers will be longer if they must respond from their homes to the station to pick up an ambulance. The average en-route time ranged from one minute from some CFD fire companies to 4.5 minutes for Scottsville. The en-route time for the CARS stations are similar to Hollymead because the CARS personnel respond from the stations whereas volunteers from Scottville and WARS are more likely to respond from their homes.

- **Travel to Scene** – This is the time from when an ambulance leaves a station until it arrives at the incident scene. Once a piece of apparatus leaves a station travel time is largely a function of the speed of travel and the distance that needs to be traveled. The travel times for CARS and WARS are shorter than those for Hollymead and Scottsville because of the shorter travel distances for their calls. CARS serves the more heavily urbanized areas of the City and County and many of the WARS calls occur in the developed areas surrounding Crozet.

Fractal Response Times (September 18, 2006 – January 9, 2007)

Fractal Times (90%	En-route	Travel
1 - CARS - M	3 minutes	11 minutes
5 - WARS	6	13
7 - Scottsville	11	19
8 – CARS - B	3	10
12 – Hollymead	2	17

The primary piece of information missing from the response time analysis discussed above is the extent to which zero ambulance availability occurs in the system and the number of EMS calls that occur when the system is at zero ambulance availability. Zero availability occurs when all of the ambulances are committed on emergency calls. Neither the ECC nor the Squads record this information.

RECOMMENDATION:

The Squads and the ECC should be tasked with the responsibility of developing a method to track zero ambulance availability information. The information should be used by system managers to quantify and understand the problem, develop

long-term solutions and flexible ways to address the problem in real time when it occurs.

(3) Ambulances Spend an Average of One Hour on Patient Transport Calls.

The exhibit, on the next page, provides information about the amount of time it takes an ambulance crew to handle an EMS call in the various Squad areas.

Total EMS Incident Handling Times (September 18, 2006 – January 9, 2007)

Squad Area	Dispatch to En-route	Travel to Scene	On- Scene	Travel to Hospital	Hospital to Clear	Total Time
1 - Cars - M	1.9	6.1	13.3	8.8	23.1	**53.2**
8 - CARS - B	1.9	6.0	14.4	13.3	23.7	**59.3**
5 - WARS	2.9	6.2	15.1	22.4	23.4	**70.0**
12 - Hollymead	1.6	8.8	16.4	23.2	25.5	**75.5**
7 - Scottsville	4.5	8.6	14.3	28.5	26.4	**82.4**
Average	**2.1**	**6.3**	**13.9**	**12.4**	**23.5**	**58.2**

The following points summarize information contained in the table above.

- The amount of time needed to handle a call averaged 58 minutes but ranged form a low of 53 minutes for the CARS ambulances working out of the McIntire Road station to 82 minutes for Scottsville.

- The differences in handling time can be largely accounted for by the two travel time components in the table – travel to the scene and travel to the hospital.

- Travel to scene times were much shorter in the more urbanized areas of the City and County served by CARS and WARS and travel time to the hospital was much shorter for the CARS units that serve the areas closest to the hospital in Charlottesville.

- The Hollymead, Scottsville and WARS ambulances have much longer travel to hospital times because of their longer distance from the hospital.

The next section of the report contains the analysis of the number of ambulances needed in the system.

5. AMBULANCE RESPONSE NEEDS ANALYSIS.

This section of the report provides a calculation of the number of ambulances needed based on the current EMS workload. This analysis incorporates a number of assumptions and data elements including the following:

- Analysis of 3,891 EMS calls that occurred between September 18, 2006 and January 9, 2007. Approximately 75% of these calls involved the transportation of a patient to a hospital.

- Analysis of the number of ambulance calls by the time of day at which they occurred to identify peak demand periods that could affect the need for the deployment of ambulances.

- Analysis of the average time needed to handle an EMS call by ambulances. Separate calculations were developed for each ambulance location because of differences in response travel times and hospital transportation times exhibited by each of the ambulance locations. The average handling time for each ambulance was increased by 25 minutes to cover the turn-around time needed by ambulance crews to clean decontaminate and re-supply the ambulance for the next emergency incident. The table, below, lists the handling, turn-around and total call time for each ambulance location. The data include the average time for transport and non-transport calls.

Ambulance Service Times (September 18, 2006 – January 9, 2007)

Ambulance	Handling Time	Turn-around Time	Total Time
1 – CAR - McIntire	45 Minutes	25 minutes	70 Minutes
8 – CARS - Berkmar	50	25	75
7 - Scottsville	69	25	94
5 – Western Albemarle	58	25	83
12 - Hollymead	63	25	88
Average	49	25	74

- The ambulance need calculation uses several elements to determine workload and unit need. The points, below, provide a general description of the approach used to evaluate ambulance requirements:

  – Hourly unit demand is based on the average number of EMS calls for service during each hour of the day. The average number of calls is multiplied by the average time required to handle all EMS calls for service from dispatch to transport to clearing the call.

  – The average number of ambulances needed to handle the workload is based on the average hourly demand plus two standard deviations in

hourly workload. This ensures that 95% of the variance in ambulance unit demand can be met and that sufficient resources are available during peak workload hours.

The data and assumptions, described above, were used to evaluate ambulance workload demand for each ambulance station and to estimate the number of ambulances needed in the system to handle the workload. The analysis is based on an annual call volume of 14,930 calls. The calculation for the City and the County is displayed on the next page. The average number of ambulances needed ranges from a low of 2.17 at 4 AM to 4.02 at 4 PM daily. Of course, ambulances need to be deployed in whole numbers. The data suggest the need for the deployment of three ambulances around the clock, with the deployment of a 12-hour ambulance to cover the peak period of demand from 8 AM to 8 PM.

Ambulance Need Calculation by time of Day (City and County – 14,930 Calls)

Hour of the Day	Annual Calls Per Hour	Daily Calls Per Hour	Call Handling Time (Hours)	Call Turn-around Time (Hours)	Unit Demand (Hours)	Ambulances Needed
0000	451	1.2	1.01	0.52	1.53	2.70
0100	424	1.2	0.95	0.49	1.44	2.61
0200	510	1.4	1.15	0.59	1.73	2.91
0300	320	0.9	0.72	0.37	1.09	2.26
0400	294	0.8	0.66	0.34	1.00	2.17
0500	302	0.8	0.68	0.35	1.02	2.20
0600	343	0.9	0.77	0.39	1.16	2.34
0700	514	1.4	1.15	0.59	1.75	2.92
0800	629	1.7	1.41	0.72	2.14	3.31
0900	730	2.0	1.64	0.84	2.48	3.65
1000	741	2.0	1.66	0.85	2.52	3.69
1100	681	1.9	1.53	0.78	2.31	3.49
1200	752	2.1	1.69	0.87	2.56	3.73
1300	715	2.0	1.61	0.82	2.43	3.60
1400	782	2.1	1.76	0.90	2.66	3.83
1500	756	2.1	1.70	0.87	2.57	3.74
1600	838	2.3	1.88	0.96	2.85	4.02
1700	774	2.1	1.74	0.89	2.63	3.80

Hour of the Day	Annual Calls Per Hour	Daily Calls Per Hour	Call Handling Time (Hours)	Call Turn-around Time (Hours)	Unit Demand (Hours)	Ambulances Needed
1800	726	2.0	1.63	0.84	2.47	3.64
1900	763	2.1	1.71	0.88	2.59	3.77
2000	711	1.9	1.60	0.82	2.42	3.59
2100	588	1.6	1.32	0.68	2.00	3.17
2200	614	1.7	1.38	0.71	2.09	3.26
2300	506	1.4	1.14	0.58	1.72	2.89
	14930	**39.6**	**32.50**	**16.65**	**32.50**	**33.67**

The deployment of ambulances in Albemarle County and Charlottesville is complicated by the large geographic area that needs to be covered and the manner in which calls cluster in the jurisdictions. To account for these factors the study team analyzed the ambulance needs of the urban/suburban (Charlottesville and the urban/suburban areas surrounding the City) and suburban/rural areas of the jurisdictions served by the Hollymead, Scottsville and Western Albemarle ambulances. The table, on the next page, lists the annual call volume for each of these areas. The number of emergency calls per day ranged from a low of 1.7 in Scottsville to high of nearly 26 calls in the areas served by CARS – McIntire.

Annual Ambulance Calls by Station

Ambulance	Number of Calls	Calls per Day	% of Calls
1 – CAR - McIntire	9,408	25.8	63%
8 – CARS - Berkmar	2,839	7.8	19%
7 – Scottsville	607	1.7	4%
5 – Western Albemarle	1,168	3.2	8%
12 – Hollymead	911	2.5	6%
Total	**14,930**	**40.9**	**100%**

(1) The ACFRD and Rescue Companies Should Continue to Deploy Single Ambulances in the Scottsville, Western Albemarle and Hollymead Stations.

The three exhibits, on the following pages, display the calculated ambulance needs for the Scottsville, Western Albemarle and Hollymead service areas. The calculated number of ambulances needed, based on service demand levels, in these

stations is less than one full-time ambulance in each service area. The points, below, list the average interval between ambulance calls for the three companies.

- Scottsville – One call every 14 hours.
- Hollymead – One call every 10 hours.
- Western Albemarle – One call every 8 hours.

Given the low level of demand in these service areas a single ambulance should be able to handle the workload.

RECOMMENDATION:

Although Hollymead, Scottsville and Western Albemarle squads have a limited call volume, a full time ambulance is needed in each of these stations to provide geographic coverage and reasonable response times to emergency calls.

Ambulance Need Calculation by time of Day for the Scottsville Rescue Area (607 Calls)

Hour of the Day	Annual Calls Per Hour	Daily Calls Per Hour	Call Handling Time (Hours)	Call Turn-around Time (Hours)	Unit Demand (Hours)	Ambulances Needed
0000	19	0.1	0.06	0.02	0.08	0.14
0100	18	0.0	0.06	0.02	0.08	0.14
0200	21	0.1	0.07	0.02	0.09	0.15
0300	13	0.0	0.04	0.02	0.06	0.12
0400	12	0.0	0.04	0.01	0.05	0.12
0500	13	0.0	0.04	0.01	0.05	0.12
0600	14	0.0	0.05	0.02	0.06	0.12
0700	22	0.1	0.07	0.02	0.09	0.16
0800	26	0.1	0.08	0.03	0.11	0.18
0900	31	0.1	0.10	0.04	0.13	0.19
1000	31	0.1	0.10	0.04	0.13	0.20
1100	29	0.1	0.09	0.03	0.12	0.19
1200	32	0.1	0.10	0.04	0.14	0.20
1300	30	0.1	0.09	0.03	0.13	0.19
1400	33	0.1	0.10	0.04	0.14	0.20
1500	32	0.1	0.10	0.04	0.14	0.20
1600	35	0.1	0.11	0.04	0.15	0.21
1700	32	0.1	0.10	0.04	0.14	0.20
1800	30	0.1	0.10	0.04	0.13	0.19

Hour of the Day	Annual Calls Per Hour	Daily Calls Per Hour	Call Handling Time (Hours)	Call Turn-around Time (Hours)	Unit Demand (Hours)	Ambulances Needed
1900	32	0.1	0.10	0.04	0.14	0.20
2000	30	0.1	0.09	0.03	0.13	0.19
2100	25	0.1	0.08	0.03	0.11	0.17
2200	26	0.1	0.08	0.03	0.11	0.17
2300	21	0.1	0.07	0.02	0.09	0.15

Ambulance Need Calculation by time of Day for the Western Albemarle Rescue Area (1,168 Calls)

Hour of the Day	Annual Calls Per Hour	Daily Calls Per Hour	Call Handling Time (Hours)	Call Turn-around Time (Hours)	Unit Demand (Hours)	Ambulances Needed
0000	36	0.1	0.10	0.04	0.14	0.25
0100	34	0.1	0.09	0.04	0.13	0.24
0200	41	0.1	0.11	0.05	0.16	0.26
0300	26	0.1	0.07	0.03	0.10	0.21
0400	24	0.1	0.06	0.03	0.09	0.20
0500	24	0.1	0.07	0.03	0.09	0.20
0600	28	0.1	0.07	0.03	0.11	0.21
0700	41	0.1	0.11	0.05	0.16	0.27
0800	51	0.1	0.14	0.06	0.19	0.30
0900	59	0.2	0.16	0.07	0.23	0.33
1000	60	0.2	0.16	0.07	0.23	0.34
1100	55	0.2	0.15	0.06	0.21	0.32
1200	61	0.2	0.16	0.07	0.23	0.34
1300	58	0.2	0.15	0.07	0.22	0.33
1400	63	0.2	0.17	0.07	0.24	0.35
1500	61	0.2	0.16	0.07	0.23	0.34
1600	68	0.2	0.18	0.08	0.26	0.37
1700	63	0.2	0.17	0.07	0.24	0.35
1800	59	0.2	0.16	0.07	0.22	0.33
1900	62	0.2	0.17	0.07	0.24	0.34
2000	57	0.2	0.15	0.07	0.22	0.33
2100	48	0.1	0.13	0.05	0.18	0.29
2200	50	0.1	0.13	0.06	0.19	0.30
2300	41	0.1	0.11	0.05	0.16	0.26

Ambulance Need Calculation by time of Day for the Hollymead Rescue Area (911 Calls)

Hour of the Day	Annual Calls Per Hour	Daily Calls Per Hour	Call Handling Time (Hours)	Call Turn-around Time (Hours)	Unit Demand (Hours)	Ambulances Needed
0000	28	0.1	0.11	0.04	0.16	0.28
0100	27	0.1	0.11	0.04	0.15	0.27
0200	32	0.1	0.13	0.05	0.18	0.30
0300	20	0.1	0.08	0.03	0.11	0.23
0400	19	0.1	0.07	0.03	0.10	0.22
0500	19	0.1	0.08	0.03	0.11	0.23
0600	22	0.1	0.09	0.03	0.12	0.24
0700	32	0.1	0.13	0.05	0.18	0.30
0800	40	0.1	0.16	0.06	0.22	0.34
0900	46	0.2	0.18	0.07	0.25	0.38
1000	47	0.2	0.18	0.07	0.26	0.38
1100	43	0.2	0.17	0.07	0.24	0.36
1200	47	0.2	0.19	0.08	0.26	0.38
1300	45	0.2	0.18	0.07	0.25	0.37
1400	49	0.2	0.20	0.08	0.27	0.39
1500	48	0.2	0.19	0.08	0.26	0.38
1600	53	0.2	0.21	0.08	0.29	0.41
1700	49	0.2	0.19	0.08	0.27	0.39
1800	46	0.2	0.18	0.07	0.25	0.37
1900	48	0.2	0.19	0.08	0.27	0.39
2000	45	0.2	0.18	0.07	0.25	0.37
2100	37	0.1	0.15	0.06	0.21	0.33
2200	39	0.1	0.15	0.06	0.21	0.34
2300	32	0.1	0.13	0.05	0.18	0.30

(2) The CARS Stations (#1 McIntire and #8 Berkmar) Are Located in the Areas of the City and County with the Greatest need for Ambulance Service.

CARS operates several ambulances in conjunction with the ACFRD from two stations. The actual number of ambulances on-duty at any give time is based on the number of volunteers who report for duty. Although CARS strives to schedule its volunteers to deploy three to four ambulances it cannot guarantee a minimum level of staffing and deployment. Personnel are always on-duty and deployed from the #1 McIntire station, located in Charlottesville. The #2 Berkmar station, located in the County, several miles north of the City, is staffed when personnel are available. The ACFRD has an ALS chase care located at the # 11 Monticello station, south of the City off Route 20. However, the ACFRD does not have an ambulance in the #11 Monticello station. Ambulance service to the Monticello area and the Route I-64 corridor is usually dispatched form the #1 CARS McIntire station.

CARS serves the busiest areas of the City and the County. Whereas the average interval between calls for the Hollymead, Scottsville and Western Albemarle ambulances is approximately 10 hours, the average interval between call for CARS is approximately 43 minutes. The table, on the next page, displays the calculated needs for the CARS service area that includes the City of Charlottesville, the urban ring surrounding the City, Ivy, Stony Point and East Rivanna).

RECOMMENDATIONS:

CARS, in conjunction with the ACFRD and the CFD, should strive to deploy three ambulances 24-hour per day, seven days a week and a peak hour ambulance from 8AM to 8PM daily.

CARS and the ACFRD should explore the possibility of assigning a CARS ambulance and one of its volunteers to work with the ACFRD paramedic chase car in the Monticello station. This ambulance could provide ALS care and

ambulance transportation services to Monticello, the southeastern section of the City and the Route I-64 Corridor faster than it can be provided from the #1 CARS McIntire station. The costs to implement this option would be minimal since it involves the re-assignment of a CARS volunteer and ambulance.

Ambulance Need Calculation by time of Day for the CARS Rescue Area (12,247 Calls)

Hour of the Day	Annual Calls Per Hour	Daily Calls Per Hour	Call Handling Time (Hours)	Call Turn-around Time (Hours)	Unit Demand (Hours)	Ambulances Needed
0000	381	1.0	0.84	0.44	1.27	2.45
0100	359	1.2	0.93	0.49	1.42	2.59
0200	432	1.4	1.12	0.59	1.71	2.88
0300	271	0.9	0.70	0.37	1.07	2.24
0400	249	0.8	0.64	0.34	0.98	2.16
0500	255	0.8	0.66	0.35	1.01	2.18
0600	290	0.9	0.75	0.39	1.15	2.32
0700	435	1.4	1.13	0.59	1.72	2.89
0800	533	1.7	1.38	0.72	2.10	3.28
0900	618	2.0	1.60	0.84	2.44	3.61
1000	627	2.0	1.62	0.85	2.48	3.65
1100	577	1.9	1.49	0.78	2.28	3.45
1200	637	2.1	1.65	0.87	2.51	3.69
1300	605	2.0	1.57	0.82	2.39	3.56
1400	662	2.1	1.71	0.90	2.61	3.79
1500	640	2.1	1.66	0.87	2.53	3.70
1600	709	2.3	1.84	0.96	2.80	3.97
1700	656	2.1	1.70	0.89	2.59	3.76
1800	615	2.0	1.59	0.84	2.43	3.60
1900	646	2.1	1.67	0.88	2.55	3.72
2000	602	1.9	1.56	0.82	2.38	3.55
2100	498	1.6	1.29	0.68	1.97	3.14
2200	520	1.7	1.35	0.71	2.05	3.23
2300	429	1.4	1.11	0.58	1.69	2.86

The next section of the report discusses how the Charlottesville Fire Department can improve ambulance service levels in the City.

(3) The CFD Should Deploy an Ambulance.

The CFD has expressed an interest in deploying an ambulance in the City. The Department can pursue a number of options to improve ambulance response times in

the City. The costs and benefits of each of several options are evaluated in the exhibit on the next pages.

CFD Ambulance Deployment Options

Option	Benefit	Cost/Detrimental Impact
Option 1 **Deploy one ambulance by hiring additional staff**. Hire nine paramedics to deploy a 2-person ambulance 24-hours a day, seven days a week. Purchase, equip and operate two ambulances	Relieve CARS units of some of the EMS workload in the City. Improve ambulance response times because of greater availability and shorter response distances on some calls. Guarantee an on-duty staffed ambulance in the City at all times. Possible favorable impact on the City's ISO score to the highest Class 1. Provide improved service to EMS calls that represent 46% of the Department's emergency workload.	• Start up costs – Ambulances - $364,000 – Equipment - $103,727 • Annual Operating ($579,727) – Personnel – $544,727 – Operating - $35,000

Option	Benefit	Cost/Detrimental Impact
Option 2 **Deploy one ambulance.** Transfer two on-duty Firefighters from one of the engine companies in Station #1 to an ambulance and transfer the other Firefighter to the remaining engine in Station #1 creating a 4-person engine company. Locate the ambulance at station #1 or Headquarters. If it were located in station #1, the personnel would respond as a 2-piece (Fire and ambulance) company to calls. The remaining engine company in station #1 has the capacity to handle a larger call volume. Engines should be able to handle 3,000 calls annually. The current combined annual engine company workload in station #1 is 2,583 calls. The engines in station #1 have a concurrent call approximately 10% of the time. Both units on call – 242 Calls Both units busy at same time – 180 calls Total busy – 422 calls Total calls reviewed – 4,183	Cost effective operation of an ambulance without hiring additional personnel. Relieve CARS units of some of the workload in the City. Improve ambulance response times because of greater availability. Guarantee an on-duty staffed ambulance in the City at all times. Provide improved service to EMS calls that represent 46% of the Department's emergency workload	• Start up costs – Ambulances - $364,000 – Equipment - $103,727 • Annual Operating ($35,000) – Personnel – $0.00 – Operating - $35,000. The reduction of an engine and staffing might result in the City's ISO rating dropping to an ISO Class 3. This proposal might reduce the City's fire suppression capabilities by substituting an ambulance for an engine company. However, the personnel assigned to the ambulance are Firefighters and will dispatched to fire calls. This proposal could make it difficult to continue a contract agreement with the County where 2 engines operate simultaneously in the County

CFD Ambulance Deployment Options (continued)

Option	Benefit	Cost
Option 3 **Deploy two ambulances** Deploy an ambulance in station 1 and Headquarters. Each station has two engine companies. Jump staff the ambulances with two Firefighters from one of the engine companies in each the stations. Assign the third Firefighter when the ambulance is in service to the other engine company to create a 4-person engine. The two engine companies in the Headquarters station made 3,099 runs in FY 2006 and the engine companies in station #1 made 2,583 runs in FY 2006. These companies are operating substantially below their capacity of 3,000 runs annually and could handle the ambulance workload.	Cost effective operation of an ambulance without hiring additional personnel. Relieve CARS units of some of the workload in the City. Improve ambulance response times because of greater availability and the dispatch of ambulances from two locations. Spread the ambulance workload between the two stations. Guarantee an on-duty staffed ambulance in the City at all times. educe travel times to incidents in the southeast, south and southwest sections of the City with the deployment of an ambulance in the Headquarters station. Provide ambulance service in the I-64 corridor in the County. Provide improved service to EMS calls that represent 46% of the Department's emergency workload	• Start up costs – Ambulances - $364,000 – Equipment - $103,727 • Annual Operating ($35,000) – Personnel – $0.00 – Operating - $35,000. The reduction of an engine and staffing could result in the City's ISO rating dropping to an ISO Class 3. This proposal might reduce the City's fire suppression capabilities by substituting an ambulance for an engine company. However, the personnel assigned to the ambulances are Firefighters and would be dispatched to fire calls.

RECOMMENDATION:

Based on the Department's desire to preserve or even improve its ISO rating the City should hire sufficient staff to deploy an ambulance. The estimated annual cost of this change is $468,000 in start-up costs and $579,000 in annual operating and personnel costs.

6. ANALYSIS OF OPTIONS FOR THE ENHANCED COORDINATION OF SERVICES

This chapter identifies several areas in which expanded coordination and cooperation among the service providers could yield benefits. While the actions are not likely to result in any significant costs savings they will enable the agencies to work better together in serving the citizens of the City and the County. The need for enhanced coordination is based on the fact that the County surrounds the City and that the quickest and most efficient way for the ACFRD to mass the number of resources needed to address structure fires and major incidents in the urban development area surrounding the City is to continue to rely on the dispatch of CFD fire companies to support the first due ACFRD companies. As the County system develops opportunities will exist for more joint emergency responses. In addition, the emergency medical system of both the City and the County are based on joint responses by CARS to most EMS calls to provide advanced levels of care and ambulance transportation to local hospitals.

The Matrix Consulting Group discussed several cooperative opportunities in interviews with members of the career and volunteer Departments and at the project steering committee meeting regarding the Issues Report. This chapter discusses opportunities for the service providers to better coordinate fire prevention, training, apparatus maintenance, hazardous materials response, automatic mutual aid and the develop of policy and procedures development that address cross jurisdictional needs.

1. THE CONSOLIDATION OF FIRE PREVENTION SERVICES DOES NOT OFFER ANY COST REDUCTION OR COST AVOIDANCE OPPORTUNITIES.

The study team reviewed the operation of the Fire Prevention Bureaus in each Department to determine if consolidation would yield any efficiency or improved service. The operation of the ACFRD and CFD Fire Prevention Bureaus are described in the points below.

- The City and County enforce the same fire code – the International Code Council (ICC) Model Code.
- The ACFRD and the CFD use the same records management system (RMS) that has a fire prevention and inspection module. The ECC hosts the RMS software program. The ACFRD is in the process of converting its inspection reports from an Access database to the shared Fire RMS system. The CFD's preventions records are not automated.
- The ACFRD prevention staff of five personnel conducts inspections, investigates fires, issues permits and reviews building plans for compliance with the fire code. The ACFRD does not engage its career operational personnel assigned to fire apparatus and ambulances in any prevention activities.
- The CFD has one full time inspector (Fire Marshal) and has actively involved its suppression personnel in inspection activities. The CFD has a trained and certified inspector on each shift in Operations who serve on a fire truck. The CFD requires each fire company to conduct approximately 60 cursory fire safety inspections of businesses annually. These are not at the code enforcement level but allow fire companies to identify problems for follow up by the Fire Marshal.
- The Departments use different methods to conduct fire investigations. The Charlottesville Police Department conducts fire investigations in the City while the ACFRD has fire investigators on its staff.
- Both Departments install residential smoke detectors and batteries when requested by citizens. Both Departments has programs in which career or volunteer personnel conduct door-to-door voluntary safety and smoke detector inspections for residents.

RECOMMENDATIONS:

Consolidation of Fire Prevention would enable the Departments to eliminate one Chief fire officer position (Assistant Chief in the ACFRD or Battalion Chief in the CFD) and realize the cost savings from the staff reduction. This could result in

base salary savings of $65,000 annually in wages and fringe benefits. However, this cost saving would be offset by the need to hire an additional inspector, at a salary of $49,000, in order for a merged Department to maintain the current level of inspection activities. Base on the limited cost savings, the differences in the services provided by each Department and the need for the Fire Prevention personnel to coordinate with suppression Firefighters, we do not recommend the consolidation of the Fire Prevention Divisions.

There are several no-cost or low-cost actions the Departments can take to improve fire prevention services with their current staff.

- **The CFD's example of involving suppression personnel in business inspections could be implemented in the ACFRD by career staff at virtually no cost to the Department at the following stations - Earlsyville, Monticello, Hollymead, Scottsville, Seminole and Stony Point. To accomplish this in Scottsville the ACFRD would need to negotiate an agreement with Scottsville for inspection services. As career personnel are deployed to other stations in the future this program could be expanded to cover additional areas of the County. Career Firefighters will need to be trained to conduct inspections and to enter the information into the Department's inspection database.**

- **The ACFRD should complete the migration of its fire preventions inspection database to the records management system (RMS) currently available to the ACFRD and the CFD. The CFD should use the RMS Fire Prevention module to automate its fire inspection program.**

- **Both Departments should initiate a proactive voluntary inspection of residential smoke detectors. This would be a no-cost extension of their current programs in which career and volunteer personnel provide detectors and batteries to residents who request assistance. This program could be managed by suppression rather than fire prevention.**

2. CLOSER COORDINATION OF FIRE AND EMS TRAINING BETWEEN THE DEPARTMENTS IS ESSENTIAL BECAUSE THEY FREQUENTLY WORK TOGETHER AT EMERGENCIES.

The study team reviewed the operation of the Training Bureaus in each Department as well as that of CARS to determine if consolidation would yield any efficiency or service improvement. The operation of the ACFRD, CFD and CARS Training programs are described in the points below.

- The County has much larger training staff than the City. This is in part due to the fact that the ACFRD serves a larger fire and rescue program and the need for the County to support a large number of volunteers. The ACFRD has 660 volunteers compared to 30 CFD volunteers.

- The decentralized nature of the County requires that courses be presented at multiple locations throughout the County whereas the CFD trains in Charlottesville or at the training grounds just outside the City. Some of the ACFRD Volunteer Departments sponsor trainings at their facilities. Both Departments provide fire and EMS training for their members.

- Higher volunteer turnover compared to career turnover requires the ACFRD to sponsor frequent basic training courses whereas the CFD focuses primarily on in-service recertification training for its members.

- Off-duty CFD career personnel currently attend training programs offered by the ACFRD, CARS and the various volunteer Departments.

- The ACFRD, CFD and CARS do not routinely engage in joint training exercises.

- CARS presents several EMT and rescue training programs annually. In addition, CARS/ACFRD provides preceptor services to newly trained ACFRD paramedics.

- The CFD has a training tower at its headquarters station but the structure is unsafe and cannot be used. In addition, the training space at the headquarters station is not large enough to conduct training exercises.

- The regional fire training facility, located on the property of the regional jail, has a drafting pit and burn building but neither a tower for ladder work nor a classroom. The training center will be phased out when the regional jail expands. The County has allocated $2.6 million for the development of a joint fire-police training facility and has invited the City to participate in the process. A key training center requirement for the CFD is for the facility to be located in close proximity to the City.

One of the issues facing the in-service training of career units is the ability to train during on-duty hours and the ability to assemble several companies to engage in a joint training exercise either at the training grounds or at a fire station. For example, in order to assemble two CFD companies for training, the Department must take a third of its resources out of service. The situation is even more complicated for the ACFRD career companies because of the long distances between its stations. As a consequence, the

Fire Departments may call career personnel back on over time for training exercises. Some combination Departments have used their volunteers companies to fill in for career companies when the career companies are training in order to maintain emergency unit availability.

The table, below, lists some of the benefits and challenges regarding closer coordination of training between the Fire Departments and Rescue Squads.

Benefits and Issues Regarding Consolidating Training Services

Benefits	Issues
• Consistency in command and operational training. • Improved coordination at mutual aid incidents. • Reduction in costs to develop training materials and to deliver the training. • Shared training facilities and resources. • Shared instructors for both career and volunteer personnel. • Structured and regular multi-agency training during drills. • Reduced cost to develop a single facility shared by all Departments.	• Evaluate training materials to ensure that training curricula can be combined. • Determine if a joint a City-County training facility can be developed at a mutually agreeable site to replace the current inadequate facility.

RECOMMENDATIONS:

Consolidation of training would enable the Departments to eliminate one Chief fire officer position (Battalion Chief in either the ACFRD or the CFD) and realize the cost savings from the staff reduction. This would result in cost savings of $65,000 annually in wages and fringe benefits. This saving would be offset by the need to hire an additional trainer at a cost of $43,000 in wages and benefits.

Base on the limited cost savings listed above, we do not recommend the consolidation of the ACFRD, CARS or CFD training programs. We do, however, recommend that the Departments increase their efforts to conduct joint training activities ranging from the development of common operational policies, training lesson plans and training courses and that they share instructors. Greater joint training activities would be invaluable given the extent to which all of the agencies routinely interact at emergencies.

Permanent staff and part-time instructors from each agency should be eligible to participate as instructors in joint training activities. Part-time instructor positions

should be open to instructor certified career and volunteer personnel from the participating jurisdictions.

Coordination of training could be facilitated by the agreement of the Departments to develop a joint fire/EMS training facility over the next several years. In the interim, the Departments should pursue the co-location of their training personnel at a central location where they could interact in developing training curriculum, training materials and training schedules.

The ACFRD and the CFD should consider developing a method and a schedule to enable volunteer units to standby in career stations so that on-duty career units can more readily participate in multi-company drills with other career and volunteer fire and Rescue Squad crews.

3. THE PROVISION AND CONSOLIDATION OF APPARATUS MAINTENANCE SHOULD BE REVIEWED. HOWEVER, NEITHER DEPARTMENT IS IN A POSITION TO PROVIDE A COMPLETE APPARATUS MAINTENANCE PROGRAM THAT COULD SERVE BOTH JURISDICTIONS.

The study team reviewed the apparatus maintenance functions in each Department as well as that of CARS to determine if consolidation would yield any efficiency or enable a merged Department to eliminate any staff. The operation of the ACFRD, CFD and CARS apparatus maintenance programs are described in the points below.

- The CFD has a civilian mechanic who runs the Department's apparatus repair shop and works on the fire apparatus. The CFD budgeted $185,000 (Salary, benefits and contractual services) in FY 07 to cover its apparatus maintenance expenses.
  - The Department has a single repair bay at its headquarters station. The bay is limited in size and the mechanic must perform some repairs in the driveway of the station.
  - The Department uses a vendor to conduct apparatus tests and to do major apparatus and specialized repairs.
  - The CFD does not have an automated vehicle maintenance system to monitor preventive maintenance or maintenance costs.
- The ACFRD does not have an apparatus shop and does not have a mechanic on its staff. The ACFRD's FY 07 budget contains $65,000 for apparatus repairs for

its career apparatus and vehicles. The ten volunteer agencies are expected to cover their apparatus repair expenses from the annual operating appropriations they receive from the County.

  – Nearly all repairs needed by the ACFRD and the volunteer Departments are contracted out to specialized fire apparatus repair vendors. The County is in the process of executing a contract with a single apparatus repair vendor to maintain the entire ACFRD and volunteer fleet.

  – Some minor apparatus maintenance is done by the County's School Bus Garage.

  – The ACFRD does not have an automated vehicle maintenance system to monitor preventive maintenance or maintenance costs.

- CARS has two contract mechanics who do oil changes and minor non-warranty maintenance. Most of the smaller vehicles are under warranty and the dealer handles those repairs. CARS uses a contract vendor to maintain its larger trucks.

RECOMMENDATION:

The ACFRD should conduct a study of the vehicle maintenance process and costs for its career and volunteer apparatus. The study should analyze the advantages of an in-house versus a contact maintenance program and include a cost estimate for the development of a County garage to maintain fire and EMS vehicles. The County should invite the City and CARS to participate in the study.

4. THE ACFRD AND THE CFD ARE IN THE PRELIMINARY STAGES OF DEVELOPING A COORDINATED HAZARDOUS MATERIALS RESPONSE CAPABILITY.

The ACFRD and CFD are currently in the process of establishing a joint hazardous materials response team (HazMat). The CFD has prepared a 5-page draft, operating memorandum outlining how local ACFRD and CFD resources will respond to various levels of HazMat incidents. The memorandum focuses exclusively on the response to emergency incidents and does not contain a discussion of prevention initiatives the Departments might engage in to identify and address HazMat risks in the community. The memorandum recognizes that the local team will have limited

capabilities and will function as part of a state coordinated effort to develop local and regional HazMat response capabilities. The memorandum outlines conditions under which the Virginia Department of Emergency Services and more highly trained and equipped regional HazMat teams from surrounding jurisdictions will be activated.

The primary component of the team resides with the CFD. The CFD is deploying a newly acquired HazMat truck that will be staffed by career personnel from Engine 7. The ACFRD has two HazMat supply vehicles located at the Earlysville and Scottsville Volunteer Fire Stations. The ACFRD and CFD jointly applied for and received a $210,000 Homeland Security grant to purchase monitoring equipment, suits and supplies for the HazMat team.

The City/County team consists of members of both Departments who have received hazardous materials training. The HazMat training levels of the Departments' personnel are outlined in the table on the next page.

Hazardous Materials Training

HazMat Training Course	ACFRD	CFD
Awareness – 16 hours	All career personnel Some volunteers	All career personnel All volunteers
Operations – 32 hours	All career personnel	All career personnel
Technician – 80 hours	4 career personnel	20 career personnel
Specialists	1 career person	None

The career personnel in both Departments are trained to the Operations Level and the CFD has approximately 20 trained Technicians. The Technicians are assigned to the CFD's HazMat team. Approximately four CFD HazMat technicians are on duty daily in the Department. The ACFRD and CFD sponsored Technician training for the members of its HazMat team but a few of its members are trained and certified as Technicians. The ACFRD has been discussing sponsoring an 80-hour Technician

training program. In addition, several ACFRD Fire Prevention personnel are trained to operate detection equipment and to collect samples for submission to the Virginia Department of Environmental Services for analysis. These fire prevention personnel are deployed to HazMat incidents when called out by the incident commander. The National Fire Protection Association has a standard for Emergency Medical Response to HazMat Incidents (NFPA 473). However, none of the ACFRD, CARS or CFD emergency medical technicians has been trained to this standard.

RECOMMENDATIONS:

The ACFRD and CFD should continue to develop a joint HazMat response capability. The draft HazMat memorandum of understanding between the two agencies should be finalized and signed by the agencies.

- **The memorandum should contain more specific operating procedures and an inventory of the equipment, supplies and materials carried on each of the HazMat trucks.**

- **The memorandum should recognize the need for and outline the development of a risk identification, pre-planning and inspection program in conjunction with the fire prevention activities of their prevention and suppression personnel.**

- **The memorandum should more definitively identify University of Virginia and other public and private "Specialist" resources that might participate with the team as trainers and responders.**

The Departments should begin development of a shared automated database that uses permits and Material Safety Data Sheets (MSDS) to catalog material risks in the community. The database should be available to the HazMat personnel staffing the primary HazMat apparatus.

The Departments should develop a HazMat training program for both their career and volunteer members.

- **The ACFRD and the CFD should train all of its volunteer personnel to the HazMat Awareness level and the ACFRD volunteer personnel in the Earlysville and Scottsville stations to the HazMat Operations level.**

- **The ACFRD should arrange for and sponsor a local HazMat Technicians training program and train 12 to 15 career staff so that it can deploy a 3-person HazMat team on a daily basis.**

- **The ACFRD, CARS and CFD should develop a plan for training some EMS personnel to the NFPA 473 – Emergency Medical Response to HazMat Incidents standard.**

- **The Departments should plan and carry out a semi-annual joint training/exercise for members of the HazMat team.**

5. THE ALBEMARLE, CHARLOTTESVILLE AND UNIVERSITY OF VIRGINIA EMERGENCY COMMUNICATIONS CENTER (ECC) PROVIDES DATA AND VOICE COMMUNICATION SERVICES TO THE CAREER AND VOLUNTEER AGENCIES.

The ECC is responsible for integrating, installing and maintaining all public safety data and communication systems for the career and volunteer agencies servicing the City and County. The ECC serves as the public safety answering point (PSAP) for emergency calls and operates a public safety computer aided dispatch system (CAD) that serves the fire, rescue and police agencies in the City and County. The ECC through its computer aided dispatch system can configure the dispatch of calls to emergency service providers based on rules established by the consolidated agencies to ensure that the most appropriate and available apparatus are dispatched to emergencies. Rules and dispatch priorities have been set up in CAD for the Fire Departments but not for the Rescue Squads.

The ECC dispatches all public safety agencies in the City and the County, including the University of Virginia. The Charlottesville Fire Department transferred its dispatch responsibilities to the ECC in December 2006. Information from the CAD system is automatically downloaded to the fire records management system (RMS). The City and County Fire Departments have the same RMS software. CARS has its own records

management system and CAD system. Data is manually transferred from the ECC CAD to the CARS system.

All of the pubic safety agencies (Fire, Rescue and Police) operate on the recently installed 800 MHz radio system. Future plans calls for the expansion of this system to non-public safety agencies in the City and County. The ECC is responsible for low- and high-band paging all fire and rescue personnel. A contract has been let to study improvements to the paging system.

The ECC is in the final stage of testing a mobile digital computer system with automatic vehicle locator (AVL) capabilities that will enable the transfer of data and information between the ECC and computers in emergency vehicles. The system will be installed in City, County and University police vehicles during the current fiscal year. The system will support computers in fire and rescue apparatus. Implementation among the fire and rescue agencies is in the planning stage. The ECC estimates that it will cost approximately $8,200 to install AVL technology in each Fire/EMS vehicle. In addition, there is an annual maintenance fee of $650 per system. The approximate costs to install AVL systems in a primary response vehicle in each station are listed in the table below. The estimate is based on the installation of the AVL equipment on several response vehicles at each station. The fire and EMS agencies have decided to delay the deployment of the AVL technology. The table, below, itemizes the cost for installing the AVL equipment in the fire trucks, ambulances and rescue vehicles.

Automatic Vehicle Locator Installation Costs (Current Apparatus)

Department	Number of Emergency Vehicles	Equipment and Installation Cost
ACFRD	80 Total - 20 per year for 4 years per CIP	$656,000
CARS	8 Ambulances, 3 Rescues, 2 Cars	$106,600
Charlottesville Fire	6 Engines, 2 Ladder, 1 HazMat, 2 Ambulances	$90,200
Total Installation Cost	104 Response Vehicles @ $8,200 per vehicle	$852,800
Annual Maintenance	104 Response Vehicles @$650 per vehicle	$67,600

RECOMMENDATIONS:

The ECC should work with the Rescue Squads to log available (on duty) ambulances in CAD in order to facilitate the dispatch of ambulances and more accurately track:

- **Ambulance availability.**
- **Response and travel times.**
- **On-scene service time.**
- **Hospital service time.**

The ECC should work with the career and volunteer agencies to develop a funding strategy and implementation plan for the installation of the AVL technology in the emergency vehicles. The funding plan should include the pursuit of Federal and / or State funding.

6. THE DEPARTMENTS SHOULD CONTINUE THEIR EVALUATION OF DISPATCHING THE CLOSEST AVAILABLE PIECE OF APPARATUS TO EMERGENCIES REGARDLESS OF JURISDICTIONAL BOUNDARIES.

The service agreement between the ACFRD and the CFD generally defines the dispatch of apparatus between the two jurisdictions. In the vast majority of cross-jurisdiction dispatches, CFD apparatus respond to designated areas in the County per the service agreement while ACFRD units (career or volunteer) rarely respond into the City. The deployment of career staff and volunteer duty crews in County stations in

recent years have significantly enhanced the availability of the ACFRD to respond to emergencies. Evidence of this can be seen in the reduction in the number of calls the CFD runs in the County. This trend is likely to continue as the County builds and staffs stations in the urban development areas surrounding the City.

The ACFRD and the CFD have discussed and partially implemented the automatic dispatch of the closest available vehicle to emergencies. This is currently advantageous to citizens in the Route 29 north and Rio Road areas where the City and County share an irregular border. The benefits and challenges of cross-jurisdictional dispatching or automatic mutual aid are listed in the table, below:

Benefits and Challenges of Automatic Mutual Aid

Benefits	Challenges
• Citizens receive the most rapid response by the closest appropriate unit(s). • Encourages regional assessment of fire/EMS station locations between participating communities to reduce unnecessary overlap and gaps in coverage. • Encourages development of consistent response protocols and standard operating procedures for line response. • Encourages consistent EMS service delivery between the participating communities.	• Staffing differences (career vs. volunteer, BLS vs. ALS) between the jurisdictions may raise concerns about the equivalency of the units responding. • Joint training of incident commanders and crews will be required to enhance operational coordination at emergency incidents. • Community may be confused as to why "someone else's" units are responding to their emergency, or why "their" units are responding into another jurisdiction.

Opportunities to enhance the cross dispatching of the closest piece of apparatus from either the ACFRD or the CFD is likely to increase in the future as the County develops stations in Pantops and Ivy and deploys ALS personnel and ambulances in stations surrounding the City. The Emergency Communications Center has the technology in place to automatically configure unit dispatch assignments based on directions from the various fire and rescue providers to support automatic mutual aid agreements.

RECOMMENDATIONS:

The emergency responders should move forward formally to develop and implement a written "closest unit response" approach to all fire and EMS calls.

The various providers should meet quarterly to review:

- **Service needs and responses that might require modification of emergency dispatch assignments.**
- **How station location and apparatus deployments might affect the "closest unit response" policy.**

7. THE EMERGENCY RESPONDERS OPERATE WITH ONE ANOTHER ON A DAILY BASIS AT EMERGENCY INCIDENTS YET EACH ORGANIZATION MAINTAINS SEPARATE POLICIES AND PROCEDURES.

Over the years each of the agencies has developed a significant amount of written policy and procedure covering a host of organizational, managerial and operational issues. The ACFRD has a set of policies and procedures for its career and volunteer companies. Some of the volunteer companies also have local policies. In addition, the CFD in seeking accreditation from the Commission of Fire Accreditation International assembled a substantial amount of documentation pertaining to fire services in the City. The ACFRD is not accredited and does not currently have a plan to seek accreditation. If the ACFRD and CFD merged, the new agency would need to seek accreditation. The EMS providers are licensed by the State of Virginia and the medical directors for each agency have established protocols and quality assurance requirements for the providers.

In spite of the fact that the 13 separate fire and EMS agencies routinely operate together at emergency fire and EMS incidents there has not been a coordinated effort to review the current policies and procedures of the Departments and Squads. Interviews with Fire Officers and Firefighters indicated that the various agencies operate well

together at incidents but that more could be done to prepare for joint operations. That preparation would include the adoption of more standardized operating policies and procedures, including a coordinated incident command system, followed by classroom and practical training.

RECOMMENDATIONS:

The emergency responders should form a committee or task force to conduct a policy and procedures needs assessment. The committee or task force should include officers and line Firefighters and EMS personnel. The work of the committee should be approved by the executive committee of each Department.

The policy committee should assess the completeness and compatibility of the current fire and EMS operating policies and procedures and the incident command systems used be each agency. The review should identify policy gaps, overlaps and conflicts. In addition to a line-by–line comparative assessment of the various written policies and procedures, the committee should rely on after-action incident reports to focus in on the most critical emergency incident coordination problems. Appendix 2 contains a list of policy and procedure topics that could be used to structure the needs assessment review.

After the needs assessment has been done the committee should modifying existing policies and procedures and develop new ones. This process can be accomplished as follows:

- **Establish one or more teams for each section of the policy manual to draft specific policies and procedures.**
- **Develop a specific format for the written policies and procedures.**
- **Gather information about current practices and operating issues that needs to be addressed.**
- **Write draft policies and procedures that match the requirements of the various service providers.**
- **Review and test the proposed policies or procedures.**
- **Ratify and approve the final draft version of the policies and procedures.**

Implementation is a multi-step process involving classroom and practical training and an on-going review of the policies and procedures. The Committee should develop training curriculum and supporting materials to ensure that all personnel

are uniformly trained and prepared to consistently implement the policies. Incident command training and exercises should be provided in a multi-agency format.

The committee should establish a process to annually review the policies, procedures and training to ensure that they continue to be relevant.

8. THE RECOMMENDATIONS: IN THIS REPORT WILL HAVE A POSITIVE IMPACT ON THE UNIVERSITY OF VIRGINIA.

The Charlottesville Fire Department is the primary provider of emergency fire and first responder BLS care to the University of Virginia. The Department's station #10 is located outside the City on University property at the intersection of Routes 29 and 250 on Ivy Road. The City has proposed moving station #10 further south on Fontaine Road near the intersection of Fontaine and Route 29 on land owned by the University. The City and University are currently negotiating over the use of that land by the City for a fire station. The station location chapter of this study identified the proposed site as a good relocation site for station 10. It will be able to serve the University, the southwest section of the City and portions of the County to the south and west. In addition, the station location chapter of this report recommended the location of an ACFRD station in the Ivy area on route 250. This station will be an asset to the University as a second due response unit into University area east of route 29 and to the area west of Route 29 that has been designated as a growth area by the University. The Deployment of an ambulance by the CFD will also improve service to the University.

The ACFRD and the CFD have discussed the possibility of providing dormitory accommodations in future stations for use by University students who would then become fire and EMS volunteers. The ACFRD's Hollymead station, scheduled for completion in 2007, will have dormitory space for students. The students will increase crew sizes and

crew availability when the station is complete and operational. In addition, the student volunteers would be available for standby fire and EMS service at major University events.

9. CONSOLIDATING THE ACFRD AND CFD PURCHASING FUNCTIONS IS NOT JUSTIFIED.

The City and the Count have their own purchasing organizations and procedures for acquiring supplies and materials. Personnel in each Department use a central system to create requisitions, receive materials and authorize payments. Neither the ACFRD nor the CFD has a dedicated purchasing specialist. The volunteer Fire Departments and Rescue Squads purchase their supplies independently from their operating budgets. Although the ACFRD has begun funding the operating budget for the volunteer Departments and Squads it has not made any effort to become the central purchasing and distribution point for supplies. The ACFRD has, however, undertaken a very active role in assuming responsibility for major maintenance at volunteer facilities, the construction of new facilities and for the purchasing of apparatus. The ACFRD, in conjunction with the volunteers, has begun developing a common set of apparatus specifications. These coordination efforts are advantageous for the ACFRD because of the large number of fire and EMS stations in the County and the large fleet of apparatus maintained by the volunteer organizations.

The purchasing function is much simpler in the City because of the volunteer force is much smaller and the City does not need to maintain a large number of stations and a large amount of apparatus. The City has thee stations compared to the two career, eight volunteer fire and three volunteer rescue stations in the County. The City has approximately 12 major pieces of apparatus compared to more than 50 pieces of major apparatus in the County.

RECOMMENDATIONS:

The ACFRD and the CFD should consider merging the purchasing functions of their Departments only as part of City/County effort to merge purchasing.

The ACFRD should consider the merits of purchasing supplies and materials for the volunteer Departments and Squads. Consolidated purchasing may become more feasible as the number of career staffed County stations increases and the number of County career staff deployed to volunteer stations also increases. The ACFRD should conduct a study of consolidated purchasing that weighs the purchasing and distribution costs against any cost savings.

10. CONSOLIDATION OF THE ACFRD AND THE CFD WOULD RESULT IN LIMITED PERSONNEL REDUCTIONS AND AN INCREASE IN TOTAL SERVICE DELIVERY COSTS.

The project team took the staffing analysis described in the previous sections of this report and created a budget for the merged agency. The budget is based on the following assumptions

- The merged organization would have a single Chief of the Department for all fire and EMS operations in the City and County. This would enable the merged agency to eliminate the personnel costs for one of the current Chiefs at an annual saving of $145,000 in salary and fringe benefits

- The merged organization would eliminate one of the Training Chief Officers. However, the organization would need to retain an additional Trainer in order to maintain the activity level of the current training program. This change would result in a reduction in personnel costs of approximately $15,000 annually.

- The merged organization would eliminate one of the Fire Marshal's from the Prevention Office. However, the organization would need to retain an additional Inspector in order to maintain the activity level of the current prevention program. This change would result in a reduction in personnel costs of approximately $15,000 annually.

- The wages paid to the personnel in each department are approximately the same such that base wages would not have a significant impact on the cost for services.

- The retirement and retiree medical costs between the ACFRD and CFD are substantially different. The study team assumed that the merged Department would have a single benefit program and that the higher benefit rate of the CFD would be adopted so that no employee would lose benefits. Adoption of the

higher cost benefit plan for retirement and retiree medical would add approximately $618,000 to the benefit costs of a merged Department.

- The holiday time off benefits of the ACFRD and CFD personnel assigned to operations on the 56-hour schedule are substantially different. ACFRD employees receive 123 hours annually while CFD employees receive 246 hours. The study team assumed that the merged Department would have a single holiday leave program and that the higher holiday leave rate of the CFD would be adopted so that no employee would lose benefits. Adoption of the CFD holiday leave plan would add approximately $72,000 to the benefit costs of a merged Department.

The assumptions listed above were used to develop a "prototype" Program budget for a merged City-County Fire EMS Department based. The table, below, displays the prototype budget of the merged agency. The "Current Budget" in the table is based on the combined FY 07 budgets for the ACFRD and the CFD. Although the merged Department would yield some minor personnel cost savings through the elimination of a Fire Chief's position and staffing downgrades in Training and Prevention, the total budget increases by $515,000 because of the higher retirement and holiday leave benefits.

Prototype Budget for a Merged Department

Budget Category	Current Budget	Modified Budget	Difference
Administration	$1,061,892	$933,721	-$128,171
Training	$452,709	$458,815	$6,106
Recruitment	$125,302	$129,886	$4,584
Prevention	$669,175	$690,741	$21,566
Operations	$10,722,840	$11,333,755	$610,915
Volunteer Fire	$1,026,831	$1,026,831	$0
Volunteer Rescue	$478,971	$478,971	$0
Vehicle Maintenance	$69,264	$69,264	$0
Total	**$14,606,984**	**$15,121,984**	**$515,000**

The following points summarize the information in the table above.

- The Administrative program budget would decrease by $128,171 because of the elimination of one of the current Fire Chiefs.

- The Training program budget would increase by $6,106 even though the rank of one person in the program would be downgraded. The increase occurs because of higher benefit costs.

- The Recruitment program budget would increase by $4,584 because of increased benefit costs.

- The Prevention program budget would increase by $21,566 even though the rank of one person in the program would be downgraded. The increase occurs because of higher benefit costs.

- The Operations program budget would increase by $610,915 because of increased benefit costs and additional holiday leave.

- The budgets for the Volunteer Fire Department and Volunteer Rescue Squads would remain unchanged.

- The budget for Vehicle Maintenance would remain unchanged. The Vehicle Maintenance budget contains only figures for the CFD. The vehicle maintenance budgets for the ACFRD and the volunteer agencies are contained in other program categories. The ACFRD and the volunteers contract vehicle maintenance to private vendors.

RECOMMENDATION

Based on the fact that a merger would result in a cost increase of approximately $517,000 rather than a savings we do not recommend the City and County consolidate the two Departments.

7. COST PROJECTIONS AND THE CITY – COUNTY SERVICE AGREEMENT

This chapter provides operating cost projections for the ACFRD and the CFD through fiscal year 2012 and discusses the Service Agreement between the City and the County.

1. OPERATING COST PROJECTIONS.

The projections are based on assumptions about station, apparatus and personnel additions discussed in the report. The calculations include the total costs to operate each Department as well as the per capita costs.

The table, below, lists the cost projections for the ACFRD. The baseline cost for FY 07 of $7.44 million includes the $600,000 payment the County will make to the City for fire and emergency medical services the County will receive during the fiscal year per the Service Agreement between the City and the County.

ACFRD Cost Projections For Planning Purposes

Year	Budget (Millions)	Per Capita	Additions
FY 07	$7.44	$82.01	Based on current budget
FY 08	$8.11	$86.56	Add a 4 person weekday crew at E. Rivanna
FY 09	$9.67	$101.05	Add a 3 person 24 X 7 crew at Pantops Add a 24 X 7 Battalion Chief
FY 10	$10.84	$112.67	Add a 4 person weekday crew
FY 11	$13.58	$127.41	Add a 3 person 24 X 7 ladder crew at Pantops Add a 4 person weekday crew
FY 12	$13.99	$140.34	Add a 3 person 24 X 7 crew at Ivy
% Change	**88%**	**71%**	

The ACFRD cost projections are based on an annual inflation rate of 4% and the addition of the stations and staff listed on the table. The additions include:

- Weekday staffing for East Rivanna in FY 08.

- Possible weekday staffing in two additional volunteer stations.
- Opening of a career station in Pantops in FY 09.
- Opening of a career station in Ivy in FY 09.
- Deploying a ladder company in Pantops.

The total cost for fire and EMS service in the County are projected to increase by 75% between FY 07 and FY 12. However, the per capita costs will increase at a slower rate (60%) because the County's population is projected to increase 6% from approximately 93,000 residents today to 99,000 by 2012.

The table, below, lists the cost projections for the CFD. The baseline cost for FY 07 of $7.14 million excludes the $600,000 payment the City will receive from the County for emergency services that the CFD provides in the County via the Service Agreement between the City and the County.

CFD Cost Projection

Year	Current Operation		Add an Ambulance in FY 08	
	Budget (Millions)	Per Capita	Budget (Millions)	Per Capita
FY 07	$7.14	$178.06	$7.14	$178.06
FY 08	$7.43	$185.18	$8.01	$199.65
FY 09	$7.72	$192.59	$8.33	$207.63
FY 10	$8.03	$200.29	$8.66	$215.94
FY 11	$8.35	$208.30	$9.01	$224.57
FY 12	$8.69	$216.64	$9.37	$233.56
% Change	**22%**	**22%**	**31%**	**31%**

The CFD cost projections are based on an annual inflation rate of 4%. The table contains two projections. One based on current operations and one based on the deployment of a 2-person career staffed ambulance by the Department in FY 08. The total cost for fire and EMS services are projected to increase by 22% between FY 07 and FY 12 if a staffed ambulance is not deployed and by 31% if a staffed ambulance is

deployed. The per capita CFD cost projections are based on a population of 40,000 residents.

2. THE FINANCIAL OBLIGATIONS OF THE ACFRD, CFD AND VOLUNTEER DEPARTMENTS AND SQUADS ARE LIMITED.

The table, below, summarizes the obligations of the various Departments and Squads. With the exception of Charlottesville, none of the organizations have any outstanding station or apparatus bonds. During the past year, the ACFRD assumed all of the outstanding apparatus and station bonds held by the volunteer organizations. None of the organizations have any outstanding workers compensation claims. Liability claims vary widely across the organizations from $0.00 for the CFD and Western Albemarle Rescue Squad to $25,889 for the East Rivanna Volunteer Fire Department.

Existing Financial Obligations for Each Jurisdiction

Liabilities	Station Bonds	Apparatus Bonds	Workers Comp Claims	Liability Claims	Total
Career Fire and EMS					
Albemarle County FRD	$0	$0	$0	$497	$497
Charlottesville FD	$0	$364,604	$0	$0	$364,604
Volunteer Fire					
#2 East Rivanna	$0	$0	$0	$25,889	$25,889
#3 North Garden	$0	$0	$0	$603	$603
#4 Earlysville	$0	$0	$0	$3,230	$3,230
#5 Crozet	$0	$0	$0	$12,633	$12,633
#6 Stony Point	$0	$0	$0	$24,604	$24,604
#7 Scottsville	$0	$0	$0	$6,268	$6,268
#8 Seminole	$0	$0	$0	$9,411	$9,411
Volunteer Rescue					
CARS	$0	$0	$0	$2,018	$2,018
# 5 Western Albemarle	$0	$0	$0	$0	$0
#8 Scottsville	$0	$0	$0	$5,827	$5,827
Total	**$0**	**$364,604**	**$0**	**$90,979**	**$455,583**

3. ADDITIONAL FUNDING SOURCES COULD PLAY A ROLE IN GENERATING REVENUE FOR THE DEPARTMENTS AND SQUADS.

City and the County fire and emergency medical services are funded by a mix of tax revenues and donations**.** The City and County career services are funded by tax revenues while the volunteer Departments and Squads have been funded by a mix of donations and tax revenues. In the past several years the County has played a major role in funding the volunteer organizations by assuming the costs for their facilities and apparatus and annual operating expenses. CARS has received some operating funds from the County and the ACFRD has detailed two Firefighter/Paramedics to CARS on weekdays to enhance ambulance availability. The City funds the volunteer component of the CFD, but it has not made any contributions to CARS. Some jurisdictions have used service charges and grants to supplement local tax revenues and donations.

(1) Ambulance Service Charges

Fire, rescue and ambulance services have traditionally been viewed as local government services funded through a jurisdiction's general fund revenues or by a special tax district levy. Some jurisdictions have implemented fees for ambulance and HazMat services as well as plan review and inspection services. However, these fees typically do not cover the full cost for the services rendered. The service most likely to generate income for the ACFRD and CFD is ambulance transportation charges. Private insurance carriers and, more importantly, Medicare and Medicaid pay for ambulance transportation and some procedures when patients are transported to hospitals. The table, on the next page, describes the billing policy of one jurisdiction that is typical of how public ambulance providers handle EMS billing.

Sample Ambulance Billing Policy and Fees

Policy	Service Fees
Service Guarantee - No one will ever be denied County ambulance service based on ability to pay or the lack of insurance. **Insured Residents** – Patients who have health insurance, Medicare, or Medicaid will not pay any costs for ambulance service--insurance payments will be accepted as payment in full. **Uninsured Residents** - The Department will work with residents to ensure no one suffers financial hardship as a result of ambulance transport. A hardship waiver form will be sent to those residents who do not have insurance.	• Basic Life Support transport - $300.00 – Medicaid pays $75.00 – Medicare pays - $243.16 • Advanced Life Support transport - $550.00 – Medicaid pays $75.00 – Medicare pay $283.52 • Mileage Charge $7.50 per mile, from pick-up point to the hospital. • Collection Rate – 50% to 60% of the amount of the fees billed to patients. • Billing Costs – Agency staff support plus a billing contractor fee of 7% to 9% based on the amount of money collected.

The following points summarize information in the table above.

- Medicaid and Medicare reimbursement rates are important because a large number of patients are covered by these programs and the programs place limits on how much they will reimburse ambulance providers.

- Typical collection rates for pubic sector providers are approximately 50% to 60% of the amount of money billed.

- Agencies need to hire in-house staff to prepare bills, assemble documentation and maintain records and an outside vendor to process the bills and collect funds. Billing vendors charge a fee of 7% to 9% on the amount of money collected.

Implementing ambulance fees and a collection system involves setting up an EMS report and billing process in a Department and contracting with a vendor to do the actual billing, collection and accounting of the money. Billing for ambulance transportation in the City and County will be complicated by the fact that ambulance transportation is provided by a mix of career and volunteer organizations. The ACFRD provides ambulance transport with career personnel from the Hollymead station and, on weekdays from Scottsville Rescue. Volunteer Squads provide all of the other

ambulance services in the City and the County. The CFD has discussed deploying a career staffed ambulance in the City and has expressed an interest in billing for its ambulance service. Assuming an average ambulance transportation fee of $400 and a collection rate of 50%, fees could yield $200,000 per 1,000 ambulance transports.

RECOMMENDATION:

The ACFRD, CFD and the volunteer Rescue Squads should form an ambulance billing committee to develop recommendations regarding ambulance billing and how it might be applied across the range of career and volunteer service providers.

(2) Federal and State Grants

The Federal and State Governments provide one-time grants for some programs and equipment but have not been involved in funding local fire and EMS operations. This situation is not likely to change in the near future. The City and the County have been successful in attracting grant funding. Several recent examples are cited below:

- The ACFRD and CFD received funds from the Department of Homeland Security for exercise equipment during the past year.
- The Emergency Communications Center received a $6 million FEMA Interoperable Communications Equipment Grant to implement an 800 MHz radio system and install the infrastructure to support a mobile digital computer system for emergency vehicles. The 800 MHz project has been completed and the mobile digital system is in the currently being tested. Acquisition of mobile digital computers for emergency vehicles is the responsibility of the fire and rescue Departments.
- The ACFRD and the CFD received a $210,000 grant to purchase equipment and supplies for a City/County hazardous materials response team.

RECOMMENDATION:

The ACFRD, CFD and the volunteer Rescue Squads should continue to seek out and apply for Federal and State grant funding.

4. THE CITY AND COUNTY SHOULD EXTEND THE FIRE AND EMS SERVICE AGREEMENT.

The 10-year service agreement between the City and the County by which the City receives compensation for the fire and EMS service it provides in the County expires in 2010. Per the agreement the City responds automatically to emergencies in the urban ring surrounding the City and provides other back-up service outside the urban ring as requested by the County.

The extent of the service agreement has changed over the years as the County has developed its emergency service capability in the urban ring. The planned addition of stations at Pantops and Ivy will reduce, but not eliminate, the need for CFD responses into the County. The current stations at Monticello and Seminole and the planned stations at Pantops and Ivy will enable the ACFRD to manage the great majority of the emergency calls in the urban ring without CFD assistance. However, there will be a continuing need for assistance on calls requiring multiple apparatus, primarily working structure fires. The County faces a service delivery problem in providing second due and ladder coverage in the urban ring because of the long travel distances between its stations surrounding the City. The CFD has the capability to continue to provide second due service to the urban growth areas in the County surrounding the City.

The costing component of the service agreement between the City and the County is based exclusively on the net number of service calls the CFD runs into the County. The net runs are the number of CFD runs into the County minus the number of ACFRD runs into the City. In FY 05 the City made 1,704 runs into the County and the ACFRD made 42 runs into the City yielding 1,664 net runs.

Calculating net runs is an equitable way to allocate the cost for ACFRD and CFD service exchanges. However, the methodology needs to be reviewed and possibly modified to take into consideration other service exchanges between the Departments. Several examples are listed below.

- During the past several years the ACFRD has been detailing two Firefighter/Paramedics to CARS on weekdays from 6 AM to 6 PM. These Firefighter/Paramedics respond in the County and the City yet their activities in the City are not incorporated into the Service Agreement calculation.

- The ACFRD has a deployed a 1-person ALS chase car at Monticello that sometimes responds into the Charlottesville when CARS is not able to respond. These responses are not incorporated into the Service Agreement calculation.

- The deployment of an ALS ambulance by the CFD will likely have an impact on the manner in which ambulances are deployed in the City and the urban development areas surrounding the City. The ACFRD, CARS and CFD have not worked out the details on how this ambulance might be deployed and dispatched to emergencies. The work of this ambulance could have an impact on the extent to which the City provides service in the County.

- The City and the County have entered into an agreement to establish a joint hazardous materials response team. Each agency has acquired response vehicles, trained some staff and purchased equipment and supplies. The two Departments are sharing a Homeland Security grant that covers the costs for some equipment and supplies. Discussions have not been held regarding how costs will be allocated whenever the unit responds.

- The ACFRD runs on-going fire and EMS training programs for its members. These programs are free of charge to career and volunteer CFD personnel. In addition, the County is in the process of developing a plan for a public safety training academy. The County is funding the initial planning and the City has been invited to participate.

RECOMMENDATIONS:

The City and Count should continue their Service Agreement for the exchange of services when it expires in 2010.

The City and County should pursue a broader range of service exchanges between the two Departments in extending the agreement to include ambulance service, hazardous materials response and training.

5. GOVERNANCE OF A CONSOLIDATED DEPARTMENT COULD BE ACCOMPLISHED BY USING THE REGIONAL EMERGENCY COMMUNICATIONS CENTER MODEL.

The City, County and University of Virginia developed a governance method for the Emergency Communications Center (ECC) that could be used as a model for a consolidated fire/EMS system. The ECC model operates as follows:

- The ECC was created via an agreement for the joint exercise of powers entered into among the City of Charlottesville, the County of Albemarle and the University of Virginia as authorized by section 15.1-21 of Code of Virginia. The Center is a public body with all powers and duties granted to it by the Laws of Virginia.

- A Management Board designated by the participants in the agreement controls the ECC. The City and County would need to create a Management Board for a combined City and County Fire/EMS agency to define the responsibilities of the Management Board.

- A policy oversight board made up of representatives from each of the entities to the agreement would provide policy guidance. Day-to-day operational issues which impact one service or one agency is handled between the ECC Director and the participating agencies. In the case of a consolidated Fire/EMS system, the Fire Rescue Chief would have the same powers as the ECC Director for managing the combined system.

- The County of Albemarle acts as the fiscal agent for the ECC. A similar arrangement could be set up for the Fire Rescue Department. The County currently charges a 2% fee on the ECC's operating budget to provide this support.

RECOMMENDATION

If a decision is made to consolidate, the City and County should use the ECC model of governance as a guide for setting up the Department.

APPENDIX 1

DESCRIPTIVE PROFILE OF THE FIRE AND RESCUE DEPARTMENTS OCTOBER 15, 2006

This Appendix in the Consolidation Study of the fire and rescue Departments in Charlottesville and Albemarle County includes information about the current organization, staffing, operation and the services provided by the various Departments. Some of the information in the Descriptive Profile may have changes since October 15, 2006. The Profile information was developed from interviews with City and County elected officials and appointed administrators and Department personnel (Career and volunteer). The study team toured the service area and the various facilities, reviewed documents, records and maps and collected data about the fire, rescue and emergency medical operations in the jurisdictions.

This profile is organized as follows:

- Setting and Demographics of the Service Area
- Organization of the Fire and Rescue Services
- Fire and Rescue Department Expenditures
- Stations and Emergency Apparatus
- Fire and rescue Department Workloads
- Wages and Benefits

The first section provides a general description of the service areas included in the context of this study.

1. SETTING AND DEMOGRAPHICS OF THE SERVICE AREA

Albemarle County and the City of Charlottesville are located in central Virginia. Charlottesville, home to the University of Virginia, is an independent landlocked City surrounded by Albemarle County.

The following table presents population data from the City and County. The 1900 and 2000 data are based on the US Census reports. The projections are based on reports published by the Virginia Employment Commission and the Weldon Center of Public Service at the University of Virginia.

Population Growth and Projections, 1990 – 2020

Year	County	City
1990	68,189	40,475
2000	79,236	40,099
2005	90,717	39,900
2010	97,202	39,900
2020	107,400	39,900

The following points summarize population change in the two jurisdictions:

- The Census Bureau's 2005 estimated population of the County (90,717) is more than double that of the City (39,900).
- The County had significant population growth during the 1990's. The County's population grew by 16.2% while the City's population remained relatively unchanged
- Between 2000 and 2005 the County's population continued to grow at a rapid pace (+7.7%).
- Population estimates prepared by Virginia Employment Commission project growth in the County over the next 15 years and no growth in the City.
- In spite of the no growth population estimates for the City, Charlottesville has experienced some high density mixed-use development in recent years along with an increase in building permits as listed in the table below.

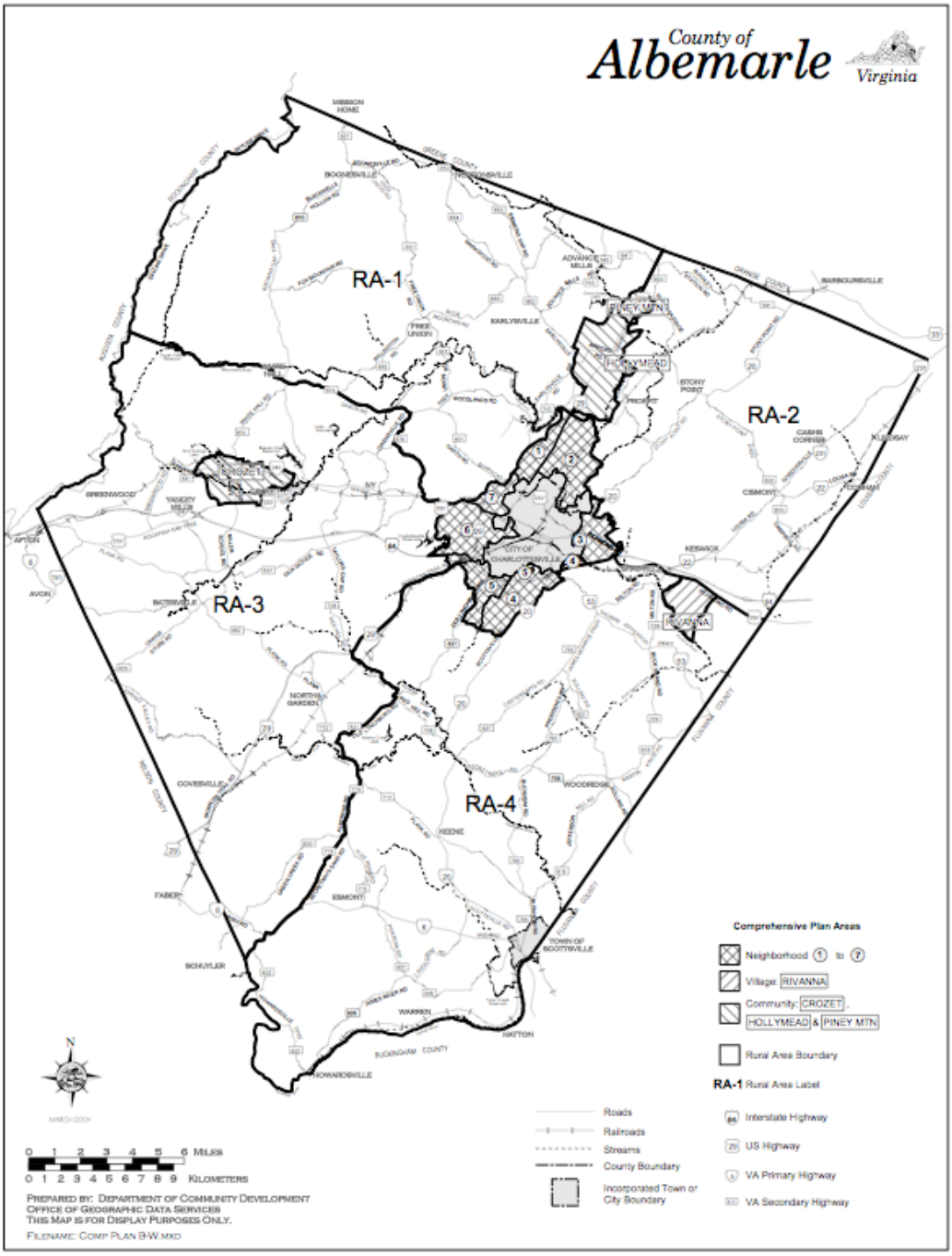
Building Permits in Charlottesville

Year	Residential Unit Building Permits	Other Permits	Value of Permits
2000	108	N/A	N/A
2001	120	N/A	N/A
2002	116	1,605	$62M
2003	320	1,752	$72M
2004	271	1,928	$86M
2005	285	2,131	$101M

The County's Comprehensive plan identifies urban development and rural areas. In line with the plan the Fire Rescue Department has developed a strategy for providing two levels of service throughout the County. The urban development areas comprise the urban ring to the north, east, south and west of Charlottesville as well as Crozet, Rivanna and northern development areas along the Route 29 north corridor. The map on the following page outlines the County's urban development areas. Through zoning management actions, the construction of water and sewer lines and the deployment of public safety resources the County expects to confine much of the growth over the next decade to the designated urban development areas. In support of this strategy the Fire Rescue Department is in the process of constructing or planning stations for the following areas:

- Hollymead/Airport station located in the north central section of the County along the route 29 corridor. This station is under construction and will open in the fall of 2007.
- Pantops station located east of the City of Charlottesville in the vicinity of route 250. This station is planned for the 2009 – 2010 period.
- Ivy station located west of the City of Charlottesville in the vicinity of route 250. This station is planned for the post 2010 period.

Albemarle County Urban Development Area Map



The Charlottesville Fire Department provides fire protection to the University of Virginia's main campus including the hospital, stadium and arena. Many of the

University's facilities are located in the County. The Department's response area also includes the Federal Executive Institute and the Judge Advocate Generals School.

The following table presents information about the population land area served by the three fire districts in Charlottesville.

Composition of the Fire Districts in Charlottesville

Headquarters	Population	Land Area - Acres	
Belmont	3559	403	
Ridge Street	2846	245	
Fry's Spring	3715	489	
Johnson Village	610	112	
Jackson Via	421	67	
Fifeville	3247	253	
10th & Page	1357	84	
Starr Hill	168	48	
Woolen Mills	1036	477	
Martha Jefferson	1377	378	
**North Downtown	1545	226	
*Rosehill	269	41	
*Venable	3085	67	
*JPA	2002	87	
Sub Total	**25237**	**2977**	(4.65 Sq. miles)
Station 1			
**North Downtown	515	76	
*Rosehill	269	41	
The Meadows	1466	304	
Greenbrier	2126	649	
Barracks/Rugby	2168	387	
Locust Grove	2110	829	
Sub Total	**8654**	**2286**	(3.57 sq. miles)
Station 10			
Lewis Mountain	1028	133	
Barracks Road	512	152	
*Venable	3085	67	
*JPA	2002	87	
Sub Total	**6627**	**439**	(.69 sq. miles)
Total	**40518**	**10.4 Square Miles**	

* Population and Land Area figure evenly divided between two station districts.

The following table presents information about the land area, hydrant service and population served by the various fire and rescue districts in Albemarle County. It is

based on 2005 census data that was collated by the County's Department of Planning and Community Development.

Composition of the Fire Districts in Albemarle County

Fire District	Urban Development Area	Population	Square Miles	Hydrants Miles	Percent Hydranted
City (Urban Ring)	Yes	18,230	43	17.3	40%
#5 Crozet	Yes	14,033	184	10.6	6%
#4 Earlysville	No	12,371	93	7.5	8%
#2 East Rivanna	Yes	5,654	78	4.5	6%
#11 Monticello	Yes	5,890	45	3.9	9%
#3 North Garden	No	3,423	83	0.0	0%
#7 Scottsville	No	4,756	126	2.1	2%
#8 Seminole	Yes	23,698	18	11.7	67%
#6 Stony Point	No	4,893	56	0.5	1%
# 12 Hollymead	Yes	6,000	90	N/A	4%
Total		**92,948**	**726**	**58**	**8%**

The following points summarize information about the Fire Districts.

- The County has identified four development areas and expects to channel most of the future growth into these areas. The fire stations serving these development areas are listed in the table above. These stations also serve areas outside the designated development areas.

- Approximately 73% of the 2005 population resides in the districts designated in the County's Comprehensive Plan as urban development areas.

- Approximately 8% of the County's land area is served by fire hydrants. Two of the urban development districts (City and Seminole) have a high percentage of hydrant coverage.

- The "City" district includes two primary areas outside the City of Charlottesville that receive first due fire protection services from the Charlottesville Fire Department via contract (See the County's fire district map on page 14). The "City" district includes:

  – Areas to the east of Charlottesville along routes 250 east and 20 north.

  – Areas to the west of Charlottesville along routes 250 west, I-64 west and 29 south.

The following tables presents information about the land area and population served by the four rescue districts in Albemarle County and the City of Charlottesville.

The population information is based on 2005 census data collated by the County's Department of Planning and Community Development. City data is included on the table because the Charlottesville Albemarle Rescue Squad serves the City.

Composition of the Rescue-Ambulance Districts in Albemarle County and Charlottesville

Rescue District	Square Miles	Population
#5 Western Albemarle	212	16,291
# 13 Charlottesville/Albemarle - County	359	70,727
# 14 Charlottesville/Albemarle - City	10	39,601
# 12 Hollymead (Airport)	Not Available	Not Available
#7 Scottsville	155	5,930
Total	736	132,549

The next section of the report discusses the organization of the fire and Rescue Squads serving the City and County.

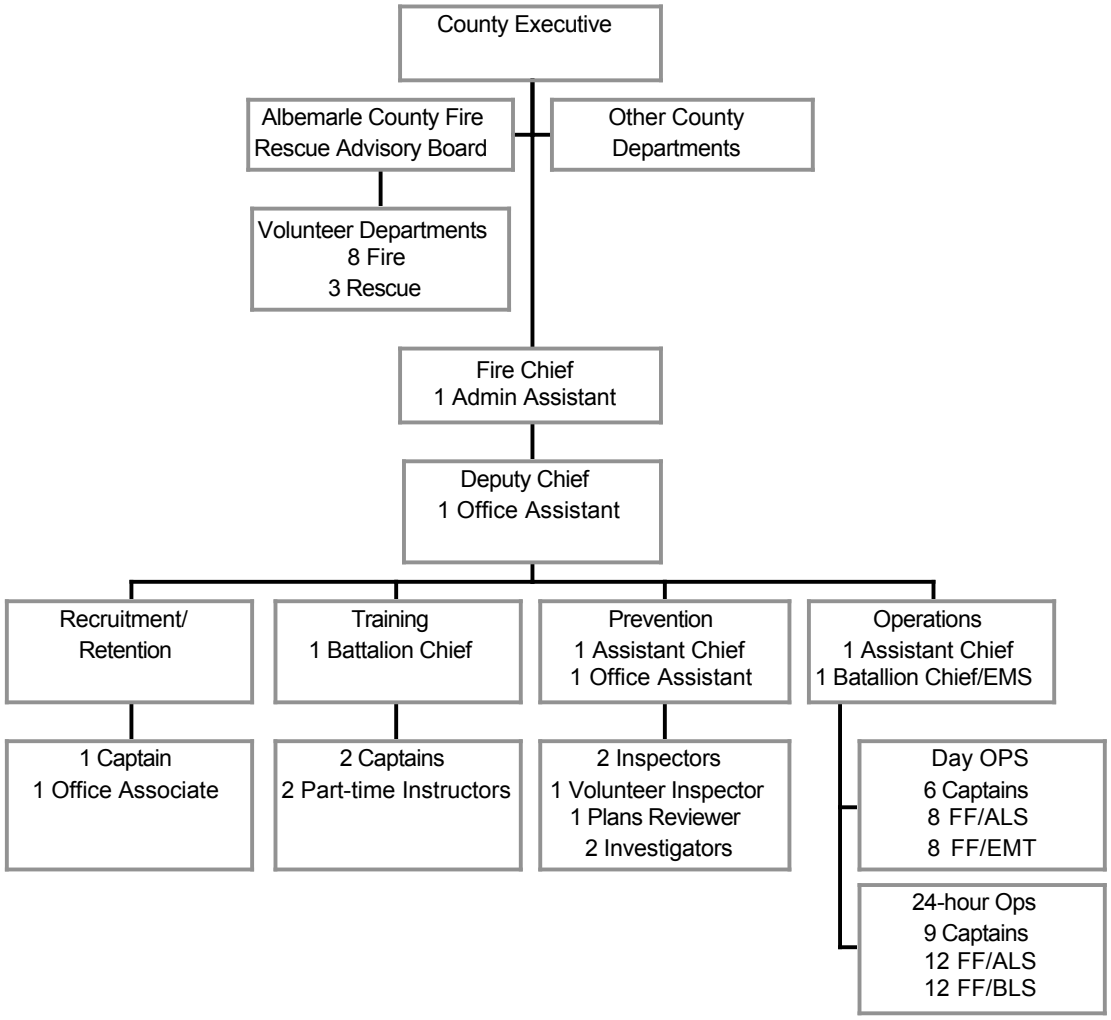
2. ORGANIZATION OF FIRE AND RESCUE SERVICES IN THE CITY AND COUNTY.

City and County residents receive fire, emergency medical and ambulance transportation services from a mix of agencies staffed by career and volunteer personnel. The major service providers in the City and County include the Albemarle County Fire Rescue Department, the Charlottesville Fire Department and the Charlottesville Albemarle Volunteer Rescue Squad. The following sub-sections of this report discuss the organization and staffing of each of these entities.

(1) Albemarle County Fire and Rescue Department (ACFRD)

The organization chart the below presents the current staffing plan of the Department.

Organization of Fire and Rescue Services in the County



The County Department is composed of career and volunteer segments that work closely together to deliver fire and rescue services throughout the entire County. The Albemarle County Fire Rescue Advisory Board and the Fire Chief report to the County Manager. The Board is a fire rescue policy-making organization established to advise the Albemarle County Board of Supervisors and County Manager on fire and rescue related issues. The Board is comprised of Chief operating officers from each of the County's volunteer fire and rescue stations and the Albemarle Fire Chief. Each member organization has voting rights. The Board is responsible for developing

countywide operational and administrative policy to help the County fire rescue system achieve the following strategic goals:

1. Develop a unified combination emergency service system at the operational level.
2. Deliver services that are consistent with our customer's expectations.
3. Further develop and support our volunteer and career personnel.
4. Recruit and retain quality volunteer and career personnel.

At the present time the ACFRD has a complement of 69 sworn personnel and three civilians. The Department has added career personnel since 2000 in order to improve staff levels and response times in the urban development areas of the County and to provide weekday coverage for some of the volunteer stations. During the first half of FY07, eight Firefighter EMTs (ALS and BLS certified) were hired to staff an ambulance at the #12 Hollymead temporary station located at the Airport. During the second half of FY07 the Department will hire 13 additional personnel (1 Battalion Chief, 3 Captains and 9 Firefighter/EMTs). The additional personnel will be added to the existing ambulance staff at #12 Hollymead and will allow 24-hour staffing for an engine and ambulance at that station.

The following table lists the number and classification of personnel in each division of the ACFRD. The personnel in Administration, Training and Fire Prevention and Recruitment/retention work 40-hour weeks. Operations personnel work either a 48-hour or 56-hour weeks depending on their assignment.

ACFRD Authorized Staff

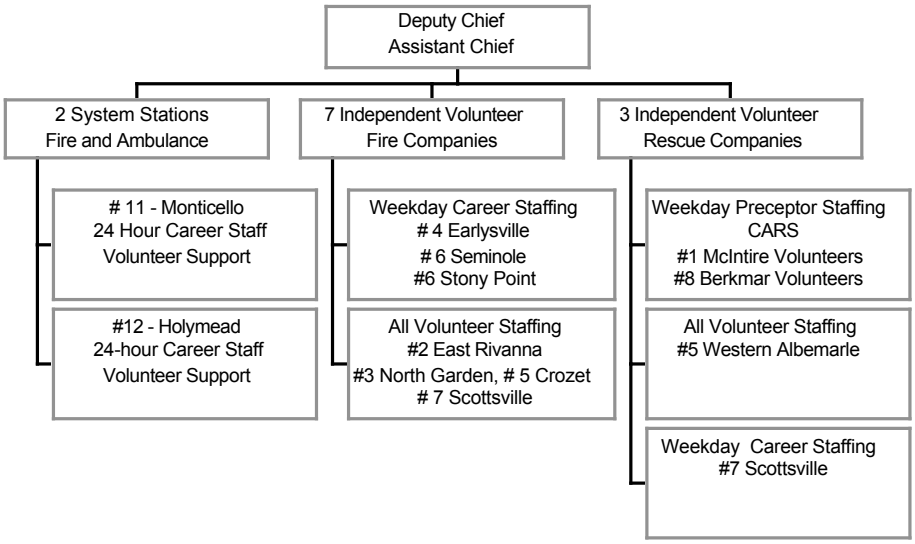
Function	No.	Responsibilities
Administration		
Fire Rescue Chief	1	• The Fire Rescue Chief reports directly to an Assistant County Manager. • The Chief is responsible for the management and oversight of all operations and administrative functions of the Department. • The Chief has direct supervisory responsibility for the Deputy Chief. • Manages the Department's strategic initiatives in conjunction with County personnel. • Develops the budget and staffing plans for the Department with subordinate career personnel. • Works with the Albemarle County Fire Rescue Advisory Board that represents the volunteer corporations to develop and implement programs and policy.
Deputy Chief	1	• The Deputy Chief reports directly to the Fire Rescue Chief. • The Deputy Chief has four direct report including the Assistant Chefs for Prevention and Operations, the Battalion Chief for Training, the Captain responsible for recruitment and the volunteer corporations • Engages in a broad range of budget, planning, policy and procedure issues with the Chief and the various division heads in the Department.
Administrative Assistant	1	• Provides administrative, secretarial and receptionist support for the Chief and other members of the Department. • This position works a 5-day, 40-hour week
Fire Prevention		
Assistant Chief (Currently Vacant)	1	• The Assistant Chief is responsible for all fire prevention activities. • Oversees the activities of 2 inspectors, 1 volunteer inspector, 2 investigators and 1 plan reviewer. • Develops the annual plan for the division and participates in the budget process • This position works a flexible 5-day, 40-hour week.
Inspectors Plan Reviewer Investigators	2 1 2	• The fire prevention personnel engage in a broad range of inspection, investigation and plan review activities. • This position works a flexible 5-day, 40-hour week,
Training		
Battalion Chief	1	• Responsible for the development and implementation of the Department's training program for new career and volunteer staff. • Provides fire and EMS training to meet recruit and recertification requirements. • This position works a flexible 5-day, 40-hour week.
Captains	2	• Provides fire and EMS training to the career and volunteer Fire Officers and Firefighters.

ACFRD Authorized Staff (Continued)

Function	No.	Responsibilities
Recruitment/Retention		
Captain Office Associate	1 1	• Responsible for services to 440 active and 220 support volunteers.. • Markets the organization and its volunteer Departments through a newsletter and a web site. • Manages the Department fitness and wellness program and manages a Homeland Security fitness grant. • Processes about 120 new volunteers annually to replenish the ranks. • Completed a minimum basic training standard for volunteers. Works with Training to enroll volunteers in the Firefighter and EMS courses. • This position works a flexible 5-day, 40-hour week.
Operations		
Assistant Chief	1	• Responsible for the overall operation of the Departments' career and volunteer companies. • Participates in the Department's planning and budgeting process. • Develops operational plans. • Supervises the EMS Battalion Chief and the station captains. • Responds to major emergency incidents. • This position works a flexible 5-day, 40-hour week.
Battalion Chief/EMS	1	• Manages the EMS program for the County. • Has oversight for the career ALS personnel coordinates the operations of the three volunteer Rescue Squads that serve the County. • Oversees the release process (preceptor program) for ALS personnel that County has implemented with CARS. • Conducts quality assurance of patient care and patient care reports. • Responds to major incidents. • This position works a flexible 5-day, 40-hour week.
Captains	15	• Command fire and rescue of apparatus and are in charge of stations. • Captains are incident commanders since the Department does not deploy Battalion Chiefs. Captains generally relinquish incident command upon the arrival of a volunteer Chief or a career Chief officer. • Captains work two different duty cycles. – Captains assigned to the 24-hour shift schedule a 56-hour week. – Captains assigned to a 12-hour schedule work a 48-hour week.
Firefighters	40	• Firefighters drive and operate the apparatus at emergencies. • 63% of the Firefighters are ALS certified and the rest are BLS certified. • The position works a 24-hour day, 56-hour week or a 12-hour day, 48-hour week.
Volunteers Operational Support	 440 220	• Eight of the County's nine fire stations are operated by volunteer corporations and staffed primarily by volunteers. • All three of the County's rescue stations are operated by volunteer corporations and are staffed primarily by volunteers.
Total	**69** **3** **650**	**Uniform Personnel** **Civilian Staff** **Volunteers**

The following chart presents a fire and rescue company overview of the Albemarle Fire Rescue Department and its volunteer partners.

Albemarle County Fire and Rescue Operations Overview



The following points summarize the operation of the Department.

- The **two system stations** represent the creation of stations in new locations. Prior to the opening of the #11 Monticello station in January 2003 all of the fire and rescue stations in the County were volunteer corporations located in older, established communities. Monticello represents the building of a station in the development area surrounding Charlottesville. The Department opened its second system station, #12 Hollymead, in the fall of 2006 near the airport in the north central section of the County. Although these stations will be staffed 24 X 7 by career personnel the County will develop a volunteer component at each station. The construction of similar system stations have been discussed regarding the Pantops and Ivy sections of the County.

- The **seven independent volunteer fire companies** represent the longstanding tradition of independent volunteerism in the County. The County supports these Departments by providing funding for basic station operations through the County's annual budget process. In addition, County purchases volunteer fire apparatus through its capital improvement plan (CIP). The CIP is based on a Board approved countywide fleet plan and apparatus replacement plan. Furthermore, if these companies request career staffing the Department has provided staffing during weekday hours. At the present time three of the seven stations have three career staff on duty Monday – Friday from 6 AM to 6 PM. During other days and hours the of the week volunteers staff the stations.

- The Training Division of the ACFRD has been assembling information about the training certifications held by the volunteers in the system. The table, below, contains information about the number of volunteers who have registered their Fire Fighter I certifications with the Department. The information is substantially incomplete.

Fire Fighter 1 Certifications of Volunteers Registered with the ACFRD

Department	Volunteers	FF I Certified
#2 East Rivanna	27	11
#3 North Garden	35	11
#4 Earlysville	23	5
#5 Crozet	70	15
#6 Stony Point	27	8
#7 Scottsville	26	12
#8 Seminole	59	26

- The **three independent volunteer rescue companies** are much like the volunteer fire companies in that they are located in the older established communities in the County and City. The County supports the volunteer rescue companies by providing funding for basic station operations through the County's annual budget process. The County purchases volunteer EMS apparatus through its capital improvement plan (CIP). The CIP is based on a Board approved Countywide fleet plan and apparatus replacement plan.
  The following table present information about the EMS certifications of the volunteer personnel in the volunteer Rescue Squads.

EMS Certification of the Rescue Squad Personnel

Rescue Squad	BLS Certified	ALS Certified	Driver Certified
#1 CARS	69	87	NA
#5 Western Albemarle	23	23	6
#8 Scottsville	Data not available		

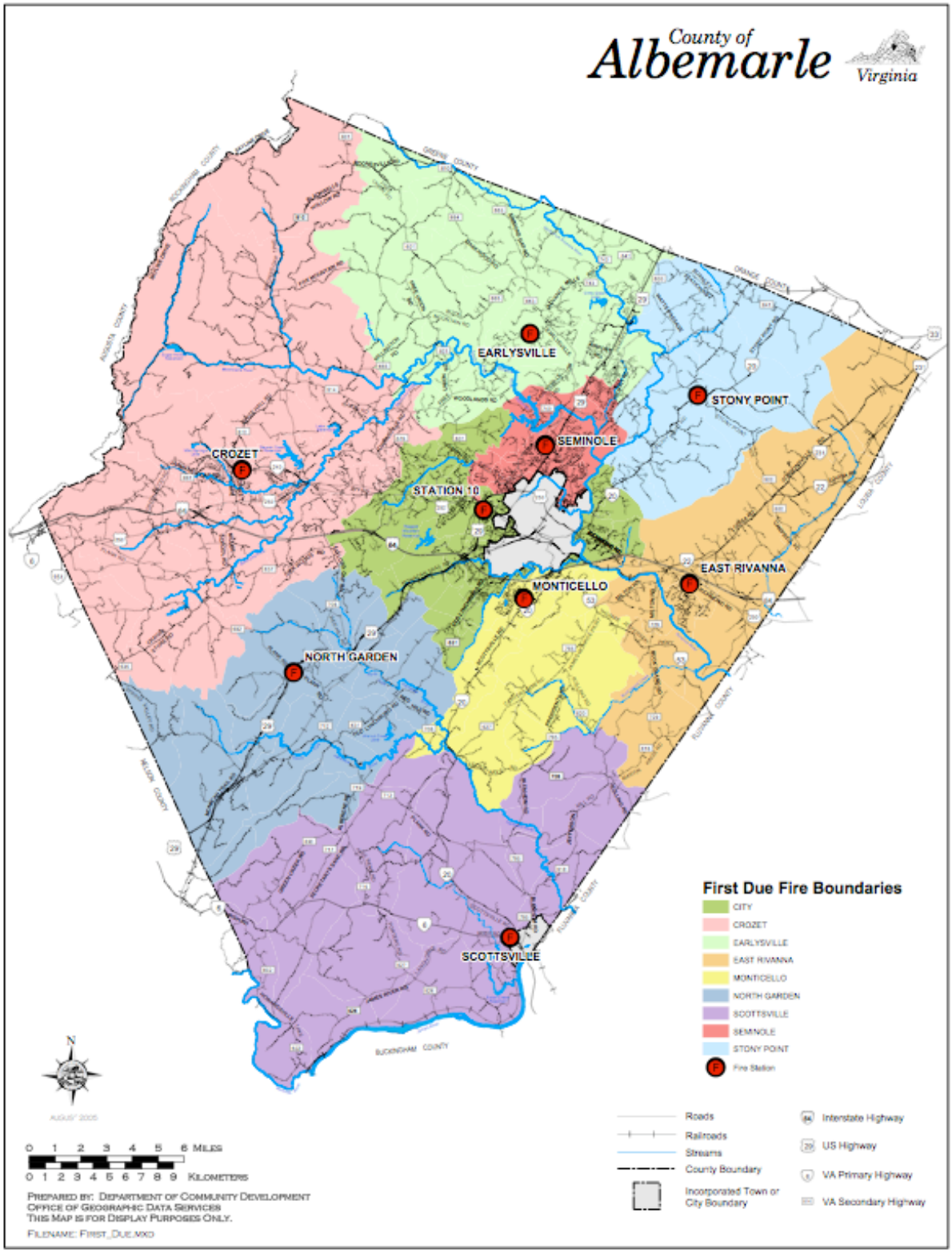
The Charlottesville Albemarle Rescue squad runs in both the County and the City. The County provides a portion of CARS' basic operating funds and purchases a portion of CARS' apparatus. The funding formula is based on the number of EMS calls CARS responds to in the County. Since October 2004, the County and CARS have an agreement to detail 2 Firefighter/ALS personnel to CARS five days a week, 12 hours a day to provide a means to precept new County ALS personnel and to provide additional ambulance staff in the County.

The County also provides two Firefighter/ALS career personnel for #7 Scottsville Rescue station five days a week, 12 hours a day. Although the County has not deployed any staff to #5 Western Albemarle, it has deployed an ALS staffed car at #12 Monticello which is available to assist the EMS system in both the County and the City.

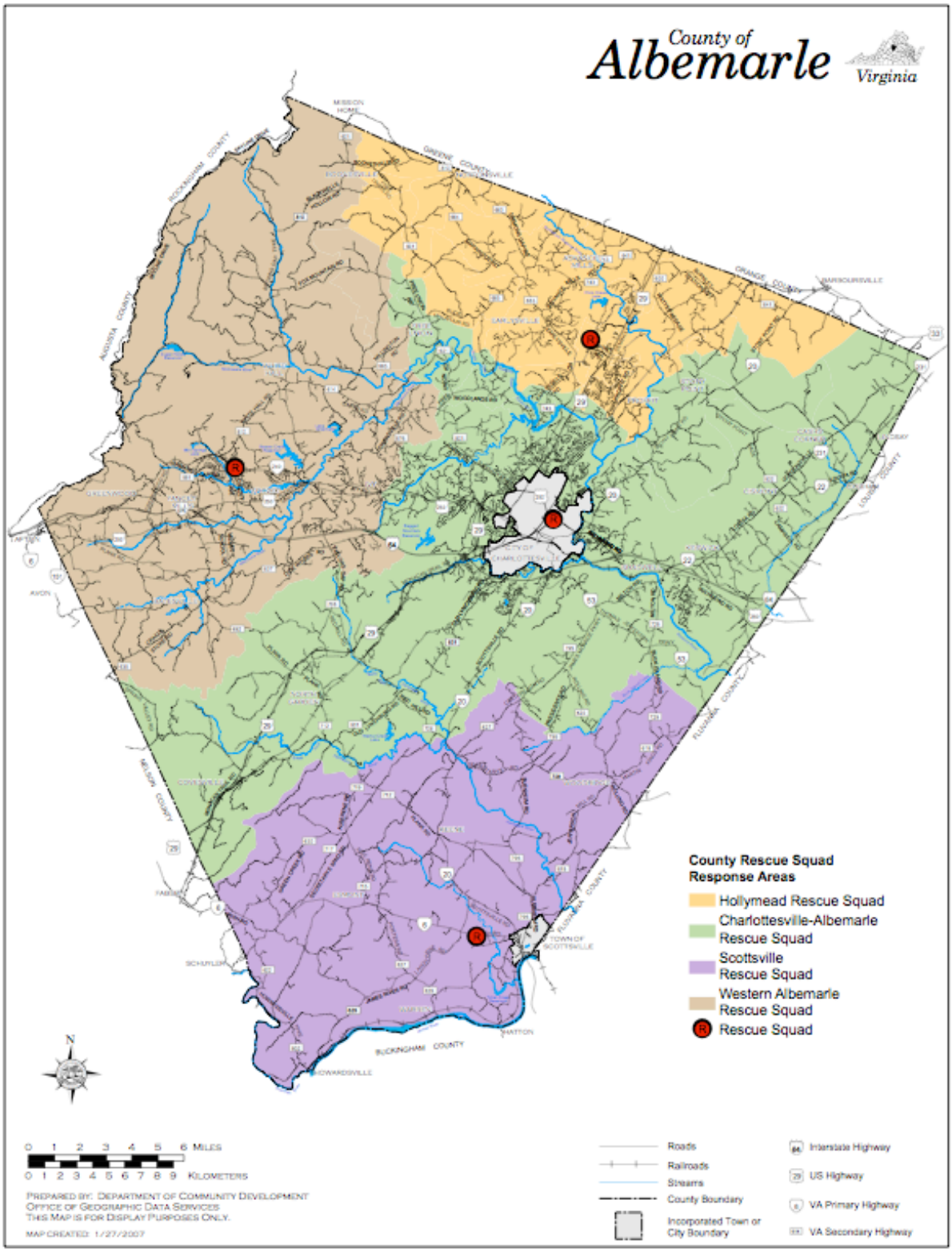
In September 2006 the County opened a temporary rescue station near the airport from which it deploys a 2-person ALS ambulance to serve the north central section of the County. This unit is located in a temporary station at the airport but will be moved permanently to the #12 Hollymead station when that station opens in the fall of 2007. The #12 Hollymead ambulance will reduce response times to the busy route 29 corridors on the north end of the County and also serve a portion of the northwestern section of the County currently served by the Western Albemarle Rescue Squad. The ALS ambulance is staffed 24 hours a day, 7 days a week with two Firefighter/ALS career personnel.

The Maps on the following pages displays the fire Department and the Rescue Squad districts.

Fire Districts in Albemarle County



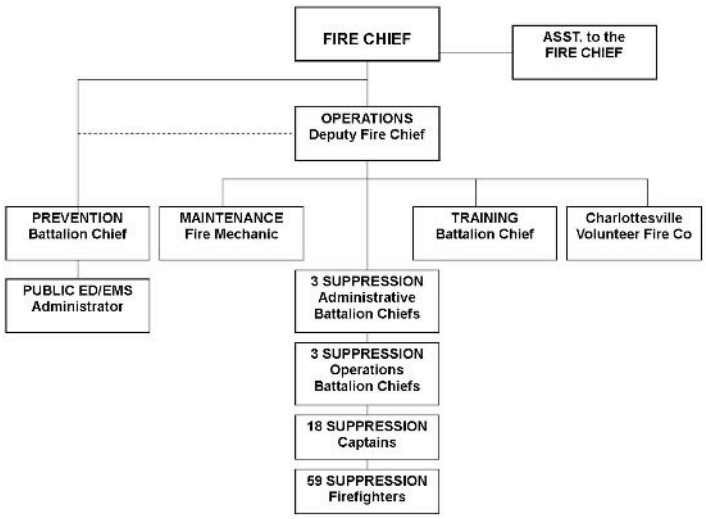
Ambulance Districts in Albemarle County



(2) Charlottesville Fire Department (CFD)

The organization chart below presents the current staffing plan of the Department. The organization has four major functional groups – Prevention/Public Education, Maintenance Training and Volunteers. The Prevention Bureau reports directly to the Fire Chief while the other three Bureaus report to the Deputy Fire Chief who is in charge of Operations.

Charlottesville Fire Department Organizational Chart

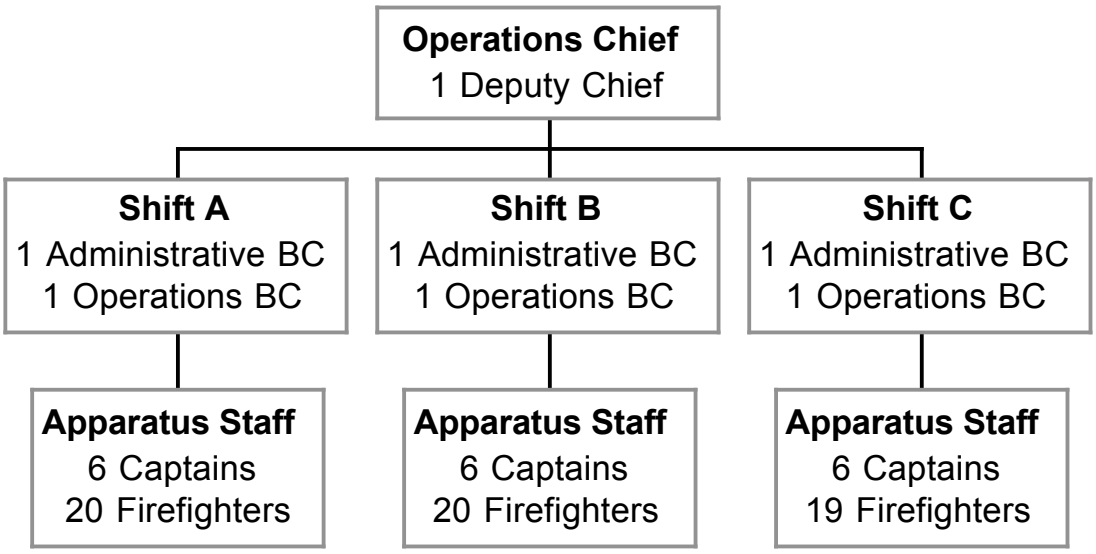


The CFD has traditionally operated with 93 budgeted positions - 90 Fire Officers and Firefighters and three civilian staff member. During the current fiscal year, the number of budgeted uniform personnel will be reduced from 90 to 87. This will occur when the dispatch function is transferred to the combined City/County Dispatch Center. Although the Department has a budgeted strength of 87 personnel for the current fiscal year, at the time of the study three of the budgeted firefighting positions were vacant. As a consequence, the Department has been using overtime to meet its minimum daily staffing requirements in the Operations Division. The Department is hiring to fill one of

the vacancies. One vacancy is being held open for a Firefighter on military leave and the 3rd position will remain vacant until the City approves a change in the status of several personnel holding "acting positions."

The following organizational chart displays information about the staffing of the three shifts of personnel assigned to emergency operations. The shifts work a rotating schedule such that one shift is on duty daily for 24-hours. The Firefighters temporarily handling dispatch duties are listed under Apparatus staff on the organizational chart below. Minimum daily staffing is 19 Fire Officers and Firefighters – a Battalion Chief and three personnel on each of the Department's six fire trucks (5 engines and 1 ladder). Volunteers may supplement the career staff.

Organization and Staffing of Emergency Operations



The following table lists the number and classification of personnel in each division of the Department. The vast majority of personnel, 95%, are assigned to emergency operations where they staff the Department's emergency fire apparatus. The personnel in Administration, Maintenance, Training and Fire Prevention work a 40-

hour week while the personnel assigned to operations work a 56-hour week composed of 24-hour work shifts.

CFD Authorized Staff

Function	No.	Responsibilities
Administration		
Fire Chief	1	• Department head, reports directly to the City Manager. • The Fire Chief is responsible for the management and oversight of all operations and administrative functions of the Fire Department. • The Chief has direct supervisory responsibility for the Deputy Chief of Operations, the Battalion Chiefs in charge of Fire Prevention and Training and the civilian EMS Fire educator. • Prepares the strategic, budget and staffing plans with subordinates.
Administrative Assistant	1	• Provides general administrative and clerical support to the Fire Chief, senior staff and other members of the Department. • Buyer of Department supplies and equipment. Processes payments. • Monitors the budget and maintains the payroll. • Manages the Department's requests for building maintenance and repairs. • Reports to the Fire Chief.
Fire Prevention		
Battalion Chief	1	• Responsible for all fire prevention activities including: – Inspections of residential and commercial properties – Enforcement of the fire code – Fire alarms (e.g., system testing reports, system design review, inspections, etc.) – Fire investigations, including arsons – Public education • Coordinates the prevention activities engaged in by three suppression shift inspectors under the direction of the Battalion Chiefs. • Works a 5-day, 40-hour week.
Training		
Battalion Chief	1	• Serves as the Training and Safety Officer for the Department. • Responsible for developing and implementing an annual training program, in-service company training and new recruit orientation and training. • Works a 5-day, 40-hour week.
EMS/Fire Educator	1	• Responsible for the oversight and administration of the Department's public education and EMS programs. • Organizes and develops community fire safety programs. • Develops and oversees training for the Department's EMS program. • Conducts quality review of patient care. • Liaison with neighborhood, outside agencies and other City Departments.

CFD Authorized Staff (Continued)

Function	No.	Responsibilities
Operations		
Deputy Chief	1	• Responsible for Fire Operations and the supervision of the Department's six Battalion Chiefs. • Engages in a broad range of budget, policy and procedure issues with the Fire Chief and the Battalion Chiefs. • Coordinates the hazmat team and the specification of apparatus.
Battalion Chief – Administrative Battalion Chief – Operational	3 3	• Battalion Chiefs are responsible for the daily operation of the Department's emergency units. • The Administrative BC is usually the senior BC responsible for scheduling, approving time and personnel issues and rides the command vehicle. • The Operations BC plans the daily objectives for the shift and rides the ladder if a Captain is off duty and the Administrative BC is on duty. • Each BC has an administrative/support responsibility such as training, uniforms, facilities, personal protective gear, radios SCBA, etc. • Minimum staffing is one BC on duty.
Captains	18	• Captains are the officers on apparatus. • Each Captain has an administrative/ support duties such hazmat, honor guard, hydrant maintenance, safety inspections, SWAT, detector installation, physical fitness.
Firefighters	59	• Firefighters are assigned to one of three shifts, work a 24-hour schedule and report to the Captain on the apparatus to which they are assigned. • Firefighters drive and operate the apparatus at fire and EMS incidents. • Tasks include fire suppression, rescue, public assistance, fire investigations, fire prevention, pre-fire planning, training, public education, and routine maintenance of apparatus, equipment, and facilities. • Most Firefighters are BLS certified and a few are ALS certified.
Mechanic	1	• Performs preventive maintenance and minor repairs on apparatus. • Maintains apparatus repair records. • Orders apparatus supplies and parts.
Volunteers	30	• The volunteers work from the Headquarters station with career staff. • They may ride as the fourth person on a fire company or staff the reserve engine during major emergencies.
Total	**87** **3** **30**	**Uniform Personnel** (3 positions are currently vacant) **Civilian Staff** **Volunteers**

The next section of the report compares differences between the Albemarle County and Charlottesville fire Departments.

(3) Staff Comparisons Between the Albemarle County Fire Rescue Department and the Charlottesville Fire Department.

Current Career Staff

Position	Albemarle County	City of Charlottesville
Fire Chief	1	1 Fire Chief
Deputy Chief	1	1 Deputy Chief
Assistant Chief	2 Total 1 Operations 1 Fire Prevention	0
EMS/Fire Education		1 Civilian
Battalion Chief	2 Total 1 Training 1 Operations/EMS	7 Total 1 Training 1 Fire Prevention 6 Operations
Fire Prevention	1 Assistant Chief 1 Plan Reviewer 2 Investigators 2 Inspectors 1 Volunteer Inspector	1 Battalion Chief 3 certified inspectors assigned to fire companies who coordinate shift inspections
Captain (Staff)	1 Recruitment 2 Training	0
Captains (Operations)	15 Total 6 on12-hours day shifts 9 on 24-hour shifts	18 Total
Firefighter/ALS	17 total 10 on 12-hour day shift 7 on 24-hour shift	8 Total 6 on 24-hour shifts
Firefighter/EMT	26 Total 10 on12-hours day shift 16 on 24-hour shift	51 Total 53 on 24-hour shifts
Admin Support	3	1
Mechanic	0	1
Volunteers - Regional	8 Fire Companies 2 Rescue Companies 650 Volunteers	1 Fire Company 0 Rescue Companies 30 Volunteers
Volunteers – County-wide	Charlottesville Albemarle Rescue Squad 1 Company – 2 Stations Serves the City and is the first due rescue provider in 2/3 of the County. 156 Volunteers	

The following points compare major differences in the career staffing of the Albemarle and Charlottesville Fire Departments.

- The Albemarle County Fire Rescue Department deploys a mix of 12-hour and 24-hour career Firefighters in operations whereas the Charlottesville Department deploys Firefighters in operations to 24-hour shifts. The ACFRD 12-hour

personnel are assigned to several volunteer stations from Monday through Friday (6 AM to 6 PM) when many volunteers are at work and are not readily available.

- The Albemarle County Fire Rescue Department has four levels of Chief officers (Fire Chief, Deputy Chief, Assistant Chief and Battalion Chief) comprising six personnel whereas the Charlottesville Fire Department has three levels of Chief officers (Fire Chief, Deputy Chief and Battalion Chief) comprising 10 personnel.

  – Battalion Chiefs in operations in the Charlottesville Fire Department fill in for Captains on fire companies.

  – Captains in the Albemarle Fire Department have responsibilities similar to Battalion Chiefs in Charlottesville.

- The Albemarle County Fire Department has a much more heavily staffed fire inspection component consisting of six dedicated personnel compared to one dedicated personnel resource in the Charlottesville Fire Department. The Charlottesville Fire Department relies on operations personnel to conduct some fire safety inspections whereas in Albemarle County, fire companies do not conduct inspections.

- The Albemarle County Fire Department provides a higher level of emergency medical care than the Charlottesville Fire Department. Both Departments are ALS transport licensed by the Commonwealth of Virginia. However, the County staffs each of its fire companies with at least one ALS Firefighter whereas the City staffs its apparatus with primarily with BLS Firefighters. In addition, Albemarle County Fire Rescue provides two daytime (12 hour, 5 day a week) Firefighter/ALS career personnel for the #7 Scottsville Rescue station and two daytime Firefighter/ALS career personnel for CARS. The staffing for CARS provides for both service delivery and preceptor purposes. In addition, the County staffs an ALS ambulance at the #12 Hollymead temporary station. The ALS ambulance at #12 Hollymead is staffed 24 hours a day, 7 days a week with two Firefighter/ALS career personnel.

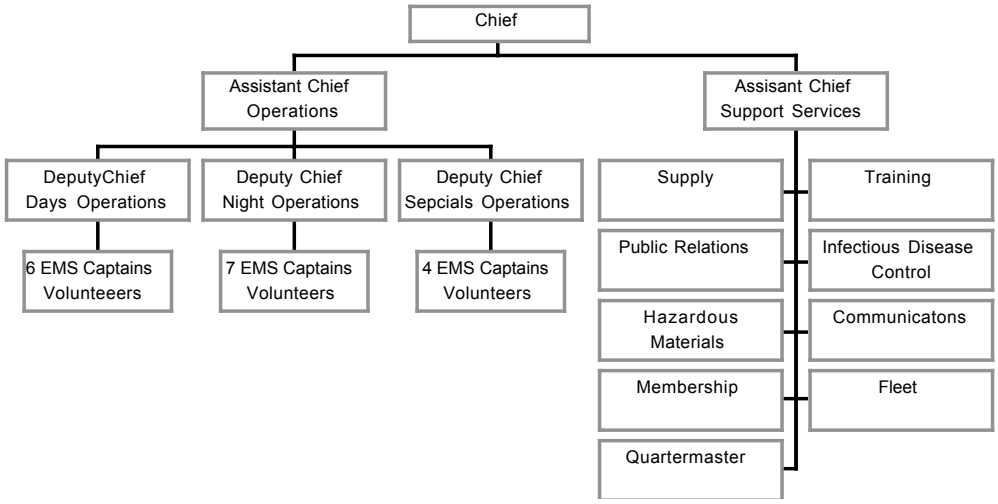
- The Charlottesville Fire Department has a fire maintenance bay attached to its Headquarters station and employees a full-time mechanic to do preventive maintenance and make minor repairs. The Albemarle County Fire Rescue has neither an apparatus repair shop nor a garage facility. Some repairs are performed at the County's Bus Garage but most maintenance is contracted out. The Volunteer Companies are responsible for the maintenance of their own apparatus.

The next section of the report discusses the organization of the Charlottesville Albemarle Rescue Squad

(4) Charlottesville Albemarle Rescue Squad (CARS)

CARS is an independent, non-public organization. It is responsible for the provision of ambulance transportation, advanced life support care and rescue work in the City of Charlottesville and the central section of the Albemarle County bordering Route 29. It is a volunteer organization that receives some financial and staff support from Albemarle County. The Squad operates from two stations. The main station at the Route 250 By-pass and McIntire Road has eight bays and bunk space for 15 volunteers. The sub-station, which is not always staffed, is located on Berkmar Drive. The organization chart below presents the current structure and reporting relationships for the Squad.

Organization of CARS



The organization has been divided into three primary units as follows.

- **Operations** – Operations is responsible for the staffing of ambulance and rescue vehicles on a daily basis to respond to emergencies. The management of operations has been divided into day and night time periods in which duty crews reside in the station. The crews operate from two stations – one in the City and one in the County. The City station (#1 McIntire Road) is always staffed while the County station (#8 Berkmar Drive) is staffed sporadically. CARS and the #8

Berkmar Fire Volunteer Department are in discussions about having the Fire Department assist the Squad in staffing an ambulance in the Squad's Berkmar station.

- **Specials Operations** – Specials operations is responsible for the Vehicle Rescue Team, Water Rescue Team and Special Event Management Team (SEMM). The SEMM is a coordinated effort between the University of Virginia Emergency Department and CARS, which provides medical coverage at major events hosted at the University of Virginia (Stadium, Arena) and other venues in the County. SEMM provides care at the BLS, ALS, RN and MD level when it is activated.

- **Support Services** – Support Services performs the support functions needed to run the operations. These services include funding raising, supply, training, recruiting and fleet management.

The Squad is staffed primarily with volunteers but receives daily staffing support from the ACFRD. CARS has 284 members of whom 156 are actively involved in operations. The EMS certifications levels, training required and number of the active volunteer members in each category are listed below.

CARS Volunteer Certifications

EMT Certification	# of Members
EMT – **B**asic	69
EMT/ALS – **E**nhanced (ALS Shock Trauma)	26
EMT/ALS – **I**ntermediate (ALS Cardiac)	55
MD - Medical Doctors (Also Paramedics)	5
RN - Registered Nurse	8•

*Seven of the eight RN's also have EMS certifications and are also counted in these categories.

It has been the goal of CARS to staff three ambulances with two personnel each throughout the day and night and to add a fourth ambulance during peak periods. That has not always been the case. As the County has grown, and imposed additional service demands on CARS, the ACFRD has stepped in to support CARS with funding and staff resources. In October 2004 the ACFRD entered into a contract with CARS to detail one FF/ALS to CARS on a 12-hour basis Monday – Thursday for precept and call response purposes. The precept program allows ACFRD personnel to work under the

supervision of an ACFRD ALS certified EMT to complete their ALS release requirements. The Precept program was expanded on September 18, 2006 from one to two daytime Firefighter/ALS for CARS and now covers the Monday – Friday period 12-hours per day.

3. FIRE AND RESCUE DEPARTMENT EXPENDITURES

This section of the report discusses the financing of fire, rescue and ambulance operations in the City and the County.

(1) Albemarle County Fire and Rescue Department (ACFRD)

The proposed ACFRD operating budget for FY06 - 07 is slightly over $6.8 million dollars. This amounts to approximately $75 per capita. The following table provides information about the ACFRD's operating budget during the most recent fiscal years.

ACFRD FY07 Operating Budget

Line Item/ Fiscal Year	FY04-05 (Actual)	FY05-06 (Actual)	FY06-07 (Budget)
Fire Rescue	$2,772,486	$4,120,836	$5,374,178
Volunteer Fire	$784,247	$865,431	$1,012,531
Volunteer Rescue	$216,122	$393,459	$478,971
Total	**$3,772,855**	**$5,379,726**	**$6,865,680**
% Change	----	43%	28%
Per Capita	$41.50	$59.17	$75.52

During the 3-year period the budget rose significantly because the Department increased payments to the volunteer agencies (8 fire and 3 rescue), entered into a preceptor/staffing agreement with CARS and began staffing an ambulance at a temporary station near the airport. Significant future cost increases will occur as the Department fully staffs the new #12 Hollymead station near the airport and plans for the construction and career staffing of stations in the Pantops and Ivy areas of the County.

The table, below, itemizes the major expense categories in ACFRDs FY 06 – 07 budget.

ACFRD Operating Budget Detail – FY 06 - 07

Program Item	Amount	% of Total
System Operations	$1,924,508	28%
#11 - Monticello	$1,198,723	17%
Volunteer Fire	$1,012,531	15%
# 12 - Hollymead	$887,369	13%
Volunteer Rescue	$478,971	7%
Prevention	$468,412	7%
Administration	$443,654	6%
Training	$326,210	5%
Recruitment	$125,302	2%
Total	$6,865,680	100%

- The three largest items, System Operations, # 11 Monticello and #12 Hollymead, account for 58% of the total operating budget. These line items contain funds for the deployment of staff and operating expenses to provide coverage at the following stations.

  – 24-hour coverage at the #11 Monticello station to staff a 3-person fire truck and a 1-person ALS vehicle.

  – 24-hour coverage at the temporary #12 Hollymead station to staff a 2-person ALS ambulance.

  – 12-hour, Monday - Friday coverage, at the CARS station for service delivery in the City and County and for ALS precepting purposes (3 FTE positions). These personnel are usually paired with CARS personnel to make two medic units.

  – 12-hour coverage Monday – Friday at the following fire and rescue stations.

    •• # 4 – Earlysville Fire
    •• # 6 – Stony Point Fire
    •• # 8 – Seminole Trail Fire
    •• # 7 – Scottsville Rescue

  – All of the career staffing noted above involves the deployment of cross-trained fire/EMS personnel such that on-duty personnel can provide either services as needed.

- The Prevention line item accounts for 7% of the budget. It is used to review development plans, perform fire inspections and conduct fire investigations.
- The Training line item accounts for 6% of the budget. It is used to provide fire and EMS training to both career and volunteer personnel.
- The Recruitment line item accounts for 2% of the budget. It is used to recruit and retain volunteers.

The table, below, lists payments to the various volunteer rescue companies allocated for the current fiscal year. These payments are designed to cover all basic operating expenses of each Department and to relieve the volunteers for having to rely on fund raising and donations to cover operating costs. These payments comprise 22% of the Department's FY 06 – 07 operating budget.

ACFRD Volunteer Operating Allocations for FY 06 – 07

Agency	Line Item	Subtotal	% of Total
Fire Departments		**$839,381**	**56%**
#2 - East Rivanna	$114,668		
#3 - North Garden	$76,043		
#4 - Earlysville	$113,708		
#5 - Crozet	$118,535		
#6 - Stony Point	$113,835		
#7 - Scottsville	$114,448		
#8 - Seminole	$188,144		
Rescue Departments		**$457,787**	**31%**
#1 – CARS*	$225,565		
#7 - Scottsville	$110,704		
#5 - Western Albemarle	$121,518		
Vehicle & Building Insurance		**$146,600**	**10%**
Other		**$55,100**	**4%**
Total		**$1,498,868**	**100%**

*The #1 – CARS funding is the County's share of CARS basic operating budget.

The Fire Rescue Department budget is supported from the County's General Fund and is based primarily on property tax assessments. The table, below,

summarizes the funds identified in the County's capital budget for the apparatus and construction projects.

ACFRDs Capital Budget, FY 06 – FY 10

Capital Budget	FY04	FY05	FY06
Total Budget	$344,874	$900,963	$1,574,507

The table, below, provides information about the ACFRDs FY07 Capital Improvement budget. All of these funds may not be expended in FY 06 – 07.

ACFRDs Capital Budget, FY 06 – FY 07

Capital Budget Item	Amount
Contingency Fund	$119,000
#12 - Hollymead Station	$6,021,000
#15 - Pantops Station	$1,722,000
#11 - Monticello Station	$1,010,000
Volunteer Fire Apparatus/Equipment	$2,907,256
Volunteer Ambulance Apparatus/Equipment	$1,401,000
Total	**$13,180,256**

The next section of the report discusses the financing of the Charlottesville Fire Department.

(2) Charlottesville Fire Department (CFD)

The CFD operating budget for FY06 - 07 is slightly over $7.7 million dollars. This amounts to approximately $176 per capita. The table on the following page provides information about the Department's operating budget during the most recent fiscal years.

CFD Operating Budget Trends – FY04 – FY06

Line item/ Fiscal Year	FY04-05 (Actual)	FY05-06 (Budget)	FY06-07 (Budget)
Fire Rescue	**$6,725,308**	**$7,038,989**	**$7,741,471**
% Change	----	5%	10%
Per Capita	$152.85	$159.98	$175.94

During the 3-year period the budget rose primarily because of cost of living raises. The larger increase in FY 06 – 07 occurred because of the transfer of $250,000 to the Debt Service Fund and an increase of $286,000 in the contribution to the Department's Retirement Fund.

The table, below, itemizes the major expense categories in CFDs FY 06 – 07 budget.

CFD Budget Detail – FY 06 - 07

Item	Amount	% of Total
Firefighting Operations	$6,712,407	**87%**
Administration	$618,238	**8%**
Prevention	$200,763	**3%**
Supplies/Uniforms/Training	$126,499	**2%**
Facility/Vehicle Maintenance	$69,264	**1%**
Volunteers	$14,300	**0.2%**
Total	**$7,741,471**	**100%**

The following points summarize the information in the table above.

- The largest item in the budget is allocated to emergency operations. This includes operation and daily staffing of the six fire trucks that respond from the Department's three fire stations to service calls. 92% of the personnel in the Department are assigned to this Division.

* The administrative budget includes the Office of the Fire Chief. It accounts for 8% of the budget.

- The Prevention Office accounts for 3% of the budget. One Battalion Chief is assigned to prevention.

* The Supplies/Uniforms/Training line item accounts for 2% of the budget. A civilian EMS trainer is assigned to training.

- The facility and vehicle maintenance budget account for 1% of the budget. The Department employees an apparatus mechanic.

- Volunteer expenditures account for 0.2% of the budget.

The Fire Department operating budget is supported primarily from the City's General Fund and is based primarily on property tax assessments. The City received $740,805 from the contracts described, below, with the University of Virginia and Albemarle County to support fire services:

- The University makes a voluntary annual payment to the City for fire services. The base amount for the 10-year agreement was set at $125,000 in 2001. In addition, the University pays the City $250 for each alarm to the University in excess of 1,000 alarms. The University paid the City $157,500 in FY 06. This amounted to 2% of the CFD budget. This agreement has a 3-year notification cancellation clause.

- The County entered into a 10-year contract with the City on May 2000 for the dispatch of apparatus to incidents in an automatic response district surrounding the City and to respond, on request, to other incidents throughout the County. The County paid the City $583,305 for this service in FY 2006. This amounted to 8% of the CFD budget. The City responded to 1,549 County calls in 2005.

The table, below, summarizes the funds identified in the City's capital budget for the renovation and or replacement of each of it fire stations.

CFDs Capital Budget, FY 06 – FY 10

Capital Budget	FY06	FY07	FY08	FY09	FY10	Total
HDQ Expansion	$250,000*	$400,000	$1,500,000			**$2,150,000**
Bypass Station			$600,000	$2,400,000		**$3,000,000**
Ivy/Fontaine Station			$600,000		$2,400,000	**$3,000,000**
Total	**$250,000**	**$400,000**	**$2,700,000**	**$2,400,000**	**$2,400,000**	**$8,150,000**

*Facility needs assessment and program plan.

The next section of the report discusses the finance of the Charlottesville Albemarle Rescue Squad.

(3) Charlottesville Albemarle Rescue Squad

The CARS operating budget for the two most recent fiscal years is displayed in the Exhibit below.

CARS Operating Budgets – FY06 and FY07

Budget Item	FY 06 Appropriation	FY 07 Adopted Budget
Administrative Expenses	$55,965	$129,642
Buildings/Grounds	$45,100	$53,100
Building Utilities	$41,700	$34,675
Communications	$36,200	$48,600
EMS Maintenance, supplies	$128,500	$164,100
Firefighting Maintenance, Supplies	$86,500	$140,700
Training	$30,520	$52,400
Uniforms	$17,750	$42,250
Vehicle Expenses	$132,500	$98,850
Total	**$574,735**	**$764,317**

The following points summarize the information in the table above.

- The FY07 CARS budget amounts to approximately $6.70 per citizen in its service area. CARS serves approximately 114,000 City and County residents
- The three largest items in the budget, EMS and fire maintenance and supplies and administrative expenses accounted for 57% of the FY 07 budget.
- The budget increased by 33% between FY06 and FY07. The increase is related primarily to:
  - A 131% increased administrative expenses.
  - A 63% increase in firefighting maintenance and supplies.
- Vehicle expenses decreased by 25% between FY06 and FY07.

CARS received a contribution of $225,565 from Albemarle County in FY 07 to cover its basic operating expenses for providing services to the County. In addition, the ACFRD details two ALS Firefighters to CARS on weekdays from 6 AM to 6 PM as part of its precepting agreement with CARS.

The next section of the report discusses the Departments stations and apparatus.

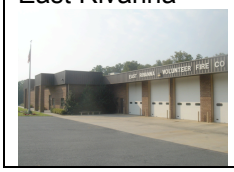
4. STATIONS AND EMERGENCY APPARATUS

This section of the report discusses the station and emergency apparatus operated by the various fire and rescues organizations.

(1) Albemarle County Fire Rescue Department

The ACFRD provides fire and EMS services from one County owned fire rescue station (#11 Monticello), three independently owned volunteer rescue stations and seven independently owned volunteer fire stations. The County will open another station, #12 Hollymead, in the fall of 2007. The exhibits, below, describe each of the stations and the apparatus in the County system.

#2 - East Rivanna Fire Department – Urban Development Area

Station	Owner	Bays	Bunk Room	Condition
East Rivanna 	Volunteer company	4 double deep drive through bays.	Functional bunk rooms.	Very good. Community hall can also be used as shelter.

Apparatus	Type	Year	Replacement	Make
Attack 22	Brush/Quick Attack	2002	2019	Freightliner
Brush 23	Brush Truck	1984	2001	GMC
Car 20	SUV (4WD)	2000		Ford
Car 21	Sedan	1992		Ford
Car 22	Sedan/Command	1998		Ford
Engine 21	Pumper	1995	2012	Freightliner
Engine 22	Pumper	1970	1987	American LaFrance
Engine 24	Pumper	2000	2017	Freightliner
Tanker 26	Tanker	1997	2014	Freightliner
Tanker 27	Tanker	1980	1997	Ford

#3 – North Garden Fire Department - Rural Area

Station	Owner	Bays	Bunk Room	Condition
North Garden	Volunteer	7 bays. Some bays can accommodate two vehicles	Limited bunk space	Very good. Adequate bays and storage are adequate. Plans to install an emergency generator.

Apparatus	Type	Year	Replacement	Make
Brush 31	Mini-Pumper/Brush Truck	1986	2003	Chevrolet
Brush 36	Mini-Pumper/Brush Truck	2002	2019	Ford
Car 30	Command/EMS Response	1997		GMC
Engine 32	Engine	1995	2012	Freightliner
Engine 34	Engine	1985	2002	Duplex
Tanker 39	Tanker	1989	2006	International
Utility 35	Utility Pickup	2005		GMC
Utility 38	Non-Transport Ambulance	1998		Chevrolet

#4 - Earlysville Fire Department - Rural Area

Station	Owner	Bays	Bunk Room	Condition
Earlysville 	Volunteer	4 double-deep	Functional bunk rooms	Very good.

Apparatus	Type	Year	Replace	Make
Brush 43	Brush	2003	2020	Ford
Brush 46	Brush	1987	2004	Ford
Car 40	EMS Response	2003		Ford
Car 42	Command/EMS	2004		Ford
Engine 41	Engine	1993	2010	HME/EEI
Engine 45	Engine	2000	2017	Pierce
Support 47	Support/Haz-Mat	1986		Chevrolet
Tanker 49	Tanker	1992	2009	Ford

#5 - Crozet Fire Department – Urban Development Area

Department	Year Owner	Bays	Bunk Room	Condition
Crozet 	1981 Volunteer	4 double deep drive through	limited functional bunk room	Old but well maintained.

Apparatus	Type	Year	Replacement	Make
Brush 53	Brush Truck	1997	2014	Ford
Brush 55	Brush Truck	1982	1999	Dodge
Car 50	Command Vehicle	1997		Ford
Car 51	Training/Errands	1997		Ford
Engine 52	Engine	2006	2023	Pierce
Engine 56	Engine	1995	2012	Pierce
Engine 58	Engine	2002	2019	Pierce
Tanker 57	Tanker	1986	2003	Mack
Utility 59	Utility	1979		Ford

#6 – Stony Point Fire Department - Rural Area

Station	Owner	Bays	Bunk Room	Condition
Stony Point	Volunteer	3 double deep drive through	Limited bunk space	Very good. Scheduled for roof, paving repairs and expansion

Apparatus	Type	Year	Replacement	Make
Brush 63	Brush Truck	1962		White
Brush 64	Brush Truck	2000	2017	Ford
Car 60	EMS Response	1996		Ford
Car 61	EMS Response	1997		Ford
Engine 61	Engine	1995	2012	Freightliner
Engine 62	Engine	1989	2006	Spartan
Tanker 69	Tanker	1999	2016	Freightliner
Utility 65	Utility Truck	1985		Chevrolet

#7 – Scottsville Fire Department - Rural Area

Station	Owner	Bays	Bunk Room	Condition
Scottsville 	Volunteer	7 single deep.	No functional bunk room space	Functional. Needs expansion for sleep-in duty crews and storage. County and Department are in discussion about renovating the bunk area and building a storage facility.

Apparatus	Type	Year	Replacement	Make
Brush 75	Brush Truck	1989	2006	Ford
Car 70	Car	1997		Ford
Engine 72	Engine	2004	2021	Pierce
Engine 73	Engine	1992	2009	Ferrara
Tanker 77	Tanker	2000	2017	Pierce
Tanker 79	Tanker	1993	2010	Ford
Utility 76	Command & EMS	1989		Chevy
Trailer	Hazmat Trailer	2005		United

#8- Seminole Fire Department – Urban Development Area

Station	Owner	Bays	Bunk Room	Condition
Seminole Trail 	Volunteer Property is adjacent to the CARS Berkmar Rescue Station	3 double deep	Functional bunk rooms	Very good. Bays are crowded with apparatus. Some vehicles need to be parked outside. Needs more bay, crew and storage space. The County plans to build a new station for fire and CARS on the current site.

Apparatus	Type	Year	Replacement	Make
Aerial Tower 18	Ladder Tower	1998	2015	Pierce
Car 80	Command	1993		Chevrolet
Car 81	Staff Car	1997		Ford
Car 89	EMS Response	1997		Chevrolet
Engine 82	Engine	1993	2010	Pierce
Engine 84	Engine	1989	2006	Pierce
Engine 85	Engine	2000	2017	Pierce
Salvage 87	Salvage/Air Unit	1985		Chevrolet
Utility 86	Utility/Brush	1995		GMC

#11 - Monticello Fire Station – Urban Development Area

Station	Owner	Bays	Bunk Room	Condition
Monticello 	County	2 double deep drive through	Functional bunk rooms	Very good.

Apparatus	Type	Year	Replace	Make
Aerial Truck 115	Engine/Aerial	1993	2010	Pierce
Car 112	Command/EMS	1998		Ford
Engine 111	Engine	2002	2019	Pierce
Rehab 10	Rehab Bus	1980s		GMC

#5 – Western Albemarle Rescue Department – Urban Development Area

Station	Owner	Bays	Bunk Room	Condition
West Albemarle 	Volunteer	**3** double deep, 2 single deep	Limited bunk space	Old. Needs renovation to update

Apparatus	Type	Year	Replace	Make
Ambulance 501	Ambulance	1996		Ford E-350 Dually
Ambulance 503	Ambulance	1999		Ford E-350
Ambulance 504	Ambulance	2002		Ford E-350 Dually
Car 506	Zone Car	1986		Chevrolet
Car 507	ALS Car	1999		Jeep
Gator 5	Special Use	2004		John Deere
Squad 505	Squad Truck	1993	2010	GMC - Top Kick
Trailer	Utility Trailer	1995		Interstate

#7 Scottsville Rescue Department – Rural Area

Station	Owner	Bays	Bunk Room	Condition
Scottsville 	1999 Volunteer	5 double deep drive through	8 bunks, 2 uni-bath/ showers Expandable to 12 bunks	Very good.

Apparatus	Type	Year	Replace	Make
Ambulance 703 Ambulance 705 Ambulance 706 Ambulance 707	Type II Ambulance Type III Ambulance Type II Ambulance Type III Ambulance	2001 19993/03 1995 1989		Ford E-350 Ford E-350 Ford E-350 Chevrolet
Boat	Boat			Sears Gamefisher
Car 700 Command 708	Response Car Command Vehicle	1995 2003		Ford Chevrolet
Squad 709	Heavy Rescue Truck	2004	2021	Perce
Utility 709	Utility Trailer	1974		IC20 Utility
Water Rescue 704	Water rescue Squad	1990		Chevrolet

The next section of the report discusses the stations and apparatus of the Charlottesville Fire Department.

(2) Charlottesville Fire Department

The CFD provides fire and EMS services from two permanent and one temporary station staffed by paid, career personnel. The two permanent stations were built about 1960 and the City has identified them as needing extensive renovations or replacement. The temporary station was constructed on University of Virginia property and the City has been discussing the replacement of that station at a different location on the west side of the City.

The Department's headquarters station is staffed with three pieces of apparatus, two engines and a ladder. A Battalion Chief and nine Fire Officers and Firefighters constitute the minimum daily staffing in this station. Station 1 operates two engines

with a minimum staff of six personnel. Station 10 operates a single engine company. Minimum staff for this station is three personnel. The following table lists each fire station, the year each station was built, the address, the type of apparatus housed at each location, and the minimum number of on-duty staff for each piece of apparatus.

CFD Deployment Plan

Station	Address	Staffed Apparatus	Description	Minimum On-Duty Staff
Headquarters Built – 1959 6 bays	Ridge Located in the center of the City	Battalion Chief Engine 5 (670) Engine 7 (676) Ladder 1 (685) Engine 1A (667) Engine 3 (671) Engine 4 (677) Ladder 2 (675)	SUV 1000 gpm pumper 1000 gpm pumper 100” Tractor 1000 gpm pumper 1000 gpm pumper 110” Tractor	1 3 3 3 Public Educ. Reserve Reserve Reserve
Station 1 Built – 1962 2 bays	250 Bypass Located in the north central section of the City	Engine 1 (672) Engine 2 (679)	1000 gpm pumper 1000 gpm pumper	3 3
Station 10 Built – 1992 Temporary 1 bay	Ivy Located on the west central side of the City in the County	Engine 6 (673)	1000 gpm pumper	3
Dispatch				2
Average permanent station age – 45 years		6 staffed apparatus 5 Engines 1 Ladder		Minimum shift staff of 19 will increase to 21 in December when dispatch is moved to the County.

The next section of the report discusses the stations and apparatus operated by the Charlottesville Albemarle Rescue Squad.

(3) Charlottesville Albemarle Rescue Squad

CARS provides service from two independently owned rescue stations. Station #1 is located at the intersection of the Route 250 By-pass and on the north central side of Charlottesville. Station #1 is the headquarters station and apparatus always are on duty in this station. Station #1 has 8 bays and sleeping quarters for 14 volunteers. Station #8 is located on Berkmar Drive in the County just north of the City and is staffed when sufficient personnel are on-duty.

The table, below, lists the apparatus and vehicles owned and operated by the Charlottesville Albemarle Rescue Squad

CARS Apparatus, Vehicles and Boats

Apparatus	Year and Make	Type of Vehicle
Ambulances		
140	2001 Ford/AEV	Type III ambulance
141	2005 Ford/AEV	Type I ambulance
142	2002 Ford/AEV	Type I ambulance
143	2002 Ford/AEV	Type I ambulance
144	2005 Ford/AEV	Type I ambulance
145	2002 Ford/AEV	Type I ambulance
146	2005 Ford/AEV	Type I ambulance
147	2006 Ford/AEV	Type I ambulance
Rescue Vehicles		
133	1986Mack/Saulsbury	Heavy Rescue
134	1996 Int./Pierce	Heavy Rescue
135	2002 Mack/Pierce	Heavy Rescue
136	2001 Ford/AEV	Scuba Rescue
137	1993 Int./Hackney	MCI Rescue
Boats		
BTT1	1999 EZ Loader	Boat Trailer
BTT2	1997 EZ Loader	Boat Trailer
Z-1	1998 Zodiac	Inflatable Boat
Z-2	1996 Zodiac	Inflatable Boat
B-1	1972 Boston Whaler	Boat

CARS Apparatus, Vehicles and Boats (Continued)

Apparatus	Vehicles and Boats	CARS Apparatus
Cars		
132	2002 Chevrolet	Impala
148	1996 Ford	Crown Victoria
149	1997 Ford	Crown Victoria
Sport Utility Vehicles		
130	1998 Chevrolet	Suburban
131	1998 Chevrolet	Tahoe
139	2004 Ford	Excursion
Utility Vehicles		
138	2001 Ford	Pick Up Truck
	2003 John Deere	Utility Vehicle
Trailers		
TR#1	1990 Wells Cargo	Collapse Trailer
TR#2	1995 Wells Cargo	Treatment Trailer
TR#3	2002 United Trailer	Special Event

The next section of the report discusses the regional training grounds.

(4) Regional Training Grounds

The Albemarle County Fire and Rescue Department and the Charlottesville Fire Department operate a regional training facility located on property owned by the regional jail. The Commonwealth of Virginia funded development of the facility. The facility includes:

- A 3-story burn building with a basement. Hay and pallets are used to create fire environments for training. The burn building will only support very limited ladder work.
- A water drafting pit and tank that can be used for training and pump testing.
- Hyrants from which pump operations training can be conducted.
- A 50' mobile maze training trailer.

The training site does not have a classroom. The props available for training and the amount of space available for evolutions are limited. The CFD has a training tower

at its headquarters station but it is not usable because of safety concerns and limited space constraints.

The fire Departments will lose access to training grounds in the next several years because of the planned expansion of the jail. As a consequence, the County has allocated $2.6 million for the development of a joint fire-police training facility and has invited the City to participate in that the project. The County has retained an architect to develop a facility plan and review site needs. The first phase of the project will be the development of a police firing range. Participation of Charlottesville in the project is contingent on the location of the facility. Charlottesville feels the facility needs to be located either in the City or in the urban ring surrounding the City.

The next section of the report discusses the fire and emergency medical workload of the Departments.

5. FIRE RESCUE DEPARTMENT WORKLOADS

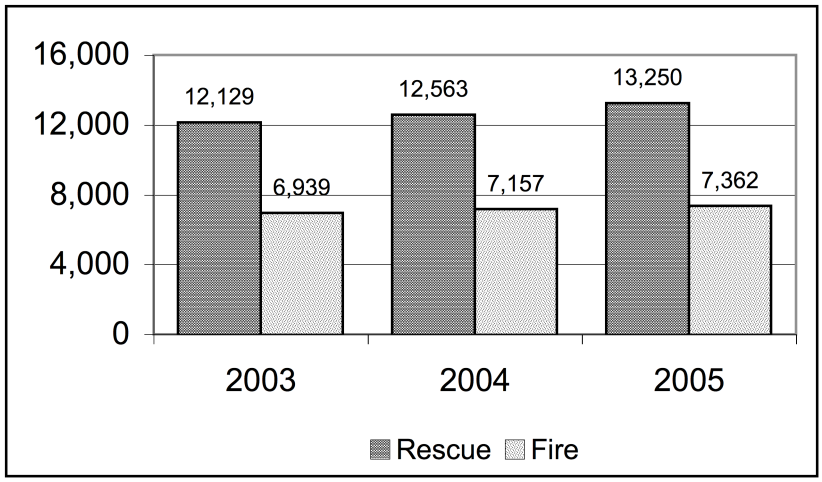
The number of calls to a fire or rescue Department is the most comprehensive measure of service needs in a community. A call is simply a citizen's request for service to which emergency apparatus are dispatched.

(1) Albemarle Fire and Rescue Department

The data in this section of the report are taken from reports produced by the County's Computer Aided Dispatch (CAD) system and the ACFRD's fire incident reporting system. The CAD data analyzed includes information about: (1) the number of emergency incidents as well as (2) the number and type of emergency vehicles dispatched to an incident.

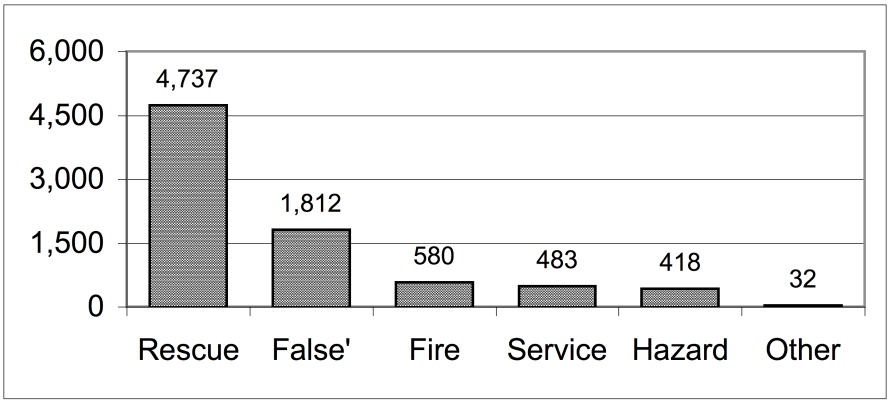
The following chart tracks emergency incidents responded to by the County's eight fire and three rescue Departments over the past several years. The 11 Departments recorded a total of 20,612 responses in 2005. The total number of responses increased by 8% during the 3-year period. 64% of the calls in 2005 included emergency medical calls. The ratio of fire to rescue or EMS responses is fairly typical. Rescue calls, in most jurisdictions, account for between 60% and 70% of the fire/EMS workload.

Emergency Fire and Rescue Calls in the County – 2003 - 2005



Fire Departments respond to many different kinds of emergencies and non-emergency service calls. Fire, motor vehicle accidents and EMS calls are examples of emergency services. Examples of non-emergency services provided by the Department include the prevention inspection and public education activities. The information in the following exhibit presents information about the types of emergencies the County Fire Departments responded to in FY06. The data is from the ACFRD's fire incident reporting system.

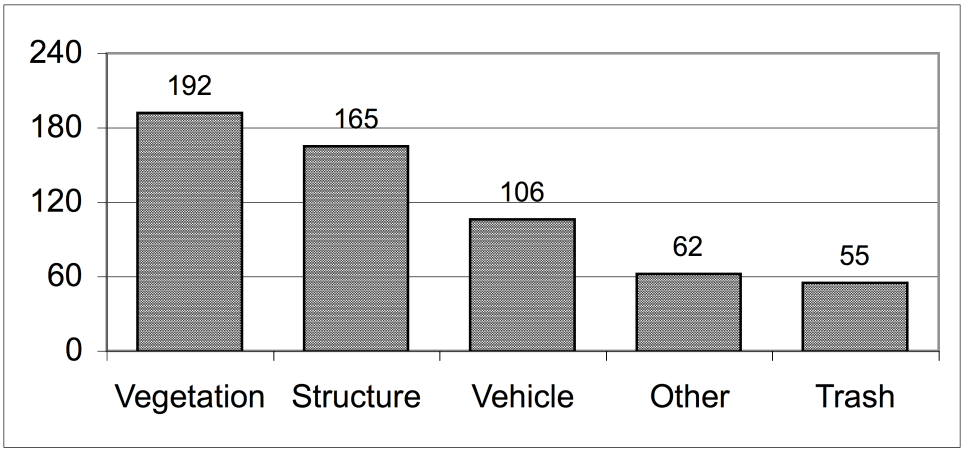
Types of Fire Emergency Calls in FY 06 in Albemarle County



The majority of the calls involved rescue or emergency medical incidents. 59% of the calls in FY06 were rescue calls. This is a typical distribution for Departments that provide fire and EMS care.

Fires represented 7% of the Departments' workload. Fires are a significant risk because of the life safety risk involved and, to a lesser extent, the loss of property value. The Departments responded to 580 fires in FY06. The following exhibit displays information about the types of fires that occurred during the year. The Departments responded to an average of 3.1 building or structure fires weekly in FY06.

Types of Fires in FY06 in Albemarle County



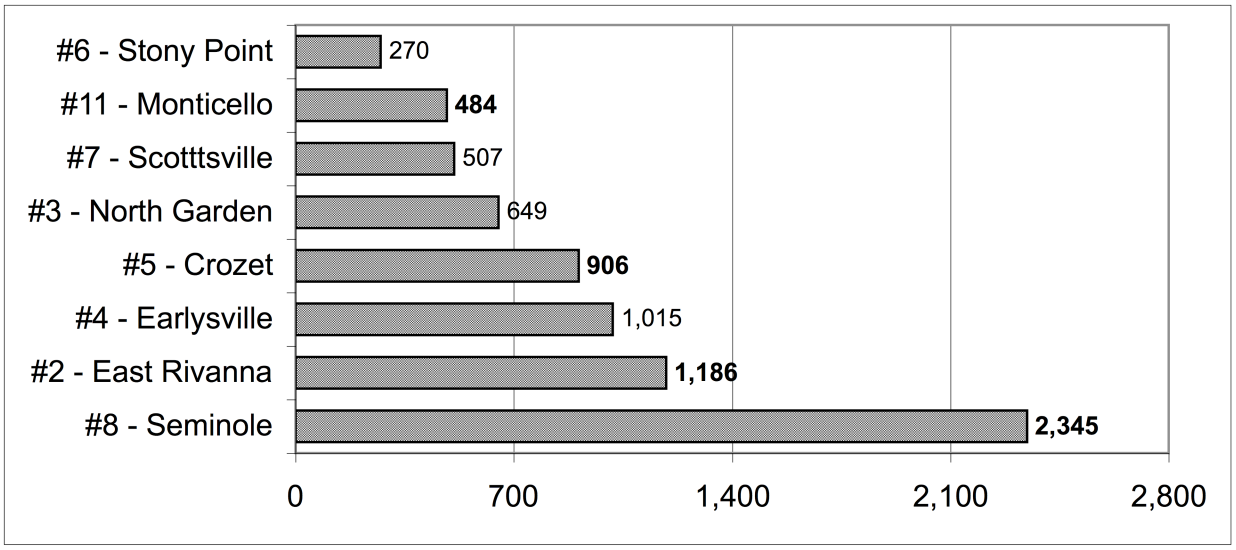
The fire Departments in Albemarle County recorded an average response time of approximately 9 minute in FY06 and a total fire dollar loss of $4 million.

The next section of the report provides additional information about the activities of the various fire Departments in the County.

(2) Albemarle Fire Districts

The chart below records the number of emergency calls that occurred in each of the County's eight fire districts in 2005. The districts with the number of calls in bold type on the graph (Monticello, Crozet, East Rivanna and Seminole) represent the County's designated "urban development areas."

County Emergency Calls by Fire District in 2005



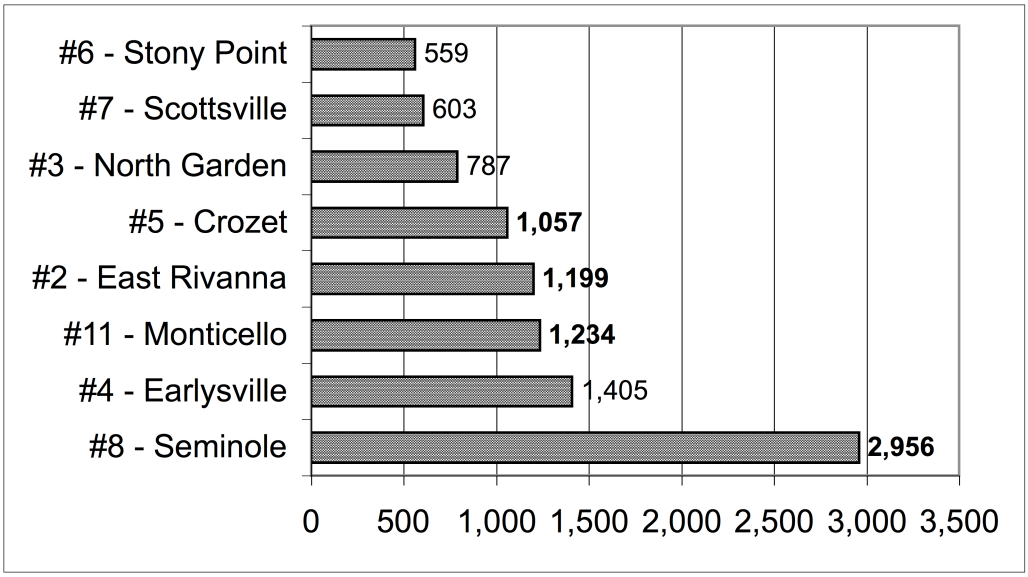
The following points summarize information about the number of calls in the fire districts.

- The number of service calls per fire district ranges form a high of 2,345 in #8 - Seminole to a low of 270 calls in #26 – Stony Point.
- The busiest district, #8 Seminole, is located in the Route 29 north corridor that runs from the City line to the northern border of the County. This district will be reconfigured when #12 - Hollymead is opened in mid-2007.

- The #2 East Rivanna, #5 Crozet, #8 Seminole and # 11 Monticello stations are located in the County's designated growth areas. #11 – Monticello is staffed around the clock with four career personnel. The Departments in the designated development areas accounted for 67% of the calls in 2005.

The number of runs made by a fire company (apparatus and its staff) is an indicator of the amount of workload generated by runs calls. The number of runs is larger than the number of emergency calls because multiple pieces of apparatus are sent to most calls. The volunteer stations are outfitted with several pieces of apparatus that usually includes engine pumpers, tankers, brush trucks and utility vehicles. The chart below indicates the number of pieces of apparatus dispatched in 2005 from the eight fire districts. The bold numbers indicate stations in the "development areas."

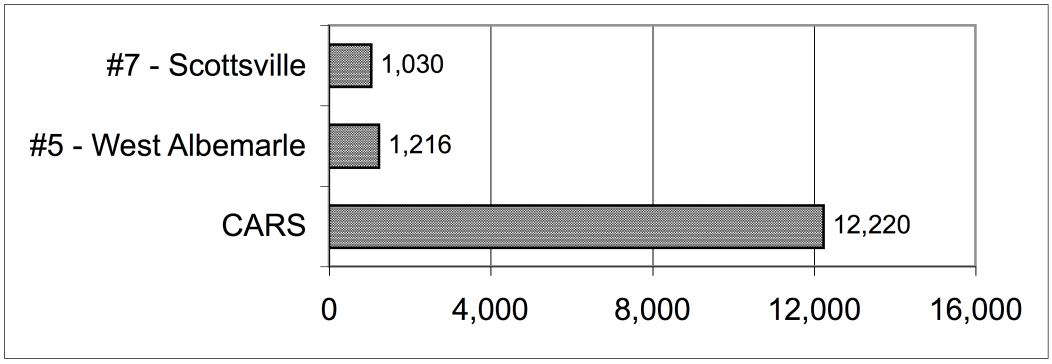
County Emergency Vehicles Dispatched by Fire District in 2005



(2) Albemarle Rescue Districts

The number of emergency medical calls recorded by each rescue company varies widely across the County Departments. The chart below displays information about the number of responses by the three rescue stations in 2005.

County Emergency Calls by Rescue Station in 2005



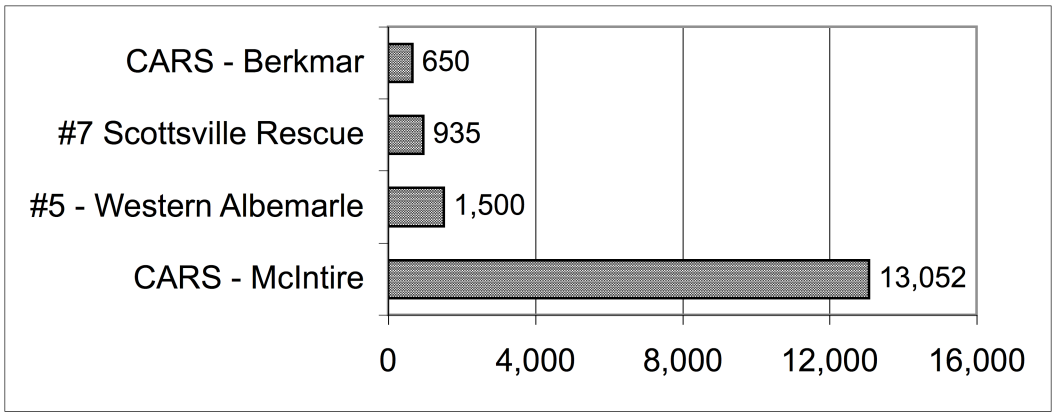
The following points summarize information about the number of calls by fire district.

- The number of service calls per rescue district ranges form a high of 12,200 in #1 - CARS to a low of 1,030 calls in #7 – Scottsville.

- The County has been assigning two EMS personnel to the CARS weekdays from 6 AM to 6 PM for precepting purposes and to enable the rescue provider to deploy an additional ambulance. In addition, the County has just begun staffing a 24-hour ambulance at a temporary station at the airport in order to better handle the number of rescue incidents that occur in the route 29 corridor north of the City. This unit will be assigned to the new #12 Hollymead station when it opens in mid-2007.

The number of emergency vehicles dispatched recorded by each rescue company varies widely across the County Departments. The chart below displays information about the number of responses by the four rescue stations in 2005.

County Emergency Calls by Rescue Station in 2005

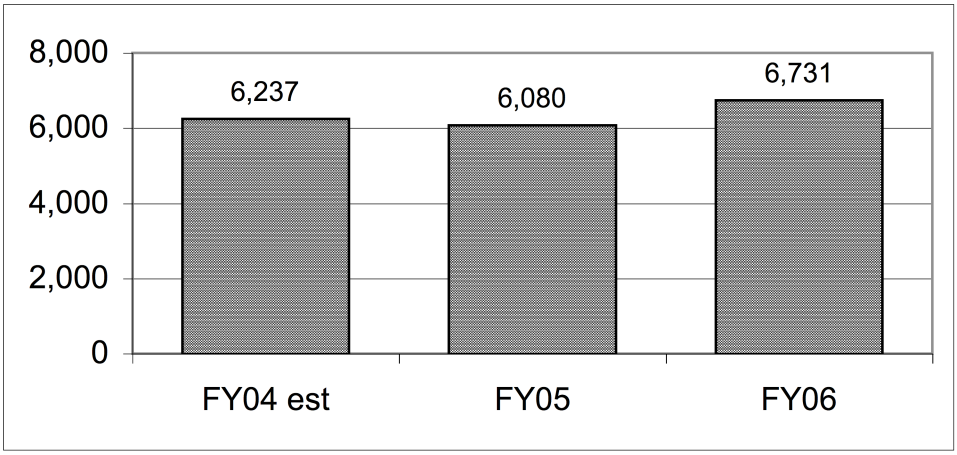


The next section of the report discusses the workload of the Charlottesville Fire Department.

(2) Charlottesville Fire Department

The following chart tracks emergency calls to the Department over the past several years. The number of calls increased slightly– up 8% between FY04 and FY06. The CFD responded to an average of 18 emergency calls per day in 2005.

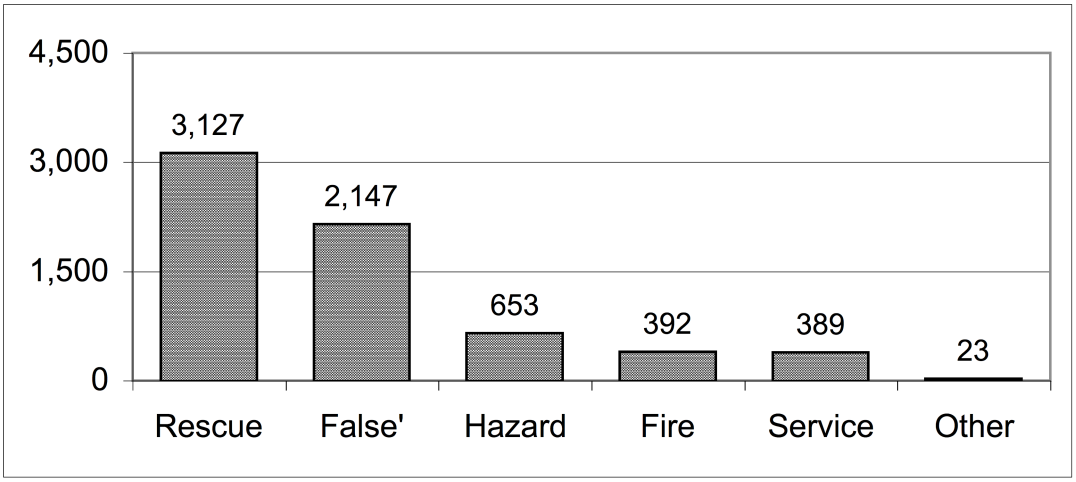
Charlottesville Emergency Calls, 2003 - 2005



Fire Departments respond to many different kinds of emergencies and non-emergency service calls. Fire, motor vehicle accidents and EMS calls are examples of

emergency services. Examples of non-emergency services provided by the Department include the prevention inspection and public education activities. The information in the following exhibit presents information about the types of emergencies the Department responded to in FY06.

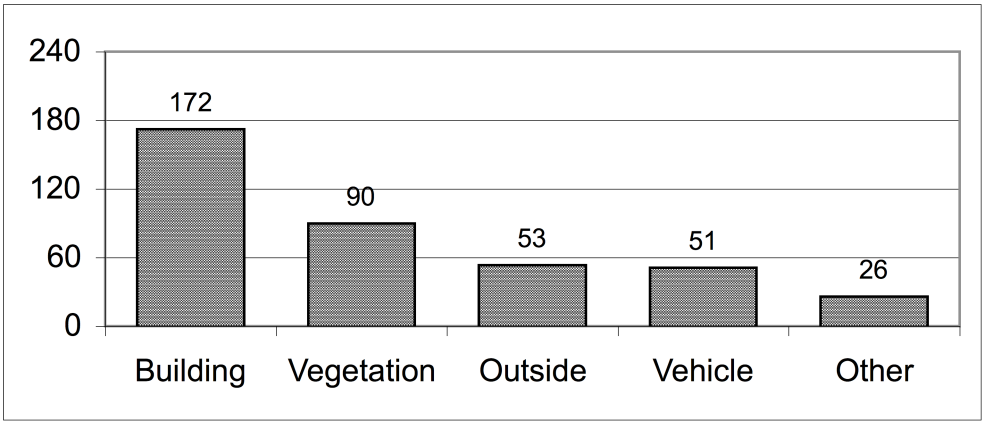
Types of Emergency Calls in FY06 in Charlottesville



Emergency medical incidents accounted for 46% of the calls. The CFD does not respond to every emergency medical call in the City. CARS handles some EMS calls without CFD assistance. For example, CARS responded to 5,196 calls in the City in 2005.

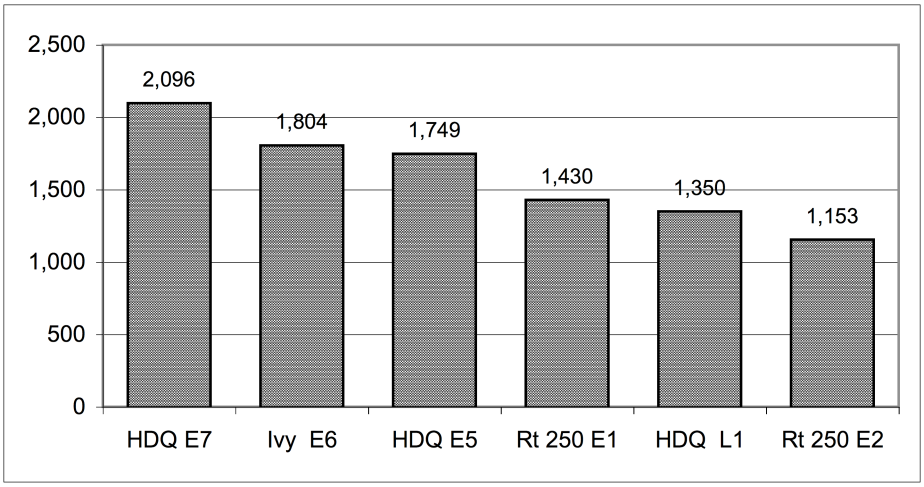
The second highest number of calls involved false calls. These accounted for 32% of the calls. Fires represented 6% of the Department's workload. Fires are a significant risk because of the life safety risk involved and, to a lesser extent, the loss of property value. The Department responded to 392 fires in FY06. The following exhibit displays information about the types of fires that occurred during the year. The Department responded to an average of 3.3 building or structure fires every weekly in FY06.

Types of Fires in 2005 in Charlottesville



The number of runs made by a fire company (apparatus and its staff) is an indicator of the amount of workload generated by service calls. The number of runs is larger than the number of emergency calls because multiple pieces of apparatus are sent to most calls. The fire service has not developed standards regarding the minimum or maximum number of runs that can be handled by a fire company. Fire professionals generally regard more than 3,000 runs annually as a cause for close monitoring of activity levels. The exhibit, below, displays the number of runs made by individual fire companies in Charlottesville during FY06.

Emergency Runs by Fire Companies in FY06 in Charlottesville



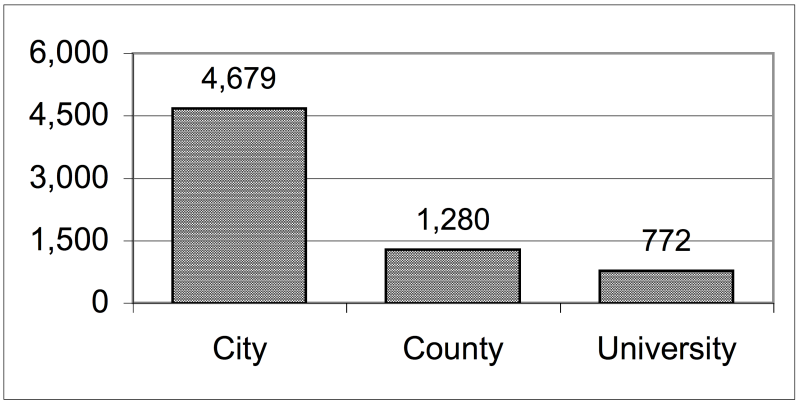
The following points summarize information about the number of calls by fire district.

- The Department has three fire districts with the following staffed apparatus resources.
  - **Headquarters** – The Department deploys two staff engines and a staffed ladder from this station.
  - **Route 250** – The Department deploys two staffed engines from this station.
  - **Ivy Road** – The Department deploys one staffed engine from this station
- The engines assigned to Headquarters are the busiest. Engine 7 averaged 5.7 calls per day while Engine 5 averaged 4.8 calls per day. Ladder 1 averages 3.7 calls per day.
- The engines assigned to Ivy Station 10 is the second busiest company. Engine 6 responded to an average of 4.9 calls per day in 2005.
- Engines 1 and 2, assigned to the route 250 by-pass station averaged 3.9 calls and 3.2 calls per day respectively.

The CFD not only has emergency response duties in the City but it also serves the University, most of which located in the County, and portions of the County surrounding the City. The Department sends a full complement of apparatus to calls at

the university and a single engine pumper to County calls. The following graph displays information about the number of calls the CFD responded at the University and in the County. 30% of CFD's calls were either in the County or at the University.

Location of CFD Calls in FY06



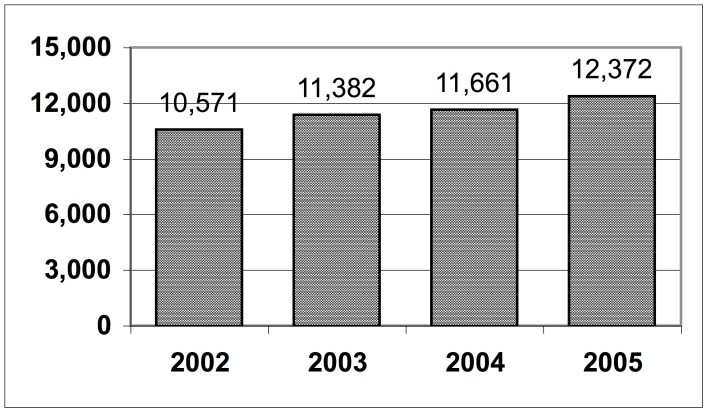
The City has not have a civilian fire related death during the past 5 years.

The next section of the report discusses the workload of the Charlottesville Albemarle Rescue Squad.

(3) Charlottesville Albemarle Rescue Squad

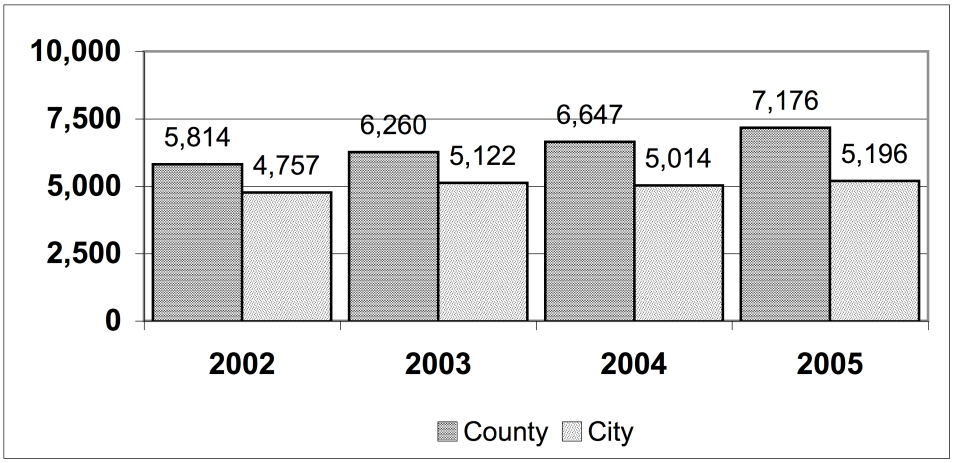
The table, on the next page, presents information about the total number of incidents CARS responded to during the past four years in both the City and the County. CARS responds to 12,372 incidents in 2005, an average of nearly 34 incidents daily. The number of incidents increased by 17% between 2004 and 2005.

CARS Incidents – 2002 - 2005



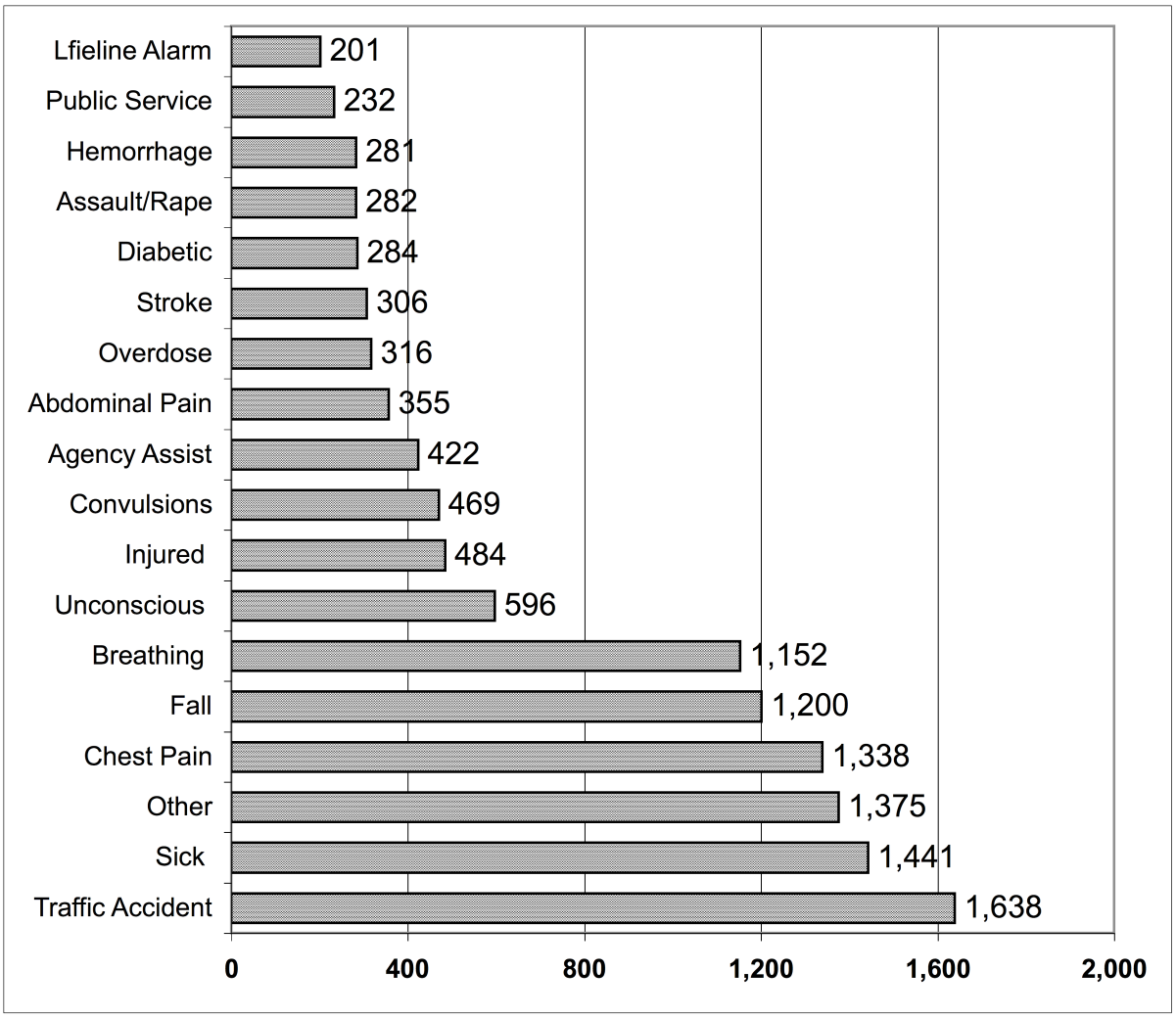
The chart below presents information about the location of CARS incidents for the past several years. 58% of CARS incidents occurred in the County in 2005 while 42% occurred in the City compared to a ratio of 55% in the County and 45% in the City in 2002. During the 4-year period the number of incidents in the County increased by 23% while the number of incidents in the City increased by 9%. The City has an EMS call rate of 130 calls per 1,000 population compared to a call rate of 67 calls per 1,000 population in the County.

CARS Incidents by Jurisdiction – 2002 – 2005



Rescue squads respond to many different kinds of emergencies ranging from heart attacks, strokes and motor vehicle accidents to working structure fire calls. The following exhibit presents information about the types of emergencies CARS responded to in 2005. Traffic accidents accounted for the largest number of calls. CARS responded to an average of 4.5 traffic accidents daily. Five types of calls (Traffic accidents, sick, chest pains, falls and breathing difficulty) accounted for 55% of the CARS workload

Types of Emergency Calls in FY06 in Charlottesville



CARS rescue vehicles are extremely busy. Assuming that each call represents a single unit response and the number of units on duty averages 3.5 per day, the units average 4,100 calls annually or slightly over 11 calls daily.

The next section of the report discusses wages and benefits among the Departments with career staff.

6. WAGES AND BENEFITS

The section of the report compares the wages and salaries, health and retirement benefits as well as leave allowances for vacation, holiday and sick time between the Albemarle County Fire Rescue Department and the Charlottesville Fire Department.

(1) Salaries and Wages

The wages paid by the ACFRD and the CFD are listed on the following page. The following points describe the similarities and differences between the two Departments.

- The Chief's positions are similar in the two Departments. Both are responsible for the entire operation of their respective Departments. Whereas the Charlottesville Chief has a larger compliment of career personnel the County Chief has a much larger contingent of volunteer Departments and personnel. The wage scale for the City Chief is higher than that of the County Chief.

- The Deputy Chief's positions are similar in both Departments. The Deputies have a range of administrative duties and are responsible for emergency operations. The Deputy Chief position in Albemarle County is compensated at a higher level than the counterpart in Charlottesville.

- Day-to-day management of operations falls to one Assistant Chief in Albemarle County and to six Battalion Chiefs in Charlottesville. The wage scale for Battalion Chiefs in Charlottesville is slightly higher than the Assistance Chiefs position in Albemarle County. The wage scale for the Battalion Chief's position in Charlottesville is considerably higher than for the Battalion Chief's position in Albemarle County.

- Captains in both Departments are responsible for emergency operations. Captains, except for a few specialized positions in the ACFRD (Training,

Recruitment), command a piece of emergency apparatus. The Captain position in Charlottesville is compensated at a higher level than the counterpart in Albemarle County.

- The ACFRD has a range of fire prevention positions (Assistant Chief, Investigator, Inspector, Plan Reviewer) not found in the CFD. The CFD has a single person, a Battalion Chief, assigned to fire prevention activities and three inspectors assigned to fire companies who coordinate inspections by fire companies.

- The ACFRD has two levels of Firefighters based on the level of EMS certification held by the Firefighter. ALS Firefighters are paid more than BLS certified Firefighters in the ACFRD. Charlottesville has only one level of Firefighter and most of its personnel are BLS rather than ALS certified. The BLS Firefighters in the ACFRD are compensated at a higher level than Firefighters in Charlottesville.

The table on the following page compares wage and salaries scales in the ACFRD and the CFD. The following positions in the County and City are not eligible for overtime compensations:

- ACFRD – Chief, Deputy Chief, Assistant Chief.

- CFD – Chief, Deputy Chief, Battalion Chief.

Current Wage Scales – ACDRD and CFD

Position	Wage Ranges	Albemarle Fire Rescue	Charlottesville Fire	CFD Premium/Lag	Dollar Difference
Chief	Minimum	$76,141	$71,323	-6%	-$4,818
	Midpoint	$98,983	$103,272	4%	$4,289
	Maximum	$121,825	$135,200	11%	$13,375
Deputy Chief	Minimum	$61,648	$54,350	-12%	-$7,298
	Midpoint	$80,143	$73,590	-8%	-$6,553
	Maximum	$98,638	$92,830	-6%	-$5,808
Assistant Chief	Minimum	$49,916	NA		
Operations	Midpoint	$64,890	NA		
	Maximum	$79,865	NA		
Battalion Chief	Minimum	$43,362	$46,941	+8%	+$3,579
	Midpoint	$56,371	$64,646	+15%	+$6,275
	Maximum	$69,380	$82,322	+19%	+$12,942
EMS Supervisor	Minimum	$43,362	NA		
	Midpoint	$56,371	NA		
	Maximum	$69,380	NA		
Captain	Minimum	$37,669	$35,846	-5%	-$1,823
	Midpoint	$48,969	$50,552	3%	$1,583
	Maximum	$60,269	$65,228	8%	$4,959
Fire Prevention	Minimum	$32,723	NA		
Inspector	Midpoint	$42,540	NA		
	Maximum	$52,358	NA		
Fire Prevention	Minimum	$35,110	NA		
Investigator	Midpoint	$45,642	NA		
	Maximum	$56,174	NA		
Firefighter	Minimum*	$35,110	NA		
ALS	Midpoint	$45,642	NA		
	Maximum	$56,174	NA		
Firefighter	Minimum	$32,732	$27,547**	-16%	-$5,185
BLS	Midpoint	$42,540	$39,399	-7%	-$3,141
	Maximum	$52,358	$51,251	-2%	-$1,107
Firefighter – Career Development	Specialist		5% over base,	NA	
	Senior		10% over vase	NA	
	Master		15% over base	NA	

*Pay for Firefighter/ALS in the County is $36,500 (0 years experience with Firefighter and ALS certification) which is an artificial minimum of a pay grade 13.
••The staring pay for Firefighters in Charlottesville is currently $34,537.

The next section of the report discusses medical benefits.

(2) Medical and Dental and Life Insurance Benefits

Both Departments provide medical and dental benefits to their employees on a co-pay basis. The table, below, lists the bi-weekly contributions employees make to participate with their families in various coverage options. In general, employee contributions are lower in the City than they are in the County.

Employee Medical Contributions

Medical Coverage	Albemarle Employee	Charlottesville Employee	Charlottesville Premium/Lag
High Option			
Employee	$37	$24	-34%
Employee + Minor	$79	$111	40%
Employee + Spouse	$257	$171	-34%
Family	$344	$220	-36%
Medical Coverage	**Albemarle Employee**	**Charlottesville Employee**	**Charlottesville Premium/Lag**
Middle Option			
Employee	$27	$9	-68%
Employee + Minor	$58	$88	52%
Employee + Spouse	$187	$144	-23%
Family	$249	$189	-24%
Low Option			
Employee	$9	$0	-100%
Employee + Minor	$37	$31	-16%
Employee + Spouse	$118	$75	-37%
Family	$161	$111	-31%

The table on the next page lists the bi-weekly contributions employees make to participate with their families in various dental coverage options. Employee contributions are considerably lower in the City than they are in the County.

Employee Dental Contributions

Dental Coverage	Albemarle Employee	Charlottesville Employee	Charlottesville Premium/Lag
High Option			
Employee	$13.59	$0.00	-100%
Employee + Minor	$32.04	$5.69	-82%
Employee + Spouse	$32.04	$7.24	-77%
Family	$37.01	$14.35	-61%
Basic Option			
Employee	$2.85	Not Available	
Employee + Minor	$13.00	Not Available	
Employee + Spouse	$13.00	Not Available	
Family	$37.01	Not Available	

The next section of the repot discusses retirement benefits.

(3) Retirement Benefits

Fire Rescue Department employees in Albemarle County participate in the Virginia Retirement System's (VRS) defined benefit program. The benefit is based on 1.7% of an employees three consecutive highest years of pay times the number of years of service. Public Safety employees currently receive a maximum of $892/month ($10,704 annually) between when they retire and their normal retirement age.

Fire Department employees in Charlottesville participate in the City's retirement system. Employees are not required to make any contributions to the plan. The City will transfer $286,000 from the Fire Department budget in FY07 to the retirement plan. The City offers two plans:

- **Defined Benefit Plan** – The benefit is based on 1.6% of an employees three highest years times the number of years of service. Public Safety employees receive a 1% supplement based on their average final compensations times their years of service if they retire before age 65. The supplement is paid until age 67.

* **Defined Contribution Plan** – The City contributes 8% of employees' base wage.

Both Departments provide retiree health benefits as follows:

- Charlottesville – Basic City match until age 65.
- Albemarle – Basic County match for five years after retirement until age 65.

The next section of the report discusses holiday leave.

(4) Holiday Leave

Fire Rescue Department employees in Albemarle County receive 11 to 13 holidays annually. The number of hours earned varies by employee type as follows:

- 40-hour employees - 8 hours per holiday. 88 to 104 hours
- 48-hour employees - 9.6 hours per holiday. 106 to 125 hours
- 56-hour employees - 11.2 hours per holiday. 123 to 146 hours

Fire Department employees in Charlottesville receive the following holidays.

- 40-hour employees - 11, 8-hour holidays. 88 hours
- 56-hour employees - 11, 24-hour holidays. 264 hours

The next section of the report discusses sick leave.

(5) Sick Leave

Fire Rescue Department employees in Albemarle County earn one day of sick leave per month. The number of hours earned varies by employee type as follows:

- 40-hour employees – 8 hours per month
- 48-hour employees – 9.6 hours per month
- 56-hour employees – 11.2 hours per month

Fire Department employees in Charlottesville earn one day of sick leave per month. The number of hours earned varies by employee type as follows:

- 40-hour employees – 9 hours per month
- 56-hour employees – 10 hours per month

The next section of the profile discusses annual leave.

(5) Annual Leave

The two following tables provide information the annual leave benefits offered by the two Departments for both 40-hour and 56-hour employees.

Annual Leave for 40-hour employees

Year of Service	ACFRD 40-hour	CFD 40-hour	CFD Premium/Lag
1	96	80	-16%
2	96	80	-16%
3	96	100	4%
4	96	100	4%
5	96	120	25%
6	120	120	0%
7	120	120	0%
8	120	120	0%
9	120	120	0%
10	120	140	17%
11	144	140	-2%
12	144	140	-2%
13	144	140	-2%
14	144	140	-2%
15	144	160	11%
16	168	160	-5%
17	168	160	-5%
18	168	160	-5%
19	168	160	-5%
20	168	180	7%
21	192	180	-6%
22	192	180	-6%
23	192	180	-6%
24	192	180	-6%
25	192	180	-6%
26	216	200	-7%

Annual Leave for 56-hour employees

Year of Service	ACFRD – 56-Hour	CFD 56-Hour	CFD Premium/Lag
1	134	112	-16%
2	134	112	-16%
3	134	140	4%
4	134	140	4%
5	134	168	25%
6	168	168	0%
7	168	168	0%
8	168	168	0%
9	168	168	0%
10	168	196	17%
11	202	196	-3%
12	202	196	-3%
13	202	196	-3%
14	202	196	-3%
15	202	224	11%
16	235	224	-5%
17	235	224	-5%
18	235	224	-5%
19	235	224	-5%
20	235	252	7%
21	269	252	-6%
22	269	252	-6%
23	269	252	-6%
24	269	252	-6%
25	302	280	-7%

APPENDIX 2
SAMPLE LIST OF FIRE AND EMERGENCY MEDICAL POLICIES

- Management and Administration

  - General Administration
    - Organizations
    - Facilities
    - Emergency Vehicles and Special Apparatus
    - Equipment and Supplies
    - Finance
    - Training, Education and Exercises
    - Information Management

  - Member Health and Assistance Programs
    - Medical Screening / Health Assessment
    - Health and Wellness Promotion
    - Performance Evaluation Process
    - Post-Injury Rehabilitation
    - Employee Assistance
    - Facility Safety
    - Hazard Communication

  - Organizational Planning and Preparedness
    - Strategic / Master Plan
    - SOP Development
    - Risk Management
    - Emergency Operations Planning
    - Mutual / Automatic Aid

- Prevention and Special Programs
  - Public Information and Education
    - Working with the Public
    - Working with the Media
    - Emergency Public Information
    - Public Education
    - Public Relations

  - Building Inspections and Code Enforcement
    - Authorities and Codes
    - Design and Plans Review
    - Residential Inspections

- Commercial Inspections
- Industrial Inspections
- Code Enforcement
- Record Keeping

- Special Programs
  - Fire Cause and Arson Investigation
  - Hydrant Maintenance
  - Other Special Programs

- General Emergency Operations
  - Operating Emergency Vehicles
    - Driving Emergency Vehicles
    - Riding Emergency Vehicles
    - Operating Special Apparatus
    - Vehicle Accident Reporting and Investigation
    - Use of Personal Vehicles

  - Safety at Emergency Incidents
    - Applicable Standards
    - Risk Management Guidelines
    - Safety Officer
    - Protective Clothing and Equipment
    - Personnel Accountability System
    - Responder Exposure Control
    - Hearing Conservation
    - Operating in a Hostile Environment
    - Operating on Roadways
    - Incident Scene Rehabilitation
    - Medical Support
    - Incident Termination

  - Communications
    - System Access
    - Definition of Alarms / Dispatch Protocols
    - General Procedures
    - Emergency Signals
    - Alternate Radio Frequencies
    - Mobile Data Terminals
    - Departmental Cell Phones and Pagers
    - Mutual Aid Companies
    - Situation / Status Reports
    - Use of Personal Cell Phones and Pagers

  - Command and Control
    - Incident Command / Incident Management System

- Mutual / Automatic Aid
- Incident Scene Management
- Staging
- Transferring Command
- Public Information
- Record Keeping

- Special Operations
  - Aircraft Operations
  - Boat and Watercraft Operations
  - Special Unit Operations
  - Bomb / Hazardous Device Threats or Confirmed Incidents
  - Terrorism Incidents
  - Civil Disturbances

- Post-Incident Operations
  - Post-Incident Analysis
  - Post-Incident Recovery
  - Incident Record Keeping and Reporting
  - Injury / Exposure Reporting and Investigations
  - Critical Incident Stress Debriefing / Defusing

• Fire Suppression
  - Fire Suppression Risk Management
    - Required Use of Personal Protective Equipment
    - Rapid Intervention Team
    - Evacuation (Firefighters)
    - Air Monitoring

  - Company Operations
    - Incident Staffing
    - Water Supply
    - Tanker / Tender Operations
    - First-In Engine Operations
    - Second-In Engine Operations
    - Truck Company Operations
    - Rescue / Squad Company Operations
    - Special Units

  - Tactical / Strategic Guidelines
    - Incident Size-Up
    - Automatic Alarms
    - Offensive and Defensive Operations
    - Apparatus Placement
    - Forcible Entry / Gaining Access
    - Foam Operations

- •• Ventilations
- •• Hot / Cold Weather Conditions
- •• Sprinkler / Standpipe Operations
- •• Apartment / Condominium Operations
- •• Commercial Building Operations
- •• Salvage
- •• Overhaul
- •• Exposures

- Special Facilities / Target Hazards
  - •• High Rise Operations
  - •• Clandestine Drug Labs
  - •• Correction Facility Operations
  - •• Industrial Facilities
  - •• Other Special Structures

- Special Fire Suppression Operations
  - •• Aircraft Firefighting Operations
  - •• Special Unit Operations
  - •• Wildfire Operations

• Emergency Medical Response
  - Emergency Medical Response Risk Management
    - •• Incident Infection Control
    - •• Protective Clothing and Equipment
    - •• Lifting / Moving Patients
    - •• Hostile Situations

  - Pre-Hospital EMS First Response
    - •• Delivery Model
    - •• Patient Care
    - •• Treatment Protocols
    - •• Medical Devices and Equipment
    - •• Biohazard and General Waste Disposal
    - •• Clothing / Equipment Decontamination

  - Patient Disposition and Transportation
    - •• Destination Guidelines
    - •• Method / Mode of Transport
    - •• Ambulance Operations
    - •• Helicopter Operations

  - Management of EMS Operations
    - •• Re-Supply / Procurement of Supplies
    - •• System Inventory
    - •• Designation of Treatment Facilities

- •• Data Collection and Reporting
- •• Quality Improvement System
- •• Research and Reporting
- •• Standard of Care
- •• Patient Care Reporting
- •• Patient Documentation and Billing

- Special EMS Operations
  - •• Mass Gatherings
  - •• Hazardous Materials Team Medical Monitoring
  - •• EMS Operations at Hazmat Incidents
  - •• EMS Operations at Technical Rescue Incidents
  - •• EMS Operations During Disasters
  - •• EMS Operations in the Rehabilitation Area / Sector

- Hazardous Materials Response
  - Hazardous Materials Response Risk Management
    - •• Personal Protective Equipment
    - •• Hazardous Materials Personal Safety
    - •• Air Monitoring
  - First Responder Operations
    - •• Roles and Actions
    - •• General Response Procedures / Emergency Response Plan
    - •• Recognition and Identification
    - •• Notification
    - •• Site Management and Scene Setup
    - •• Emergency Decontamination
    - •• Defensive Actions
  - Special Hazmat Operations
    - •• Operating with Hazmat Teams
    - •• Public Protection Options
    - •• Environmental Restoration

- Technical Rescue
  - Technical Rescue Risk Management
    - •• Personal Protective Equipment
    - •• Lock Out / Tag Out
    - •• Air Monitoring
  - Rescue Operations
    - •• Scene Stabilization
    - •• Rescue Equipment
    - •• General Rescue Operations
    - •• Rescue Teams

- Special Rescue Operations
  - Ice Rescue
  - Water Rescue
  - Confined Space Rescue
  - Structural Collapse Rescue
  - Rope Rescue
  - Trench and Excavation Collapse
  - Aircraft Extrication

- Disaster Operations
  - Organizing for Disaster Situation
    - Disaster Management
    - EOC Organization
    - ICS / EOC Interface (NIMS)
    - Activation Levels
    - Personnel Assignments and Responsibilities
    - Personnel Notification Procedures / Call In Procedures
    - Disaster Training
    - Disaster Preparation
  - Disaster Operations Risk Management
    - Personal Protective Equipment
    - Disaster Operations Personal Safety
    - Protection of Facilities and Equipment
    - Accountability of Personnel
    - Suspending Operations
    - Member Injuries and Fatalities
  - Disaster Operations
    - Disaster Operations Center
    - Adjusted Levels of Response
    - Disaster Communications
    - Response Unit Routing and Placement
    - Damage Assessment
    - Specialized Equipment
    - Building Safety Evaluations
    - Community Emergency Response Teams
    - Mitigation Activities
    - Curtailing Disaster Operations

APPENDIX 3

ALBEMARLE COUNTY FIRE AND RESCUE DEPARTMENT
BEST MANAGEMENT PRACTICES ASSESSMENT
STRENGTHS AND WEAKNESSES

Performance Target	Strengths	Potential Improvements
ORGANIZATION AND MANAGEMENT		
The Department has a defined chain of command with clear lines of authority. The organization chart is available to all members of the Department.	Yes. See Organizational Chart (online)	Although there is an organizational chart for ACFRD, roles and responsibilities between ACFRD staff and volunteers are not clearly defined. Further clarification is needed.
The Department has a written vision and mission statement. The statement is available to all members of the Department.	Yes. See Organizational Direction (online)	
The management team holds regular meetings with written agendas and minutes.	Yes. Staff meetings are conducted every Monday and Strategic Planning meetings every quarter. Volunteer Advisory Board meetings are held every month.	
Battalion Chiefs hold regular meetings with agendas and minutes to review goals, make assignments and record accomplishments.	Yes. Career Battalion Chief/EMS Supervisors meet to the Assistant Chief of Operations a weekly basis.	Consider developing a program to regularly meet with volunteer Chiefs to review goals, make assignments and record accomplishments.
The Department is Accredited or is seeking Accreditation.	ACFRD is not actively seeking accreditation at this time.	Consider developing a plan to seek accreditation.

Performance Target	Strengths	Potential Improvements
The Department has written policies and procedures that are reviewed and updated regularly.	Yes. See Standard Operating Guidelines/Standard Administrative Guidelines (online)	Countywide standard operational guidelines for emergency incidents are not utilized by all County Departments. Additional operational guidelines need to be developed and a method/process for ensuring that policies and guidelines are being followed by volunteer and career staff.
Staff inspections are conducted based on need and a defined schedule that ensures all components are inspected annually.	Yes.	
ANALYSIS AND PLANNING		
The Department has a planning and analysis function.	Yes. Senior staff (Chief, Deputy Chief, and Division heads) and rotated operational staff meeting every quarter to review/revise the Strategic plan (online via intranet).	Consider conducting an annual meeting with the ACFRAB to solicit input on the strategic plan.
The Department produces an annual improvement and associated project plan.	Yes. Senior staff (Chief, Deputy Chief, and Division heads) and rotated operational staff meeting every quarter to review/revise the Strategic plan (online via intranet). A component to the Strategic Plan includes projects/tasks for improvement.	Consider conducting an annual meeting with the ACFRAB to solicit input on the strategic plan.
The Department maintains a web site to distribute information to its members and to the general public.	Yes. ACFireRescue.org. Policies, training schedules, strategy documents, and ACFRAB agendas are included on ACFRD's site. In addition, ACFRD maintains an extensive intranet site (Team Services) for career staff.	
The Department has a computer aided dispatch (CAD) system that supports Fire and EMS operations.	Yes for Fire – CAD implemented 100% Partially for EMS – in process of implementing 100% CAD.	Continue with the integration EMS dispatch in the CAD system.

Performance Target	Strengths	Potential Improvements
The Department has an automated records management system (RMS) that supports fire suppression, emergency medical and fire prevention reporting requirements.	Yes. ACFRD uses FireRMS by BioKey.	Consider implementing a consolidated, system wide EMS records management system for all stations.
The Department routinely monitors and analyzes CAD and RMS data to ensure that the data is accurate.	Yes. On 1/1/2007, ACFRD and ECC have instituted a QA/QI process to ensure basic response data is accurate.	Consider developing a QA/QI process to ensure that all fire and EMS RMS data is accurate.
The Department routinely analyzes and monitors emergency vehicle reflex and travel times to identify problems.	Yes. Routine analysis conduced by Assistant Chief of Operations and annually by Strategic Planning group.	Consider developing a process for monthly or quarterly review of emergency vehicle reflex and travel times with the ACFRAB and/or each volunteer Chief.
PERSONNEL MANAGEMENT		
The Department has a personnel manager.	Yes. Human Resource services are provided by County Human Resource Department.	Consider extending, on a phase in approach, human resource services to the volunteer Departments.
The Department has a written personnel manual.	Yes for career employees. The County of Albemarle Personnel Policy is published online.	Consider developing County-wide personnel policies for the selection and management of volunteer personnel.
The Department has an automated personnel management system.	Yes. Payroll and staffing. Payroll is address through the County's mainframe system (soon to be replaced by an updated PC based system). Staffing is handled by Telestaff.	
The Department conducts annual evaluations of all personnel.	Yes. The County has an annual and bi-annual employee evaluation process. Forms and instructions are online (via intranet)	Consider developing an annual performance evaluation program for volunteer personnel.

Performance Target	Strengths	Potential Improvements
The Department has an active volunteer recruitment program.	Yes. On-going recruitment/retention program assigned to a full time Captain (Captain Nauman). See Volunteer Recruitment section of ACFRD's website for more information.	
The Department's hiring process is compliant with state and federal guidelines.	Yes. Hiring policies/procedures are outlined in the County's Local Government Personnel Policies (online) and Supervisors HR Manual - Local Government (online via intranet).	Consider developing County-wide personnel policies for the selection of volunteer personnel.
The Department has a health and safety program for its employees	Yes for career staff. A full health (annual and semi-annual physicals, Employee Assistance, Workman's Compensation) and wellness/ fitness programs are provided. See ACFRD website for more information. Exercise facilities available to career and volunteer personnel.	Consider extending the health and safety program to the volunteers.
STATIONS, APPARATUS AND EQUIPMENT		
The Department has a written long range plan for the replacement and repair of its facilities.	Yes for County owned facilities. Replacement and repair of volunteer owned buildings are the responsibility of the volunteer agencies.	Consider developing a long rang plan for the replacement and repair of volunteer owned facilities.
The Department's facilities meet all local, state and federal health and safety standards.	Yes for all County owned facilities.	Consider developing a plan for volunteer owned facilities to meet local, state and federal health and safety standards.
The Department's facilities are inspected annually to ensure that they meet all building maintenance, health and safety standards.	Yes for all County owned facilities.	Consider developing a program to ensure that volunteer owned facilities are inspected annually to ensure that they meet all building maintenance, health and safety standards.
All facilities are equipped with automatic sprinkler and fire/smoke detection systems.	New facilities (2003 and newer) – Yes Older facilities – No	

Performance Target	Strengths	Potential Improvements
All facilities housing vehicles are equipped with automatic exhaust ejection systems.	Yes for all County owned facilities and Crozet Volunteer Fire Department.	Consider developing a plan to outfit all stations with automatic exhaust ejection systems.
Stations that have volunteers provide bunk space to accommodate volunteer duty crews.	All stations have bunk space, but some are limited.	Considered conducting a needs analysis for all stations to determine building needs to accommodate volunteer bunk space.
The Department has a written long-range fleet replacement plan that specifies the life cycle for apparatus (i.e., Engines, Ladders, Rescues, Ambulances).	Yes. ACFRD has an Apparatus Replacement policy and Fleet size policy. Replacement plan for apparatus is outlined in the County's Capital Improvement Plan (online).	
The Department has an automated fleet management system to monitor equipment utilization and repair histories, labor distribution, downtime and costs.		Consider consolidating all vehicle maintenance (contract or in-house) and track all maintenance from a single automated system.
The Department's apparatus repair facility has the proper equipment to handle large and specialized apparatus.	Limited. Preventive maintenance conducted by County bus shop. Other maintenance contracted out.	Consider consolidating all vehicle maintenance (contract or in-house) and track all maintenance from a single automated system.
The Department's emergency vehicle mechanics are emergency vehicle technician EVT) certified.	Yes. Contractors used for non-preventive maintenance repairs are EVT certified.	
The Department conducts annual pump and ladder tests and all of the in-service apparatus is certified.	Yes for County owned apparatus. Not sure for volunteer apparatus although County provides funding for volunteer stations for testing.	Consider consolidating all pump and ladder testing for all equipment (volunteer owned, volunteer/County owned, and County owned) under a single testing contract.
The Department has an automated system to monitor its turnout gear and SCBA's	Yes. Annual turnout gear testing conducted by a trained staff of volunteer and career personnel. Career staffed stations have systems in place for annual SCBA testing. County provides funding for volunteer stations to test SCBA's, but not sure if systems are in place to ensure testing is conducted.	Consider consolidating all SCBA testing under a single testing contract.

Performance Target	Strengths	Potential Improvements
FIRE PREVENTION		
The jurisdiction has adopted a certified fire code.	Yes. The County has adopted the Statewide Fire Prevention Code.	
The jurisdiction has ordinances requiring built-in protection for high-risk occupancies.	N/A (Virginia is a mini-max state)	
The Department routinely seeks alarm and sprinkler upgrades when developers request zoning variances.	Yes. Modifications are handled jointly with Fire Rescue Plans Review staff and the County Building Official staff.	
The Department has certified fire investigators or works with certified fire investigators from the local law enforcement agency.	Yes. The ACFRD has certified fire investigators that are also law enforcement certified and lead criminal investigations.	
The Department works with the Building Department to conduct fire prevention component reviews of plan and permit applications.	Yes. Full time Plans Review position in the Fire Prevention Division.	
The Department has an automated fire plan review, inspection, permit and investigation system.	Yes. Currently, ACFRD uses a Microsoft Access based system, but the Department is in process of migrating over to the FireRMS system.	
The automated system is used to produce an annual fire prevention report.	Yes. Currently, ACFRD uses a Microsoft Access based system, but the Department is in process of migrating over to the FireRMS system.	
The automated system supports the creation and updating of pre-fire plans by suppression personnel.	Yes once migration to FireRMS is completed.	

Performance Target	Strengths	Potential Improvements
Fire prevention identifies high-risk facilities and supports suppression personnel in conducting in-service inspections and pre-fire plans.	Yes, although limited	Develop and formalize a program.
The automated system supports in-service inspections by suppression personnel.	No	Develop and formalize a program.
The Department has established in-service inspection and pre-fire plan goals each of its suppression companies.	No official engine company inspection program.	Consider developing an in-service inspection program and pre-fire plan goals for all stations.
The Department has a public education program to improve fire safety knowledge and awareness.	Yes. The Fire Prevention Division conducts public education programs on occasion and issues public safety announcements through various media venues.	Consider establishing a more formal public education function complete with program goals, objectives, and necessary financial and human resources.
EMERGENCY RESPONSE GOALS		
Stations are located to yield response time targets of four minutes for the first responding unit for emergency fire and medical calls with a fractile target of 90%.	ACFRD stations are located to support the response time standards as defined in the County's Comprehensive Plan.	Continue with station plans for Pantops and Ivy. Consider conducting a gap analysis for the rural areas and develop plans to address service deficiencies. Consider revision to comp plan response requirements to reflect target times w/ fractile measurement.
The Department has a 1-minute "Reflex" time goal. Reflex time is the time between the receipt of the dispatch and the time that the unit(s) is moving to respond or is en-route.	It is our practice, but is not a written policy.	Consider adopting a 1-minute "Reflex" time goal for all stations serving the urban areas.
The Department monitors reflex times for each fire and EMS company monthly.	Monthly reports are not generated on a monthly basis, but are generated on an as needed basis.	Consider developing a monthly report for senior staff and ACFRAB review.

Performance Target	Strengths	Potential Improvements
The Department is able to deliver a minimum of 14 personnel (three engines, a rescue and a truck) with a travel time for all responding units of 8-minutes on a 90% fractile basis.	No.	Consider adopting a standard for urban and rural areas.
Cross-jurisdictional automatic and mutual aid agreements are in place to ensure that sufficient resources are available to handle major incidents.	Yes. City contract for Fire Services and Mutual Aide agreements with surrounding localities are in place.	
Apparatus response areas are clearly defined to ensure that the closest unit will be dispatched to each call.	Yes for fire. No for EMS CAD recommendations are exclusive of staffing for both Fire and EMS	Consider improvements to CAD system to recognize/recommend closest appropriate staffed unit response.
Response protocols clearly define the types and number of responders dispatched to various types of calls.	Response protocols are based on apparatus with an assumption that volunteer staffed units are at least staffed with 3 qualified fire fighters. EMS response protocols dispatch EMS resources based on the EMD recommendation.	Consider developing a staffing standard for volunteer apparatus. Continue with integration of EMS in the Computer Aided Dispatch (CAD) system to ensure closest EMS resource is dispatched.
Response protocols (Number of apparatus and response speeds) are designed to minimize community risk by differentiating between emergency and non-emergency calls.	Emergency and non-emergency calls are not differentiated at this time.	Consider developing priority dispatch protocols for fire and EMS which include a non-emergency response.

Performance Target	Strengths	Potential Improvements
SUPPRESSION OPERATIONS		
Command staff and company officers are trained in an Incident Command System (ICS), National Incident Management System (NIMS) or comparable approach.	Yes for career staff. Varies for volunteer officers.	Consider developing a program to ensure compliance of training standards for all officers (volunteer and career personnel).
The Department conducts periodic training exercises that include ICS incident simulation.	Yes for career staff. Varies for volunteer officers.	Consider conducting periodic command staff training for volunteer and career staff.
The Department has a 3-person minimum staffing requirement for both engine and aerial operations. NFPA 1710 recommends engine and truck (ladder) company minimum staffing of four Firefighters arriving on one or more pieces of equipment operating together.	Yes for career staff. Some volunteer station staffing requirements vary considerably.	Consider developing a staffing standard for volunteer apparatus.
Suppression crews are actively involved in community smoke detector and CO detector awareness and inspection programs.	No. Smoke detector program is a passive program at this time.	Consider developing an active smoke detector and CO detector program that targets high risk citizenry.
Fire company in-service inspections are conducted to identify life-safety problems and fire hazards and to prepare pre-plans.	No. Some preplans are conducted in some stations in high risk occupancies.	Consider developing an in-service inspection program and pre-fire plan goals for all stations.
Officers and Firefighters conduct after action discussions and produce after action reports on all major emergencies	Based on an as needed basis. No policy or guideline exists for after action discussions.	Consider developing a guideline on when and how to conduct after action reports/reviews.
EMERGENCY MEDICAL SERVICES		

Performance Target	Strengths	Potential Improvements
The Department has a board certified emergency medical physician as its Medical Director.	Yes. Career staff - Dr. Sabina Braithwaite, Volunteer staff – Dr. George Lindbeck and/or Dr. Bill Brady	
The Medical Director prepares and periodically updates written medical protocols for the Department.	Yes. In addition, ACFRD uses the regionally approved TJEMS EMS protocol.	
The Department provides in-service EMS training programs for its members as specified by the Medical Director and by state directives.	Yes through ACFRD's Training Division. Volunteers receive in-service training through ACFRD's training division and TJEMS.	
The Department has an automated system to track the training and certification records of its EMS personnel.	Yes. ACFRD uses FireRMS for career staff. In process of capturing training data for volunteer personnel.	Continue with plans to capture all personnel training records in the FireRMS system including continuing education hours (Fire and EMS)
The Department expedites the delivery of cardiac response and advanced EMS care by deploying ALS personnel on engine companies.	Yes for career staffed engines and apparatus	Continue with the integration EMS dispatch in the CAD system and develop policy to send closest applicable EMS resource.
The Department monitors and analyzes response times for EMS calls as follows: (1) BLS (basic life support) response within 4-minutes for 90% of calls; and (2) ALS (advanced life support) response within 8-minutes for 90% of calls (as measured by travel time).	The County has adopted a 4 min average time for EMS and 5 min average time for Fire in development areas and 13 min average time for rural areas.	Consider revising comp plan standard to measure response times in fractile measurements with consideration for goals in both rural and urban areas.
The Department has an automated EMS incident reporting system.	Yes for career staffed units (EMS Charts). Volunteer stations use the Office of EMS sponsored PPDR program (MS Access program). The Department is currently working on a project to use one EMS reporting system	Implement a County wide EMS records management system.

Performance Target	Strengths	Potential Improvements
EMS providers have portable computers that enable them to complete reports on-scene and automatically upload reports to hospital and agency records systems.		Significant emphasis should be placed on implementing single point data entry with portable/mobile equipment (hand held electronic device with wireless connectivity)
The Department has a quality assurance and improvement program to provide timely feedback to employees and to identify protocol and training needs.	Yes for career staff. Volunteer EMS QA/QI is the responsibility of the volunteer agency.	Consider adopting a County-wide EMS QA/QI policy that is applied to volunteer and career staff.
The Department has established a goal of reviewing a percentage of its run reports and discussing the report with the responders.	Yes for County staff. Volunteer EMS QA/QI is the responsibility of the volunteer agency.	Consider adopting a County-wide EMS QA/QI policy that is applied to volunteer and career stations.
The EMS records management system facilitates the conduct of quality assurance reviews.	Yes for County staff. Volunteer EMS QA/QI is the responsibility of the volunteer agency.	
The automated EMS incident reporting system supports state reporting requirements and the production of an annual report.	Yes.	
The Department uses an Electronic Patient Record (ePCR) system to record patient data.	Yes	Implement a common County wide EMS records management system.
Emergency Medical Dispatch (EMD) procedures are used to drive response decisions for EMS calls for service (Emergency / non-emergency).	Yes.	Continue with the integration EMS dispatch in the CAD system. Consider developing priority dispatch protocols for fire and EMS which include a non-emergency response and develop policy to send closest applicable EMS unit.
Emergency Medical Dispatch (EMD) procedures are used to provide callers with pre-arrival care instructions.	Yes.	

Performance Target	Strengths	Potential Improvements
The Department supports citizen "self-help" programs by locating defibrillators in high-risk areas and by providing AED and CPR training.		Consider implementing a program in target areas of the County
TRAINING		
The Department has a training budget to provide both in-house and outside training for its fire and EMS personnel.	Yes	
The Department has full time training officers for both fire and EMS training	Yes.	
The training officer creates monthly and weekly training schedules for both fire and EMS instruction.	Yes.	
The fire and EMS training programs are designed to meet state re-certification requirements.	Fire - Virginia Department of Fire Programs does not have a re-certification program. EMS - Yes	
Career and volunteer personnel serving in the same stations are engaged in some joint training activities.	Yes, although not required.	Consider developing formal program to ensure joint training activates take place with specific objectives defined.
The Department has an automated system to track training attendance and certifications.	Yes. FireRMS	
Training instructors meet NFPA and EMS training certification requirements.	Yes.	
The Department has adopted NFPA Firefighter I, II and III requirements for Firefighters.	Yes.	

Performance Target	Strengths	Potential Improvements
The Department has adopted NFPA Fire Officer I, II and III training requirements for fire officers.	Yes. County Fire Rescue has created an Officer Development program that incorporates Officer I, II, and III. Officer I offered to volunteer officers, but not required at this time.	Consider developing training standards for all officers, adapt ODP for volunteer participation, and extend program to volunteers.
Fire training evolutions are based on NFPA 1410.	Yes	
Shift commanders conduct monthly multi-company drills on both the day and night shifts.	Yes, but primarily day-time drills.	Consider conducting bi-annual multi-company drills among volunteer, career, and City personnel/stations.
Company officers conduct training activities on both the day and the night shift.	Yes for career personnel.	Consider developing in-service training standards for volunteer personnel.
The Department closely monitors EMS recertification requirements.	Yes for career staff. Volunteer Chiefs monitor EMS recertification requirements for volunteer personnel.	Continue with plans to capture all personnel training records in the FireRMS system.
Officers and line personnel conduct after-action discussions and produce after-action reports on all major emergencies.	After action meetings are conducted, but reports are not generated after all meetings.	Consider developing a guideline on when and how to conduct after action reports. Implement a mechanism to ensure lessons learned and actions assigned as a result of the report are implemented and/or completed.

CHARLOTTESVILLE FIRE DEPARTMENT
BEST MANAGEMENT PRACTICES ASSESSMENT
STRENGTHS AND WEAKNESSES

Performance Target	Strengths	Potential Improvements
ORGANIZATION AND MANAGEMENT		
The Department has a defined chain of command with clear lines of authority. The organization chart is available to all members of the Department.	The Department has an organizational chart that illustrates the chain of command and lines of authority within the organization. The organizational chart is available to Department members and the public @www.cfdonline.org	
The Department has a written vision and mission statement. The statement is available to all members of the Department.	The Mission Statement is available to all members of the Department and the public @www.cfdonline.org. The Visions and Values statement is incorporated within the Department's Strategic Plan and is a component of the Firefighters' annual evaluation.	
The management team holds regular meetings with written agendas and minutes.	The management team, including Battalion Chiefs and all ranks above, the Fire Education/EMS Administrator, and a representative from the local 2363 meet periodically. The Fire Chief or Deputy Chief sets the agendas and the Battalion Chiefs communicate meeting information to Department members.	The addition of written agendas and minutes should aid the planning and review processes.
Battalion Chiefs hold regular meetings with agendas and minutes to review goals, make assignments and record accomplishments.	Battalion Chief meetings are held periodically with Agendas set by the Deputy Chief to review and set Department goals, policies, and objectives.	See above.
The Department is Accredited or is seeking Accreditation.	The Charlottesville Fire Department achieved International Fire Accreditation in 2001 by the Commission on Fire Accreditation International.	

Performance Target	Strengths	Potential Improvements
The Department has written policies and procedures that are reviewed and updated regularly.	The Department has written Standard Operating Procedures (SOP's) available to members and the public online.	A comprehensive and periodic review of SOP's may improve adherence to understanding of policies and procedures.
Staff inspections are conducted based on need and a defined schedule that ensures all components are inspected annually.		The Department does not currently conduct routine staff inspections.
ANALYSIS AND PLANNING		
The Department has a planning and analysis function.	The Department's planning and analysis functions center primarily on the annual budgetary process. This process mandates the analysis and prioritizing of Department plans, goals, and objectives.	
The Department produces an annual improvement and associated project plan.	At the beginning of each calendar year the Fire Chief communicates benchmarks and expectations for that calendar year. Plans, goals, projects, and objectives are itemized and communicated Department-wide.	
The Department maintains a web site to distribute information to its members and to the general public.	The Charlottesville Fire Department maintains a very active web site that serves as a source for information, education, and communication for its members as well as the general public. www.cfdonline.org	
The Department has a computer aided dispatch (CAD) system that supports Fire and EMS operations.	Printrak Computer Aided Dispatch (CAD) is provided for Department operations by the Emergency Communications Center which dispatches Fire, EMS, and Police for Charlottesville, Albemarle and UVA.	

Performance Target	Strengths	Potential Improvements
The Department has an automated records management system (RMS) that supports fire suppression, emergency medical and fire prevention reporting requirements.	The Department utilizes a Records Management System (RMS) that records and reports Fire, EMS, Prevention, and Training activities. All uniformed members have access to the system.	
The Department routinely monitors and analyzes CAD and RMS data to ensure that the data is accurate.	As the CAD system transfers data into the RMS system Shift Battalion Chiefs review RMS incident reports daily to ensure accuracy and system performance.	
The Department routinely analyzes and monitors emergency vehicle reflex and travel times to identify problems.	Vehicle reflex and travel times are reviewed and analyzed daily as a part of RMS incident reports checks to identify variances with the Department's 6 minutes/90% emergency response standard.	
PERSONNEL MANAGEMENT		
The Department has a personnel manager.	The City's Department of Human Resources, managed by the Director of Human Resources, recruits and refers job applicants, administers personnel regulations, handles employee payroll and worker's compensation, and coordinates the employee benefits package	
The Department has a written personnel manual.	The personnel policy for all City employees is written and available to all City personnel online on the City-wide intranet site listed under the Human Resources section.	
The Department has an automated personnel management system.	Personnel scheduling and staffing functions are aided by the automated TeleStaff personnel management system. Benefits administration and payroll processing functions are aided by the City's SAP system.	

Performance Target	Strengths	Potential Improvements
The Department conducts annual evaluations of all personnel.	All members of the Charlottesville Fire Department are evaluated a minimum of two (2) times yearly - once in May and once in November. Fire Battalion Chiefs, Deputy Fire Chief and Fire Chief shall be evaluated based on a written performance contract, with each contract tailored to include both Departmental and individual goals.	
The Department has an active volunteer recruitment program.	City code designates the Fire Department of the City of Charlottesville as a Department composed of paid full time employees and designates the Charlottesville Fire Company as a separate and distinct organization to be composed of volunteers. The Charlottesville Fire Company has an active and ongoing volunteer recruitment program.	
The Department's hiring process is compliant with state and federal guidelines.	The Department's hiring and recruitment process is compliant and consistent with all federal and state EEO statutes and guidelines. The physical capabilities test is job specific and Firefighter task oriented.	

Performance Target	Strengths	Potential Improvements
The Department has a health and safety program for its employees	Department personnel are provided with an 80/20 comprehensive Major Medical insurance plan that is paid in full by the City. Also available to employees is an online wellness service that includes an online health risk assessment, free online health improvement programs, health information, and more. Additionally, City employees are offered subsidized membership to local fitness clubs. The City has established an office of Risk Management to protect the employees and assets of the City of Charlottesville from loss and damage and provide effective, proactive risk management.	The Charlottesville Fire Department is seeking funds through the 2006 Assistance to Fire fighters Grant Program to implement a Firefighter wellness and fitness program for all career members of our Department. The proposed wellness and fitness program will be comprehensive in nature and provide for pre-employment physical exams, annual health screenings, job-related immunizations, annual fitness assessments, wellness education and counseling, and a formal exercise program. The program goals will be to increase Firefighters' wellness, their level of physical fitness, and to reduce the rate of Firefighter injury, disability, and premature death.
STATIONS, APPARATUS AND EQUIPMENT		
The Department has a written long range plan for the replacement and repair of its facilities.	Long range plans for Department facility replacement and repair are contained in the City's current Proposed Capital Improvement Program for FY 2008-2012.	Master FD facilities plan now underway. Addition to HQ New Fire Station to replace Station 10
The Department's facilities meet all local, state and federal health and safety standards.	Facility maintenance, inspection, and repair functions as well as water testing, filter replacement, and air quality sampling are handled by the City's building maintenance Department.	
The Department's facilities are inspected annually to ensure that they meet all building maintenance, health and safety standards.	See Above	
All facilities are equipped with automatic sprinkler and fire/smoke detection systems.	All facilities are equipped with fire/smoke detection systems.	

Performance Target	Strengths	Potential Improvements
All facilities housing vehicles are equipped with automatic exhaust ejection systems.	Two of the Department's three stations are equipped with the PlymoVent Vehicle Exhaust Extraction Systems. The station that is not equipped is a single-bay facility that is a detached structure from the Firefighters' living and sleeping quarters.	Plans to replace the temporary fire station that will include vehicle exhaust system.
Stations that have volunteers provide bunk space to accommodate volunteer duty crews.	When requested and space is available members of the Charlottesville Volunteer Fire Company are accommodated with bunk space at either the headquarters or the No. 1 stations.	New station(s) and/or additions will accommodate space for volunteer duty crews.
The Department has a written long-range fleet replacement plan that specifies the life cycle for apparatus (i.e., Engines, Ladders, Rescues, Ambulances).	Fleet replacement plans are written and presented in the budgetary planning program.	
The Department has an automated fleet management system to monitor equipment utilization and repair histories, labor distribution, downtime and costs.	The Department utilizes an automated data management tool that can be accessed from each station to record and track apparatus repairs. The entries are checked daily by the Department mechanic and repairs are made. If needed, an EVT certified mechanic or specialized facility is used for repairs. Six month and annual services are performed and documented on all equipment including light vehicles. Associated costs are recorded and tracked utilizing the City's SAP system.	
The Department's apparatus repair facility has the proper equipment to handle large and specialized apparatus.	The Department's maintenance facility is equipped to handle most of the small and routine apparatus maintenance and repair jobs. Maintenance or repairs that require specialized equipment, a larger facility, or specialized mechanics are contracted out to an EVT certified repair facility.	

Performance Target	Strengths	Potential Improvements
The Department's emergency vehicle mechanics are emergency vehicle technician EVT) certified.	The Department's emergency vehicle mechanic is trained to service and repair a variety of different apparatus equipment and systems. Large or specialized repair and maintenance items are contracted out to EVT certified repair shops.	
The Department conducts annual pump and ladder tests and all of the in-service apparatus is certified.	An "Annual Service Test" is performed on all Department apparatus pumps once each year and after any major repairs as mandated in Department SOP. All pump tests are performed in accordance to specifications and procedures set forth in the newly revised NFPA 1911. The Department has a contract with American Test Center (ATC) to provide our annual requirements include structural tests, dielectric tests, hydraulic test, functional test and safety tests.	
The Department has an automated system to monitor its turnout gear and SCBA's	Currently we are uploading SFPC and SCBA data into a barcode scanning system. Historically we have had a paper documentation process; this new scanning system is allowing us to move towards a digital inspection/inventory management system.	Ultimately we will have to see how useful the software reports generated by this system are, and how they will fit our needs. On the inspection end it will store the data, but as far as actively tracking ins and outs on the inventory side it may not produce the desired results – ultimately leading us to different software program.

Performance Target	Strengths	Potential Improvements
FIRE PREVENTION		
The jurisdiction has adopted a certified fire code.	Under Article III of City Code the City of Charlottesville has adopted the current Virginia Fire Prevention Code pursuant to Title 27 of the Virginia Code. The provisions of the code are based on a nationally recognized model code, the International Fire Code (IFC), published by the International Code Council, Inc. and fire protection and prevention standards published by the National Fire Protection Association.	
The jurisdiction has ordinances requiring built-in protection for high-risk occupancies.	The City has adopted by ordinance the Virginia Statewide building Code which mandates fire protection for various types of occupancies based on building square footage and building height.	
The Department routinely seeks alarm and sprinkler upgrades when developers request zoning variances.	Request first goes to Neighborhood Development Services office. Checked for zoning ordinance compliance. Then site plan submitted by developer which reviewed by several Departments including FM office and building official's office. Any "change in use" request in occupancy use requires a re-evaluation of an occupancy…building code sought to see what required for that type of occupancy. The Building Official, working in conjunction with FM office. Building official makes determines based on bldg code what types of fire protection systems are required for the building. Many City Departments. review and comment on the site plan for compliance.	

Performance Target	Strengths	Potential Improvements
The Department has certified fire investigators or works with certified fire investigators from the local law enforcement agency.	FM, two company captains, one Firefighter and works with City PD who has several certified fire investigators that work with FM office on fire scene investigations.	
The Department works with the Building Department to conduct fire prevention component reviews of plan and permit applications.	Site plan reviews	
The Department has an automated fire plan review, inspection, and permit and investigation system.	Investigation – component of Fire RMS Inspection – Station management data base Permit – automated permit system accessed by fire FM from his office. Fire Plan Review – part of construction drawings that are reviewed by the City building official's office.	
The automated system is used to produce an annual fire prevention report.		Not at this time.
The automated system supports the creation and updating of pre-fire plans by suppression personnel.		Not at this time.
Fire prevention identifies high-risk facilities and supports suppression personnel in conducting in-service inspections and pre-fire plans.	Develop list of from station management data base that identifies occupancy according to use.	
The automated system supports in-service inspections by suppression personnel.	List created using station management data base. The fire prevention module. That list is then distributed to shift company personnel for the in-service inspection program.	

Performance Target	Strengths	Potential Improvements
The Department has established in-service inspection and pre-fire plan goals each of its suppression companies.	Each suppression company has an established annual in-service inspection goal of 60. With 3 shifts and 5 suppression companies per shift the Department's annual fire safety business inspection goal is 900. Each Firefighter is asked to complete a minimum of (2) pre-fire drawing in the 12 month evaluation period.	
The Department has a public education program to improve fire safety knowledge and awareness.	The Department provides a number of programs and activities that help to educate and promote fire safety. These efforts can be grouped into two major areas; fire safety education directed toward school students (K-5) and fire safety education directed toward community and adult target groups. Programs in each of these areas are supported by Department personnel and coordinated by the office of Public Education. Efforts to educate and promote fire safety among K-5 students include a fire safety trailer, puppets, and fire station tours. Community and adult public education efforts center around business and home inspections, information made available to the community over the Department's web site, smoke detector installations, extinguisher and evacuation classes, participation in public events such as parades, school career fairs, local building and home improvement trade shows, and public service announcements through the local media.	
EMERGENCY RESPONSE GOALS		

Performance Target	Strengths	Potential Improvements
Stations are located to yield response time targets of four minutes for the first responding unit for emergency fire and medical calls with a fractile target of 90%.	The 2003 GIS Suppression Response Analysis study concluded that "Charlottesville Fire Department engine companies are currently able to provide fire suppression, disaster incident mitigation, and essential emergency medical services on 93.4% of all City roads within 4 minutes…"	
The Department has a 1-minute "Reflex" time goal. Reflex time is the time between the receipt of the dispatch and the time that the unit(s) is moving to respond or is en-route.	The Charlottesville Fire Department maintains a 1-minute "Reflex Time" standard for all Box and Still Alarms.	
The Department monitors reflex times for each fire and EMS company monthly.	Historically, response times that are reported from CAD to Fire RMS have been forwarded to the officer supervising the Department dispatch center for review. The supervisor would then periodically forward the report to the office of the Fire Chief.	
The Department is able to deliver a minimum of 14 personnel (three engines, a rescue and a truck) with a travel time for all responding uni`ts of 8-minutes on a 90% fractile basis	The Department's current response strategy is to respond all staffed fire apparatus (five engine companies and one ladder company) and a Chief officer on the first alarm assignment of a known structure fire insuring a minimum fire ground staffing of 19 personnel. According to the 2003 GIS Suppression Response Capabilities Analysis report engines deploying from all three stations (Headquarters, Station 1, and Station 10) are capable of assembling on 100% of all roads located within the City of Charlottesville in 8 minutes or less. The report also indicated that the ladder company is capable of responding to 100% of all Charlottesville roads in 8 minutes or less.	

Performance Target	Strengths	Potential Improvements
Cross-jurisdictional automatic and mutual aid agreements are in place to ensure that sufficient resources are available to handle major incidents.	Written agreements with Albemarle County and the Charlottesville Albemarle Airport are in place for automatic and mutual aid. Agreements with the University of Virginia for resources and with other surrounding jurisdictions help to ensure sufficient responses to handle major incidents.	
Apparatus response areas are clearly defined to ensure that the closest unit will be dispatched to each call.	The City is divided into five major response zones with an engine company assigned to each zone. Response zone assignment is based on the unit's ability to provide the fastest response time to that service area.	
Response protocols clearly define the types and number of responders dispatched to various types of calls.	Under written Standard Operating Procedures the Charlottesville Fire Department classifies and defines responses for Box Alarms, Reduced Box Alarms, Still Alarms, and Special or Non-Emergency Alarms.	
Response protocols (Number of apparatus and response speeds) are designed to minimize community risk by differentiating between emergency and non-emergency calls.	Department Standard Operating Procedure clearly defines and differentiates between varying levels of emergency calls and non-emergency calls. Policy pertaining to the number of apparatus and response speeds is addressed within the SOP.	
SUPPRESSION OPERATIONS		
Command staff and company officers are trained in an Incident Command System (ICS), National Incident Management System (NIMS) or comparable approach.	It is the policy of this Department that all members shall operate according to the National Incident Management System at all incidents. All suppression members have received instruction and are certified in ICS 100, ICS 200, and ICS 700.	

Performance Target	Strengths	Potential Improvements
The Department conducts periodic training exercises that include ICS incident simulation.	Annual City, County, and University disaster exercises that are planned and coordinated through the local office of Emergency Management include ICS incident simulation.	
The Department has a 3-person minimum staffing requirement for both engine and aerial operations. NFPA 1710 recommends engine and truck (ladder) company minimum staffing of` four Firefighters arriving on one or more pieces of equipment operating together.	Currently the Department has established that the total minimum level of on-duty staffing daily for the purpose of responding to alarms and carrying out other fire suppression, rescue, and EMS duties to be no less than 19. The minimum staffing requirement for both engine and aerial company operations is established to be no less that 3.	
Suppression crews are actively involved in community smoke detector and CO detector awareness and inspection programs.	The Department has an ongoing Free Smoke Detector Program for residents of the City of Charlottesville that is promoted through City and Department literature and web sites. The program's goals are to create awareness and reduce risks and includes providing free detectors that are installed free of charge by suppression personnel.	
The Department has developed a comprehensive risk assessment and inventory information system that quantifies fire risk or hazards for planning purposes.		The Department is currently reconstructing and completing a set of documents to include a Standard of Cover that will include a comprehensive risk assessment of each fire planning zone that will serve as a resource for training and planning.
Fire company in-service inspections are conducted to identify life-safety problems and fire hazards and to prepare pre-plans.	Fire suppression companies conduct in-service inspections to identify life-safety problems and fire hazards, to identify risks and prepare pre-plans, and to familiarize themselves with occupancies, structures, and accessibility.	

Performance Target	Strengths	Potential Improvements
Officers and Firefighters conduct after action discussions and produce after action reports on all major emergencies	Department SOP mandates that a formal post-incident critique shall be conducted for every major incident occurring within the Department's jurisdiction. Semi-formal and informal critiques shall be conducted by fire Department officers on an as needed basis, in an effort to provide training and overall improvement of fire Department operations.	
EMERGENCY MEDICAL SERVICES		
The Department has a board certified emergency medical physician as its Medical Director.	Dr. Lindbeck is a board certified and licensed emergency physician in the Commonwealth of Virginia and through the American College of Emergency Physicians. He is also, certified as an operating medical director through the Office of Emergency Medical Services-Virginia Department of Health	
The Medical Director prepares and periodically updates written medical protocols for the Department.	Protocols are periodically updated and reviewed by Dr. Lindbeck as well as the collaboration of the Thomas Jefferson EMS Council OMD Group.	
The Department provides in-service EMS training programs for its members as specified by the Medical Director and by state directives.	The Department has a comprehensive in-service EMS training program for both EMT and ALS providers monthly. Each shift receives 2.5 hours of continuing education monthly as well as ALS providers, Airway skills utilization monthly and mandatory skills twice a year. Paramedics in the Department have an 8 hours skills day with the OMD yearly as well. The Departments OMD prepares and delivers a training course/topic to each shift quarterly.	

Performance Target	Strengths	Potential Improvements
The Department has an automated system to track the training and certification records of its EMS personnel.	The Department utilizes station management to track training hours as well as the EMS Administrator tracks all personnel with an excel program, VA OEMS computerized CE program as well as documented attendance sheets.	
The Department expedites the delivery of cardiac response and advanced EMS care by deploying ALS personnel on engine companies.	The Department has a medic engine concept in place. The Department strives to have an ALS provider on every piece of apparatus. In addition, the Department has EMT's trained to deliver certain drugs and also trained to initiate advanced airway management.	The Department's future goals include having all apparatus staffed as medic units.
The Department monitors and analyzes response times for EMS calls as follows: (1) BLS (basic life support) response within 4-minutes for 90% of calls; and (2) ALS (advanced life support) response within 8-minutes for 90% of calls (as measured by travel time).	A quality assurance program is in place to monitor response times for EMS calls. The Department maintains a 6 minute or less response time on 90 % of all EMS calls.	
The Department has an automated EMS incident reporting system.	The Department has two systems currently for incident reporting. The Fire RMS and the VA OEMS PPDR system	One reporting system that will satisfy the VA OEMS.
EMS providers have portable computers that enable them to complete reports on-scene and automatically upload reports to hospital and agency records systems.	Not at this time	Not at this time
The Department has a quality assurance and improvement program to provide timely feedback to employees and to identify protocol and training needs.	The Department as a quality assurance and improvement program. The program is overseen by the EMS Administrator and the EMS Committee as well as the OMD.	

Performance Target	Strengths	Potential Improvements
The Department has established a goal of reviewing a percentage of its run reports and discussing the report with the responders.	The Department has monthly call review at both EMT and ALS level. This is done at the monthly CE/training classes.	
The EMS records management system facilitates the conduct of quality assurance reviews.	The Departments EMS Administrator and OMD set what parameters are reviewed for quality assurance.	
The automated EMS incident reporting system supports state reporting requirements and the production of an annual report.	The states PPDR program is the state reporting system. It does not produce an annual report	One system that captures and reports is needed.
The Department uses an Electronic Patient Record (ePCR) system to record patient data.		Not at this time. The procedure used is the PPDR reporting system after patient contact.
Emergency Medical Dispatch (EMD) procedures are used to drive response decisions for EMS calls for service (Emergency / non-emergency).	The EMD protocols are reviewed by the OMD and each stakeholder as well as the 9-1-1 director to facilitate changes as well as upgrades to responses as needed.	
Emergency Medical Dispatch (EMD) procedures are used to provide callers with pre-arrival care instructions.	Pre-arrival instructions are written in the dispatch protocols.	
The Department supports citizen “self-help” programs by locating defibrillators in high-risk areas and by providing AED and CPR training.	The Department does not currently provide AED and CPR training to citizens. The Department does however; assist Departments within City government and other outside programs with information and technical assistance as needed.	There are plans in place for “self-help” defibrillators to be placed in all City buildings.

Performance Target	Strengths	Potential Improvements
TRAINING		
The Department has a training budget to provide both in-house and outside training for its fire and EMS personnel.	The Department does have a budget both for in-house and outside training for fire and EMS. Those budgets are managed by the training and EMS administrator. They work collaboratively on training.	
The Department has full time training officers for both fire and EMS training	The Department training officer for fire is full time with the rank of Battalion Chief. The EMS administrator is full time and handles EMS training	
The training officer creates monthly and weekly training schedules for both fire and EMS instruction.	Both of the Department's training/ administrators handle the schedules and these schedules are logged in "Station Management" as well as posted for all personnel.	Currently working on placing training schedules in outlook.
The fire and EMS training programs are designed to meet state re-certification requirements.	The EMS training programs are set for continuing education which is the state's recertification program. Fire training is also done in modules for recertification	
Career and volunteer personnel serving in the same stations are engaged in some joint training activities.	The Charlottesville Fire Company (Charlottesville Volunteers) is a separate and distinct organization from the Charlottesville Fire Department and typically its members train separately. Occasionally some volunteers participate in routine training activities with career personnel and the volunteer company is issued invitation to participate in special disaster and preparedness events.	

Performance Target	Strengths	Potential Improvements
The Department has an automated system to track training attendance and certifications.	The Record Management System (RMS) utilized by the Department is used to record training activities and to record fire and EMS certifications.	
Training instructors meet NFPA and EMS training certification requirements.	The EMS Administrator is dual certified as an instructor in EMS (ALS & BLS levels) as well as in fire. The fire training officer meets NFPA training requirements also. All certifications for these individuals are found in their respected training files as well as on record with the VA OEMS and Virginia Department of Fire Programs. Both training individuals also attend the National Fire Academy regularly.	
The Department has adopted NFPA Firefighter I, II and III requirements for Firefighters.	The Department has adopted Firefighter I and II as minimum certification requirements for Firefighters.	
The Department has adopted NFPA Fire Officer I, II and III training requirements for fire officers.	The Department has adopted Fire Officer I as minimum certification requirements for fire officers.	
Fire training evolutions are based on NFPA 1410.	Department evolutions for engine and ladder companies are designed for training and evaluating Department personnel for initial fire ground suppression and rescue procedures during emergency operations. The Department has adopted a set of basic evolutions that incorporate the principles and methodology set forth in 1410.	

Performance Target	Strengths	Potential Improvements
Shift commanders conduct monthly multi-company drills on both the day and night shifts.	Shift commanders and company officers are responsible to see that each suppression company, on each shift, complete a minimum of (8) single-company, (4) multi-company, and (2) night evolution drills of 3 hours each, scheduled during each calendar year. Shift personnel work 24 hour shifts.	
Company officers conduct training activities on both the day and the night shift.	See above.	
The Department closely monitors EMS recertification requirements.	The Fire Education/EMS Administrator monitors recertification requirements for Department BLS and ALS personnel.	
Officers and line personnel conduct after-action discussions and produce after-action reports on all major emergencies.	Department SOP mandates that a formal post-incident critique shall be conducted for every major incident occurring within the Department's jurisdiction. Semi-formal and informal critiques shall be conducted by fire Department officers on an as needed basis, in an effort to provide training and overall improvement of fire Department operations.	

CHARLOTTESVILLE - ALBEMARLE RESCUE SQUAD
BEST MANAGEMENT PRACTICES ASSESSMENT
STRENGTHS AND WEAKNESSES

Performance Target	Strengths	Potential Improvements
ORGANIZATION AND MANAGEMENT		
The Squad has a defined chain of command with clear lines of authority. The organization chart is available to all members of the Squad.	Yes. Chain of Command set forth in SOG. Organizational Charts posted in building.	
The Squad has a written vision and mission statement. The statement is available to all members of the Squad.	CARS has a mission statement posted in the building in several places and printed in orientation material and member manuals. It is the original mission and could stand updating.	
The management team holds regular meetings with written agendas and minutes.	Yes.	
The Squad has written policies and procedures that are reviewed and updated regularly.	Yes. The SOG's are available on-line. They are being reviewed for updates now.	
The Squad participates in a regional governance body designed to coordinate operations with other providers in the service area.	Yes. CARS participates in the Albemarle County Fire Rescue Advisory Board (ACFRAB) that meets monthly. CARS also participates in the Thomas Jefferson EMS Council, which meets bi-monthly, but our participation has not been very active. There is new leadership at the Council and we hope to participate more	
The regional governance body meets regularly to study issues and resolve problems	See above	

Performance Target	Strengths	Potential Improvements
There is a written agreement between the Squad and its service delivery partners.	CARS has a mutual aid agreement as required by the Rules and Regulations of the Department of Health with all local transport and first responder agencies in Albemarle and Charlottesville except Albemarle County Fire Rescue Department. ACFRD has not received approval from the County Attorney to execute the agreement.	
ANALYSIS AND PLANNING		
The Squad has a planning and analysis function.	CARS participates in the system planning process through ACFRAB. The squad has no independent planning process except through the budget process. The budget is developed by the Board of Directors yearly based on the planned direction for the upcoming year.	
The Squad produces an annual improvement and associated project plan.	See above.	
The Squad maintains a web site to distribute information to its members and to the general public.	Yes.	
The Squad has a computer aided dispatch (CAD) system that supports operations.	CARS does not have access to the CAD system.	Fully integrate CARS into the CAD system.
The Squad has an automated records management system (RMS) that supports state and local reporting requirements.	CARS has a records management system with software designed by CARS members that exports required reporting elements to the Virginia Office of Emergency Medical Services. That is its specific purpose.	

Performance Target	Strengths	Potential Improvements
The Squad routinely monitors and analyzes CAD and RMS data to ensure that the data is accurate.	CARS does not have access to CAD data. There is no known way to address known errors in CAD data. The squad did develop RIDS, which receives some CAD data and that has some very limited search function. Because some call information is contained in the comments of the call history (including some indications of time corrections) and those comments are not available to us, we have no idea as to the accuracy of the information in the RIDS data.	Fully integrate CARS into the CAD system.
The Squad routinely analyzes and monitors emergency vehicle reflex and travel times to identify problems.	CARS does not have access to CAD data. Some CAD elements are exported to a squad-operated system, (RIDS) but the data does not always match CAD data for some reason. Even though there is a search function that will allow officers to search for extended response time calls, the information is not particularly reliable. For instance, a recent call was dispatched to the Red Roof Inn on West Main Street in Charlottesville. As the ambulance arrived there they were advised that the location was actually the Red Carpet in Albemarle. The RIDS screen showed the call location as Red Carpet Inn, but the response time included the original response to Red Roof Inn. At times the “on-scene” time is intentionally logged in error (if the unit fails to mark on-scene, or the dispatcher does not hear the unit mark on scene, the next time they hear from them they log them as on-scene, even though they may have been on-scene for some time. This is sometimes obvious when the “on-scene” time and “transporting” time are close together.).	Fully integrate CARS into the CAD system.

Performance Target	Strengths	Potential Improvements
STATIONS, APPARATUS AND EQUIPMENT		
The Squad has a written long range plan for the replacement and repair of its facilities.	CARS has obtained a systems evaluation for the McIntire Station and has participated in a joint feasibility study with Albemarle County and Seminole Trail Volunteer Fire Company regarding a joint replacement building for the Berkmar Drive buildings.	
The Squad facilities meet all local, state and federal health and safety standards.	To our knowledge.	
The Squad facilities are inspected annually to ensure that they meet all building maintenance, health and safety standards.		No.
All facilities are equipped with automatic sprinkler and fire/smoke detection systems.	Neither building is equipped with a sprinkler system, but both have local detection systems.	
All facilities housing vehicles are equipped with automatic exhaust ejection systems.		No. Install automatic smoke ejection systems.
Stations that have volunteers provide bunk space to accommodate volunteer duty crews.	Yes.	
The Squad has a written long-range fleet replacement plan that specifies the life cycle for apparatus.	Yes, as a part of the County fleet size and replacement plan, and internally within the squad (not all squad vehicles are covered by the County replacement plan).	

Performance Target	Strengths	Potential Improvements
The Squad has an automated fleet management system to monitor equipment utilization and repair histories, labor distribution, downtime and costs.	All maintenance records are computerized, but there is no "down-time" report routinely generated. CARS has an aggressive preventive maintenance program and contracts with its own mechanics for that purpose. All other work is warranty work performed by the chassis or ambulance dealer or through contracted services for the heavy squad vehicles.	
The Squad's emergency vehicle mechanics are emergency vehicle technician EVT) certified.		No.
EMERGENCY RESPONSE GOALS		
Stations are located to yield response time targets of four minutes for the first responding unit with a fractal target of 90%.	This is difficult to answer. CARS buildings were located without such considerations (one built 1963, one in 1980). The most recent County fire stations were located in consideration of fire and EMS goals. The location of all system stations should be considered when evaluating ability of first help to arrive.	Investigate the feasibility of locating CARS ambulances in City and County stations to improve response coverage and response times.

Performance Target	Strengths	Potential Improvements
The Squad has a 1-minute "Reflex" time goal. Reflex time is the time between the receipt of the dispatch and the time that the unit(s) is moving to respond or is en-route.	No. In fact the walk distance from the dorms and other parts of the building can be rather long which affects reflex time. Also, the time may begin as the 9-1-1 center begins to broadcast station tones to alert the squad of a call. By the time the various tones are sounded, and the voice dispatch is complete, some 20 – 30 seconds or more of the 1 minute may have elapsed until anybody knows who and what units should respond. CARS has repeatedly requested that an 'annunciator' system be installed so that we can monitor the call for service as it is taken by the call-taker. This would allow us to have a faster reflex time and a more accurate picture of the complaint. (Charlottesville Fire Department has had such a system for years. When the phone is answered speakers turn on throughout the building. Personnel can hear the caller and tell what the call is and tell if their engine will be responding. They can dress and board the engine and even leave the station as the call is being dispatched or even before in many cases. While CARS has identified some dispatch data systems that do similar things once data is entered into the CAD, NOTHING beats hearing the actual call for help. CFD may have lost this capability now that they are being dispatched from the 9-1-1 Center.)	Install an "annunciator" system in CARS facilities.
The Squad monitors reflex times for each EMS company monthly.	No. See CAD comments above. It is easy to improve reflex times. You just carry around a portable and mark responding as soon as the call is dispatched. Reflex time: 10 seconds. The whole response time period is a better indicator.	

Performance Target	Strengths	Potential Improvements
Cross-jurisdictional automatic and mutual aid agreements are in place to ensure that sufficient resources are available to handle major incidents.	Yes. CARS, ACFR and Western-Albemarle Rescue are the closest to each other geographically, and work together most frequently. Given the travel distances between Charlottesville, Crozet and the Hollymead station it is often faster to page for CARS personnel to respond or to request assistance from the University of Virginia Emergency Transport Team that to rely on WARS or Hollymead. Scottsville is further from Charlottesville but has and will respond to urban calls if requested.	
Apparatus response areas are clearly defined to ensure that the closest unit will be dispatched to each call.	The fire first response and EMS transport response areas are defined by closest agency. The units are not equipped with Automatic Vehicle Locater (AVL) technology. Our investigation of this technology indicates that the cost off adding this capability to CARS' 8 ambulances will cost approximately $100,000.00.	
Response protocols clearly define the types and number of responders dispatched to various types of calls.	Yes. The Emergency Communications Center uses a modified APCO based system that gives both fire first response and EMS transport response suggestions as approved by the Center's Operating Medical Director.	
Response protocols (Number of apparatus and response speeds) are designed to minimize community risk by differentiating between emergency and non-emergency calls.	The dispatch protocols are divided into Priority 1 and Priority 3 responses. The type and number of responding units is dependent on the specific call type and priority. No response mode is suggested. CARS policy does limit some responses to non-emergent (no red lights or siren).	

Performance Target	Strengths	Potential Improvements
EMERGENCY OPERATIONS		
Command staff and company officers are trained in an Incident Command System (ICS), National Incident Management System (NIMS) or comparable approach.	Yes. The training level is consistent in the City, County and University by policy.	
The Squad conducts periodic training exercises that include ICS incident simulation.	The squad participates in regional disaster exercises and obtains its own outside evaluators to help advise on strengths and weaknesses.	
Officers and EMTs conduct after action discussions and produce after action reports on all major emergencies	The regional Incident Command System policy specifies the types of incidents that require after action reports. Less significant incidents are frequently evaluated on an informal basis, but some could benefit from a more structured evaluation process. All significant technical rescues are documented fully and reviewed by a member of the state fire heavy and tactical rescue team.	
EMERGENCY MEDICAL SERVICES		
The Squad has a board certified emergency medical physician as its Medical Director.	CARS has two board certified Emergency Medicine physicians as its medical directors, and both are approved by the Virginia Office of EMS as required by the Rules and Regulations.	
The Medical Director prepares and periodically updates written medical protocols for the Squad.	Patient Care protocols are region based, and are periodically reviewed and updated on a regional basis.	

Performance Target	Strengths	Potential Improvements
The Squad provides in-service EMS training programs for its members as specified by the Medical Director and by state directives.	Yes. The TJ EMS Council provides Basic life Support continuing education as set forth in state requirements. The pre-hospital coordinators of the University of Virginia Medical Center do the same for Advanced Life Support providers.	
The Squad has an automated system to track the training and certification records of its EMS personnel.	Both TJEMS and UVA track provider training. CARS has access to the states provider data base. CARS is starting to utilize the County's Fire RMS system for personnel records, which will include training records.	
The Squad expedites the delivery of cardiac response and advanced EMS care by deploying ALS personnel on engine companies.	This is not the purview of CARS, but CARS favors ALS engine companies as a system component.	
The Squad monitors and analyzes response times for EMS calls as follows: (1) BLS (basic life support) response within 4-minutes for 90% of calls; and (2) ALS (advanced life support) response within 8-minutes for 90% of calls (as measured by travel time).	CARS operates within a system, and, again, does not have access to CAD data for such evaluation. An agency other than CARS may be the first to arrive and we have no way to track these times absent a manual record search. Even ACFRD cannot pull this information without several distinct manual steps in processing the CAD data. It is somewhat easy to determine the arrival of the first BLS provider on priority calls because all first responders are BLS. The arrival of the first ALS provider is more difficult because (with the exception of Engine 111) a particular engine may or may not be an ALS engine and this is information not tracked. City fire EMS responses are 37% less than 4 minutes, 82% less than 6 minutes, 96% less than 8 minutes.	

Performance Target	Strengths	Potential Improvements
The Squad has an automated EMS incident reporting system.	No. See portable computers below.	
EMS providers have portable computers that enable them to complete reports on-scene and automatically upload reports to hospital and agency records systems.	No. CARS purchased such devices and associated hardware more than 5 years ago for over $30,000.00. In three months 8 of 11 devices had been damaged beyond repair, hardware issues caused the loss of numerous patient records, narrative patient assessment and treatment documentation became poor, the 'check-the-box' system utilized required you to fit your patient into the preselected categories (even if the patient did not fit), and the time it took to document a call became extended rather than shortened. Three months worth of patient data was subsequently lost to system failure. In other words it was a medico-legal and financial disaster. These same issues are still present in the system being piloted by ACFRD.	
The Squad has a quality assurance and improvement program to provide timely feedback to employees and to identify protocol and training needs.	Yes. All BLS transports are reviewed by TJEMS staff, and all ALS transports are reviewed by UVA staff. Any person in the system may request review of a patients care. These are investigated and reviewed by a committee and the medical directors.	
The Squad has established a goal of reviewing a percentage of its run reports and discussing the report with the responders.	See above.	
The EMS records management system facilitates the conduct of quality assurance reviews.	No. But see portable computers above. While ostensibly the best argument for these systems, garbage in-garbage out (in other words, how accurate is the data in the electronic system if the patient MUST fit in categories?).	

Performance Target	Strengths	Potential Improvements
The automated EMS incident reporting system supports state reporting requirements and the production of an annual report.	State reporting is supported through the in house system. ACFRD generates a joint annual report.	
The Squad uses an Electronic Patient Record (ePCR) system to record patient data.		No.
Emergency Medical Dispatch (EMD) procedures are used to drive response decisions for EMS calls for service (Emergency / non-emergency).	No. Priority 1 and 3 are categorized. CARS internal policy makes some Priority 3 responses non-emergent.	
Emergency Medical Dispatch (EMD) procedures are used to provide callers with pre-arrival care instructions.	Yes. The center medical director approves pre-arrival instructions.	
The Squad supports citizen "self-help" programs by locating defibrillators in high-risk areas and by providing AED and CPR training.		No. Interested persons are referred to the UVA Life Support Learning Center which has personnel to help advise on equipment and to train persons to operate the equipment.
TRAINING		
The Squad has a training budget to provide both in-house and outside training for its rescue and EMS personnel.	Yes.	
The Squad has full time training officers.	No.	
The training officer creates monthly and weekly training schedules rescue and EMS training.	No. Monthly EMS training is scheduled by TJEMS or UVA. Rescue training is provided at a team-based level by each team. The squad provides monthly operational training.	
The EMS training programs is designed to meet state re-certification requirements.	Yes.	

Performance Target	Strengths	Potential Improvements
Career and volunteer personnel serving in the same stations are engaged in some joint training activities.	Yes.	
The Squad has an automated system to track training attendance and certifications.	CARS is starting to utilize the County's Fire RMS system for such purposes.	
Training instructors meet EMS training certification requirements.	Yes.	
Shift commanders conduct monthly multi-company drills on both the day and night shifts.		No.
Company officers conduct training activities on both the day and the night shift.	No. As the call volume increased shift training became impossible. However, the training officer is attempting to develop a new program for such purposes.	
The Squad closely monitors EMS recertification requirements.	This is usually tracked by TJEMS and UVA. If someone is close to expiring without having the necessary requirements we will be notified.	